

COVID-19: Lesson learnt and using technology to possibly mitigate the pandemic and other viral infections

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ABSTRACT

COVID-19 has made its unexpected entrance into the world sometime in late 2019 causing much fear, economic disasters, suffering, and fatalities throughout the world. This paper examines the pandemic and introduces an aggressive intervention and strategy, for humanity should not let themselves be sitting ducks waiting for the virus to attack, and some possible technological methods for mitigating COVID-19 and other viral infections.

Keywords: virus, pandemic, heating equipment, air-filters, micro-biology, disease prevention

INTRODUCTION

In this section, an overview or gist of the COVID-19 situation is presented, with the problems encountered, which need attention, highlighted.

COVID-19 spreads contagiously through physical contact, and, by air making the wearing of face-masks for preventing the spread of the virus more or less a necessity. There are apparently many delusory people who prefer to view COVID-19 as similar to the common flu and should be regarded as nothing more serious than the common flu, whereby they end up paying a heavy price by falling seriously ill, or even die, due to the virus.

Over-crowding also appears to cause the virus to spread quickly and easily. As we are all social beings, gathering in groups is desirable but this would help to hasten the spread of the virus. In this respect, the virus has put a damper on social interaction and gatherings. People could not go to the office and work because they might catch or spread the virus in groups there, they could not gather in big social groups such as parties and weddings, they could not travel freely for fear of catching or spreading the virus, and so on. Humanity appears to have lost to the virus in many ways.

The elderly, and even the very young, whose immune systems tend to be weak, are particularly vulnerable to infection by the virus, and, if infected it could be fatal for them.

Many people have already been infected by COVID-19, with many deaths and serious side-effects caused by the virus. For instance, official records have shown that more than one

million of the five million or so population of the author's country (Singapore) have been infected by COVID-19, but the figure is most likely much higher as there have been many self-test and self-isolation infection cases, which are not officially recorded, including those who are infected but do not show any symptoms of infection. There is a palpable fear of the virus, which affects everyone's daily life and activities. It is apparently everyone's wish to have a way out of all this suffering and misery.

Many countries have relaxed their COVID-19 controls and let their guard down resulting in second, third or more waves of the infection. As the virus seems adamant to stay and refuses to go away, COVID-19 would become endemic, a new normal, similar to the common flu, dengue, etc.

Though now practically all countries, including China, which until recently with its stringent zero-COVID-19 policy was very strict about lock-downs to prevent the spread of COVID-19 infections, have treated COVID-19 infections as endemic, that is, people have to live with COVID-19 as though it is a common infection like, for example, influenza, there are still many people infected by COVID-19, with the latest more virulent variant, the Arcturus, having spread very quickly through India, the UK, even the author's country (Singapore), etc. As long as the COVID-19 virus is not suppressed and is allowed to roam freely COVID-19 infections would continue to multiply and spread and might develop into more and more virulent strains and cause even more harm. With countries opening their borders and allowing free travel without COVID-19 testing, social distancing and face-mask wearing, the COVID-19 virus has even more opportunities to cause further damage.

Though countries may declare that COVID-19 infections are now endemic, whereby people have to accept and live with the virus, there is apparently still fear and nervousness that a new wave of infections caused by a more virulent strain of the COVID-19 virus would cause much more harm and fatalities, thereby forcing countries to re-impose restrictions such as COVID-19 testing, social distancing, face-mask wearing, lock-downs, etc., for instance, the latest more virulent Arcturus strain of the COVID-19 virus, which is 20% more contagious than the prior strain, has forced several states in India to re-impose lock-downs.

Though the World Health Organization (WHO) has just declared an end to the COVID-19 emergency on 5 May 2023 after three and a half years, they also warned that the virus is still active and people should still be wary of the virus.

This paper addresses the above issues and posits several methods for settling them [1-5].

METHODOLOGY: MITIGATING COVID-19 AND OTHER VIRAL INFECTIONS

It should be noted that while vaccines are an important part of mitigating the spread of COVID-19, relying solely on vaccination to achieve herd immunity is not a guaranteed or certain solution. Vaccines may not be 100% effective, with there being concerns about vaccine hesitancy and vaccine inequity, especially in developing countries. Thus it is necessary to complement vaccination with some other techniques, for example, the measures for mitigating COVID-19 suggested here.

Humanity should not allow itself to be sitting ducks waiting for the virus to attack, seeing how aggressively the virus has been contagiously attacking them; they should find ways to counter-attack the virus, and stop it from infecting them. In fact, to admit that COVID-19 would be endemic and would be the new normal is to admit defeat by the virus.

Many countries, e.g, Malaysia, the author's country (Singapore), the UK, the US, etc., have been getting their people, especially the elderly and vulnerable, vaccinated against infection, if possible the whole population, so that there would be herd immunity, so that the various restrictions imposed to stop the spread of the virus could be eased and life could return to normal. But there are many problems in this move, for example, not enough doses of the vaccine to go round, people who refuse to be vaccinated due to lack of confidence in the vaccines, fear of side effects, infection even after partial or full vaccination, re-infection, etc. [3].

