

Second Wave of COVID-19 - Could it be More Lethal!!! - Novel 6 T's Strategies May Help

Mayank Vats^{1*}, Bassam, Mahboub² and Walid Mahmood²

¹Senior Specialist, Department of Pulmonary and Sleep Medicine Rashid Hospital, Dubai, UAE

²Consultant Pulmonologist, Department of Pulmonary and Sleep medicine Rashid hospital, Dubai, UAE

***Corresponding Author:** Mayank Vats, Senior Specialist, Department of Pulmonary and Sleep Medicine Rashid Hospital, Dubai, UAE.

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Corona virus, etiological agent of COVID-19, was first detected in the city of Wuhan, China, in late 2019. It then spread quickly across the globe with resultant huge numbers of cases approximately 10 million in more than 214 countries and with a death toll of more than 4,99,000 people [1]. In a short span of 5 months and these numbers are exponentially on the rise and seems uncontrollable [2]. This pandemic has caused a significant turmoil in almost every sphere of every individual's life across the globe, from health, economic and social perspective.

Simultaneously COVID19 stressed the whole world not only from health care perspectives and mortalities but also huge financial crisis and economy breakdown and recession. The cost of the coronavirus pandemic could be as high as \$4.1 trillion - or almost 5% of global gross domestic product - depending on the disease's spread through Europe, the US and other major economies as per the estimates Asian Development Bank [3].

The global economy could shrink by up to 1 per cent in 2020 due to the coronavirus pandemic, a reversal from the previous forecast of 2.5 per cent growth, the UN has said, warning that it may contract even further if restrictions on the economic activities are extended without adequate fiscal responses [4]. The analysis by the UN Department of Economic and Social Affairs (DESA) said the COVID-19 pandemic is disrupting global supply chains and international trade. With nearly 100 countries [4].

Authorities in many countries are drawing up plans for how to cope with a resurgence in outbreaks even as they slowly work to reopen businesses and resume other activity halted to combat the pandemic. But public health officials in the US said they are worried as about half of states ease their shutdowns, with cell phone data showing that people are becoming restless and increasingly leaving home.

Worldwide after a prolonged period of lockdown, due to significant drop in economy, most of the countries has ease down the lock down or reopening the cities in baby steps like reopening of shops, malls, restaurants, parks, pubs and public areas. But as a COVID, front line physician, I suggest that we must continue the lockdown for longer period, because "economy is not as important as a human life".

This is not happening in USA only, but worldwide the population has suffered a significant stress due to prolonged lockdown and the fear and stress of COVID infection hence its very likely that there would be more of social interactions among people leading to potential spread of corona virus again and if it happens it would be VERY BIG SECOND HIT on the global health and economy and each and every aspect of human psychosocial life which could become even out of control if necessary steps not taken timely and efficiently manner.

A second wave may not arrive and some epidemiologists, such as Prof Sir Hugh Pennington, believe the COVID-19 will not come in waves as the Spanish flu did, but The Spanish flu pandemic of 1918, infected an estimated 500 million and killed an estimated 20 to 50 million victims globally.

Second wave is not a theory, but a reality that many nations, which have already crossed the peak of COVID-19 pandemic, might have to grapple with in the coming years (if not months). And this is not the first disease that can have follow-up waves. The 1918 - 1919 Spanish influenza pandemic (the deadliest in history) had a similar trajectory. The first outbreak occurred in March 1918, which subsided in the summer months. A far deadlier second wave started in the fall months in 1918, followed by a third wave in winter-spring 1919. An estimated 500 million were infected and Fifty million died during the Spanish flu pandemic, and though that flu is not the same as COVID-19, that pandemic does indicate how another one caused by a different virus can pan out [5].

The first wave of the Spanish flu pandemic occurred in the spring and was generally mild such typical flu symptoms as chills, fever and fatigue, usually recovered and reported deaths were low. However, a second, highly contagious wave of influenza appeared with a vengeance in the fall of that same year. Victims died within hours or days of developing symptoms, their skin turning blue and their lungs filling with fluid that caused them to suffocate [6].

The first wave of COVID-19 has already claimed over 499,000 lives, and most parts of the world haven't even crossed the first wave's peak.