For hotter climates, for example, in countries such as Africa, Thailand, Vietnam, etc., which have tropical or sub-tropical climates, COVID-19 infections and casualties are relatively much lower than those in the colder countries, for example, Canada, France, Iran, Italy, Sweden, the UK, the US, etc. It has been found that the hotness of the tropical and sub-tropical countries puts a damper on or kill the viruses while the cold of the colder countries encourages their survival and proliferation.

The following measures, on top of the other measures in use, are suggested for mitigating COVID-19 and other viral infections at the same time:

(1) "Heating" equipment for reducing or eliminating infection by inactivating or killing the virus might be more practical for colder countries, especially in winters, besides keeping people warm. As the viruses could not survive at high temperatures, "high temperature generating" equipment, for example, hot-air blowers for both indoor and outdoor, might be viable for use against the virus. Evidently, the viruses could not withstand heat. A recent experiment in a French lab found that the viruses became inactive when the temperature was high; but the viruses died only when the temperature was near boiling point. This might explain why tropical or sub-tropical countries such as Africa, Burma, Thailand, and Vietnam have relatively much less COVID-19 infections and casualties than colder countries such as Canada, France, the UK, and the US. However, the use of "heating" equipment should be properly regulated to prevent unintended consequences such as fire or other heat-related hazards.

(2) COVID-19 is also an air-borne disease. This means staying indoors may not be safe. For example, a gust of wind carrying the viruses blowing into the house or anywhere in the environment may infect people with the viruses. This might explain why many residents in nursing homes in the author's country who have not ventured out of the nursing homes have become infected by COVID-19. Also, the home-bound elderly mother of the author's friend, whose family members have not been infected by COVID-19, has herself surprisingly been infected by COVID-19. Vaccines provide the cure. Prevention is evidently better than cure. For prevention, there are disinfectants and UV lights, which kill the virus, detergents, face-masks, face-shields, etc. However, it could be better to have air-filtering equipment, for both indoor and outdoor, which suck in air, filter away the viruses and other harmful substances from the air and release virus-free, clean air into the environment. Someone, who is probably an inventor, has been heard saying that he is attempting to make such an equipment, and this is certainly a good preventive method. This could be the most effective way of fighting COVID-19 if the equipment were available. Such air-filtering equipment might also be suitable for simultaneously filtering away other types of air-borne viruses and bacteria, for example, those that cause influenza, pneumonia and tuberculosis, which would be "killing more than one bird with one stone". In the author's country, a company has of late advertised their home air purifiers, which they claim are capable of filtering away viruses and bacteria. It should be noted that air-filtering equipment, though apparently a more viable solution, could be expensive and might not be accessible to everyone. Also, more research might be needed to study the efficacy of such equipment in preventing the spread of COVID-19, though such equipment apparently have great potential for achieving this objective [6].

(3) The idea here might seem far-fetched, but it might work. It is said that there are plenty of "good" and "bad" bacteria in the human body, for example, in the guts; the

“good” bacteria in the body fight the “bad” bacteria and prevent the latter from causing harm to the body. Likewise, it might be possible to have “good” viruses or bacteria to fight and neutralize COVID-19, inside and outside the human body. More research is needed to determine the feasibility and safety of this method, which apparently has great potential for mitigating the spread of COVID-19. It is to be noted that caution should be exercised when considering unconventional methods for mitigating COVID-19, with scientifically proven methods being given priority whenever possible.

Developing the above-mentioned technologies to mitigate COVID-19, besides requiring finance and technical expertise, also requires time. The sooner they are worked on the better it would be as COVID-19 is still continuing to give trouble. They would also be useful for preventing or averting future outbreaks, epidemics or pandemics.

RESULTS AND CONCLUSIONS

Vaccines might not be effective especially if the virus could mutate or change very quickly and become resistant to them quickly, now that they are available, which might explain why there are fully vaccinated people who still get infected by the virus. In fact, there have been many cases of re-infection despite the re-infected having received their COVID-19 jabs, with a number having been re-infected more than once. All this shows that COVID-19 vaccinations might not be effective in preventing COVID-19 infections. Though vaccines are important for the cure and vaccinated people would not fall so ill if infected by the virus, prevention from infection should take precedence as infection might cause serious problems such as multiple organs failure if not death and a weakened body even if the person recovers - people who recovered from COVID-19 might suffer from “long COVID-19” symptoms such as fatigue, hair loss, loss of smell and taste, etc. Vaccines should therefore be complemented by the above-described measures for mitigating COVID-19 since they (vaccines) are not fool-proof against COVID-19 infections.

Face-masks are also not fool-proof against the virus. When a person breathes through the mask, unfiltered air also gets breathed in from the sides of the face-mask. Air is fluid and it travels in all directions. The virus through transmission by air could land on any part of the person’s body, in fact anywhere, and is thus able to infect many people within a short time, that is, it is very contagious. This is when air-filtering equipment, which is described above as one of the measures for mitigating COVID-19, would play an important complementary role to face-masks – air-filtering equipment in purifying the air and making it free of viruses, bacteria and other impurities could render face-masks redundant.