Japan, similarly, witnessed a new wave of infections in April. A study conducted by Japan's National Institute of Infectious Diseases said at the time that this was due to reinfections from people coming back from Europe and the US. The study also suggested that Japan is likely to witness even a third or fourth wave of the infection if epidemic control measures are relaxed [5].

This is the reason why epidemiologists and researchers are claiming that a second wave of the COVID-19 pandemic can have even more devastating effects. A study published in Disaster Medicine and Public Health Preparedness in May 2020 even insists that governments thinking about easing lockdowns and restrictions right now should also prepare their healthcare systems for the second wave simultaneously.

What factors can spur a second wave?

Yet many believe there is a serious risk that COVID-19 will either remain endemic with local outbreaks or come back harder as a second epidemic.

Iran reported its highest number of daily coronavirus infections in two months, a surge that nears March's peak levels and suggests the Middle Eastern country struck hardest by the disease is in the throes of a second wave. Authorities reported 3,134 new cases on Wednesday, a 50% increase from a week earlier, according to official government figures. The total number of cases so far is 160,696, including more than 8,000 deaths [7].

American CDC director warned that the second wave could be even more devastating. So, the whole world should join hands and do more efforts and research for Anti- COVID medicine and treatment and vaccine development to fight against COVID-19 and to prevent a second wave of COVID and consequent morbidity and mortality [8].

In India, due to precautionary and early lockdown step the case of corona were very less but with the ease of restriction and reopening of the lockdown cases has increased exponentially. on February, only 3 cases were detected, and then as a result of immediate lock down the number of cases and mortality were very low till April 20th, only 18539 cases were reports but as the lock down was eased, case has gone to 246622 on June 6 and on, 27 June corona cases has risen to 509,446 culminating in more than 15,689 Deaths: Which is very much significant and a great matter of concern.

Ground Clinicians working on the COVID front are already fully exhausted both mentally and physically due to nonstop untiring efforts by them and its really very difficult to work where still the exact pathophysiology of COVID related complications, morbidity and mortality

are not clear, every day guidelines, management protocols, consensus are changing and we don't have satisfactory direction as to where we're heading in coming future, like shooting in the dark, with no hope of effective vaccine in at least coming 6 months and even if gets available then also it would take years to vaccinate the whole world and to make the world free from COVID-19 and zero infections spread in the community globally.

I believe, being a front line COVID physicians, that "More stringent actions and mandatory compliance with social mandatory use of good quality masks and regular hand hygiene, hand sanitation is an absolute necessity to prevent the second wave of COVID-19 to Evolve and cause more destruction.

We suggest USE of 6 T's Strategy globally to control second wave of COVID19:

1. **Test:** All countries must have a practical plan based on their socioeconomic and demographic factors to test all individuals or at least those who are having sign symptoms suggestive of COVID and their contact and then to take necessary steps at utmost priority to prevent the spread of infection.

We need clear views and answers of following issues: Serological tests: different types (rapid strip; ELISA; chemiluminescence) with differing sensitivity and specificity; which serology test is best? Whether antibodies are long lasting and Protective still need to be proven and we don't know yet the role of IgG in virus clearance. Testing of these tests to get best sensitivity and specificity and to test for role and interpretation of IgG and IgM antibodies should be clarified so as to help clinician in decision making.

2. **Trace:** Contact tracing in the last 2 weeks period is especially important to know the possible symptomatic patient or asymptomatic carrier so that those persons could be isolated or quarantined based on the facilities available to break the chain of transmission of infection.
3. **Treatment:** Treatment of the confirmed or highly suspected patients is very important next step to reduce morbidity/mortality and spread of infection in community. Vaccine should be made earliest possible to prevent infection and complications of the disease
4. **Technology (Information and Technology):** Use of high end technology including computer, mobile phone for the official meetings, and implementation of technology in the offices and companies to avoid cross infection and to detect the cases earliest possible. Organizing virtual conferences/meetings/online Sessions/to avoid crowd gatherings and to stop spreading the infection. Working from home should continue wherever possible.

Robots should be deployed in hospitals as an aid to the health care workers so as to avoid health care professionals (HCP) catching infection from the patients and to ease down their work and to reduce the mental and physical stress of health care professionals. These robots could be customised based on the need for the hospital but definitely they would help HCP and reduce the infection in HCP. Including thermal scanner, distribution of medicine and food to patients and to give updated information to them about the COVID disease and also update their clinical status.

5. **Time:** Give time to heal the adverse psychosocial, economic and health related aspects of this deadly disease and all countries took take appropriate actions to help revert back their economy back to normal gradually and improvement in health care services. COVID19 taught a vital lesson to all that health and health care infrastructures are the most important need of humankind above all other needs.
6. **Take proactive precautive measures:** All countries should be categorized as risk- low, medium, high risk regions and the region-specific and risk rating resumption and reopening of the essential shops, malls gardens, schools should be done gradually and controlled monitored way. For example, the low-risk regions means administrative regions with no confirmed cases and without new confirmed cases in the past consecutive fourteen days. So, in different risk regions, there are different strategies. For example, in low-risk regions, the main strategy is to prevent imported cases. In medium-risk regions, the principal strategy is to prevent imported cases and domestic rebound and re-infections meanwhile.

Check of fever for all people entering in malls, shops, hospitals, clinics, ports, airports and stations. Wearing masks, keep social distance of 1.5 to 2 meter and avoid crowd and gathering. Expansion of PCR detection services to find out asymptomatic carriers which may transmit disease to other persons. All of the international travellers and suspicious case must be quarantine for 14 days. Symptomatic and COVID19 positive people should be isolated for 14 days in different designated hospitals or home

At hospital level, we must have careful entry control with scanning for temperature and face recognition for all visitors. Entry and Exit gates could be totally separate to avoid contacts of people. Pre-check triage and fever and flu clinic should continue. The patient should be admitted only after the PCR and chest X ray or CT Scan examination (if needed). Besides above, the anti-epidemic agencies, measures and isolation wards to be kept the ready in case of any outbreak in community, Internet medical services should be strengthened to reduce patient gathering.

For all hospitalized patients and high-risk operations, PCR testing should be done firstly. Personnel training of health care professionals and vigilance is very important with use of PPE (Personal Protective Equipment) in high-risk departments during diagnosis and treatment. Emergency isolation sections should be set up in each ward with strict terminal disinfection. To deal with the unexpected second wave, building new public health emergency hospitals with adequate supply of PPE and other equipment's as needed including ICU ventilators should be arranged to avoid any panic emergency situation. Simultaneously all countries should come together to accelerate the research and development of vaccines and specific drugs against corona virus.

General consideration should include:

- Patient need to be twice tested negative by PCR (24-hour apart) and fully asymptomatic while discharging from hospital.
- If PCR not performed for suspected COVID-19 case, then patient should have mandatory stay at home for 2 - 3 weeks till fully asymptomatic
- Regular high intensity sanitization of all high touch points. Social distancing 2 meters and surgical masks, hand hygiene must be mandatory
- Offices and house should be well ventilated with adequate air exchange and sunlight.

Other important points which must be taken under consideration includes:

1. Strategies to prevent and control 2nd wave of COVID in community and hospitals and strict compliance should be mandatory.
2. Role of hospital reorganization and to provide standard of care testing and treatment capabilities to achieve the best outcome in terms of morbidity and mortality.
3. Experience and learning from the current pandemic and consequent improved proactive plans for the future.

An old saying but still holds true, time is best remedy, consider yr 2020 as a year of safety and survival only. This will eliminate the negative thoughts and over the time we hope that virus will lose its virulence along with development of herd immunity and change of weather all would play a complementary additive role for the reduction in the COVID related issues. Hence pray to god and hope for the best time, BUT always to follow your country rules and regulations against COVID and in general also.

All countries must lay out practical and implementable plans for anticipated second shock wave of COVID as soon as possible with taking well coordinating steps from all authorities from government to a common man.

In fact, "We need a global plan to implement 6T's strategy test, trace, treat, and appropriate extensive use of Technology to avoid spreading the infection again and TIME to get the situation under control as mentioned above and to take proactive precautive measures as preparedness for second wave.

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