Many people have been infected by COVID-19 and many have died because of it. Vaccinations and masks, though important, are only defensive weapons against the virus. They do not attack and eradicate the enemy, which is the virus, *allowing it to continue causing trouble*. More aggressive and offensive methods should be used, such as the three methods suggested in the paper, in order to eradicate or get rid of the virus, which has been causing much harm and deaths, in order

to stop the virus from contagiously infecting more people. This might be easier said than done but this, if carried out, could effectively put a damper on COVID-19 infections. However, vaccinations are evidently for strengthening the body against/curing the body from COVID-19 infection only, while the methods suggested in the paper are for preventing COVID-19 infection – there is a world of difference between the two. A more preemptive and preventive measure against the virus should be adopted to stop it from causing further harm and deaths.

The best defence against the virus, wherein viral infections have been serious in many countries appears to be more aggressive intervention or more offensive action against the virus. The reason also, besides stopping the virus from contagiously infecting more people, is that if the virus is not eradicated and allowed to survive and thrive it could mutate into a stronger, more dangerous, more contagious virus (as has already happened, with there being several new, more contagious strains of the virus), whereby it would become harder, possibly impossible even, to eradicate, with the COVID-19 situation becoming more intractable as a result. In the past, when the bird flu outbreaks occurred, hordes of fowls infected by the bird flu were quickly rounded up and culled, thereby eradicating the bird flu virus and ending the outbreaks. Humanity could not do the same to its own kind. The above-mentioned suggested methods of eradicating the COVID-19 virus could be regarded as the next best alternative.

Whatever steps have been taken to counter the viral infection so far, the virus has apparently been able to counter-block, mutate and become more contagious, causing consternation and fear. A better strategy is apparently required for containing the virus, as in a game of chess against a chess opponent, or, in a war against the enemy.

Should the infections and deaths caused by COVID-19 be treated as normal and be allowed to continue? Should people continue to live in fear of the virus? What about counter-measures, like those suggested in this paper, which could rectify all this? Soldiers win battles by advancing and killing their enemies and not by staying put and allowing their enemies to attack; team sports players win matches by charging forward and scoring goals at their opponents’ goal-mouth and not by staying put and allowing their opponents to charge at them and score goals at their own goal-mouth. In the battle against the virus the same principle should apply.

It is important to note that the world is apparently still not out of the woods yet, where COVID-19 is concerned after three and a half years now though many countries have already relaxed COVID-19 controls and let their guard down, with the latest more virulent Arcturus strain forcing some states to resume lock-downs as is described above, and, with the UK, for example, recently getting its residents to wear face-masks again. To have some idea of how bad the COVID-19 situation has been, see the following statistics obtained from the WHO coronavirus (COVID-19) dashboard: As of 26 April 2023, there have been 764,474,387 confirmed COVID-19 cases, including 6,915,286 COVID-19 deaths, with a total of 13,342,550,736 doses of COVID-19 vaccine having been administered as of 24 April 2023. These are the reported cases; if the many unreported cases such as those who have been infected by COVID-19 but have carried out self-isolation without

consulting a doctor and those who have been infected by COVID-19 but have been asymptomatic or have shown no symptoms of infection are included the number of infections and fatalities could be much higher.

There should thus be a pro-active, aggressive, mindful way of tackling the COVID-19 pandemic as well as other viral diseases. The three suggested methods of mitigating the spread of COVID-19 and other viral infections presented above should therefore be seriously considered. While the important measures such as vaccination are defensive, these three suggested methods are aggressive, offensive and preventive, as is described above, the two sets of action complementing one another, which is important.

Prevention is evidently better than cure for COVID-19 infections could have serious consequences such as physical and mental problems and possibly death, for example, physical complications, anxiety, etc. Hence, aggressive preventive measures could have been taken to mitigate COVID-19, which however are apparently lacking. Instead of fighting COVID-19 head-on via aggressive preventive measures like those suggested in the paper, people have been instead just asked to take refuge from COVID-19 via lock-downs, cessation of work at the office, cessation of social activities, cessation of travel, etc., and get COVID-19 vaccinations for protection against the virus, with merely some disinfecting work carried out at places visited by the infected to prevent the spread of the virus. People might hide from the virus by staying at home, but the virus could easily enter their homes, for example, by being carried into homes via a gust of air current or wind as is explained above. The apparent solution here is to destroy the virus, for example, by utilising the methods suggested in this paper, and not just getting people to hide or run away from the virus like frightened chickens (which is merely a precautionary measure) and have COVID-19 vaccinations for protection against the virus, leaving the virus alone and allowing it to survive, grow more powerful and cause further harm. It appears possible to eradicate COVID-19 just as past scourges such as poliomyelitis and tuberculosis have been eradicated.

The question on everyone's mind now is likely to be "Is COVID-19 really over since the WHO has just declared an end to the COVID-19 emergency?", people being by now apparently COVID-19 weary. However, though the cases of COVID-19 infection have apparently stabilised, the virus is still active and people should continue to be on guard against the virus as the WHO has warned. Nevertheless, an important lesson should have been learnt from the COVID-19 pandemic so that future outbreaks could be better dealt with or

mitigated, for example, with the measures suggested in this paper [7-10].

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