

COVID-19 Global Outlook & Strategies

Dr Ahmed Mukhtar

MSc, London School of Hygiene & Tropical Medicine (University of London), MPhil Medicine (University of London), PhD Medicine & Therapeutics (Aberdeen University)

May, 2021



Summary

It is not the end of the game. We are at the middle of the battle field against an invisible enemy. However, we are far more equipped than last year as we have medicines, vaccines and more in-development, control and health measures protocols and resources with more understanding and information of the COVID-19 pandemic and virus. This fight could take us around 2-5 coming years globally as it is impossible to eradicate the pandemic globally for the time being since there are and will be some countries and pockets around the world with COVID-19 infections. We are returning back to our normal life and personal activities with new norms, and we are positive that we will get over COVID-19. We are in the 2nd year of pandemic and every day we learn newer information about COVID-19 pattern as this is a fundamental step to realize COVID-19 nature. The countries that have taken the required measures are continuing vigilance, testing, and contact tracing and vaccination as they are easing control measures and lock downs. The new mutations emerged as a challenge to policy and decisions makers.

It was reported that even with vaccination efforts in full force, the theoretical threshold for vanquishing COVID-19 looks to be out of reach. We are withdrawing the idea that we will hit the herd-immunity threshold and eventually the pandemic will go away for good. The challenge of implementing responsive strategies to manage transmission and highlight the impact of health and control measures implementation between-country inequalities. It is estimated that herd immunity would require around 80-90% of the population to have COVID-19 immunity, either through prior infection or vaccination. Therefore, public is to be advised to get the vaccination. Vaccinated people are very unlikely to suffer asymptomatic COVID-19 infections.

It is worth to mention what US President Joe Biden has said, "COVID-19 must be beaten everywhere, or it comes back to haunt us again." COVID-19 knows no borders. The more people we vaccinate—*everywhere*—the sooner the pandemic will end.

It is mentioned that the geographic separation tends to result in genetically distinct variants. Bollinger reported that: "All RNA viruses mutate over time, some more than others. For example, flu viruses change often, which is why doctors recommend that you get a new flu vaccine every year.

It is reported that most concerning variants share the same mutations, even when they appear on different continents. That may mean that the virus can mutate in only a limited number of ways. However, I believe we have to be cautious that the virus could mutate in various number of ways. We currently have far better knowledge, information and resources than we did before.

In a study, the mental health impact of the pandemic after the initial lockdowns in USA been carried on. The prevalence of depression (39%), anxiety (42%) and psychological distress (39%) were computed from the PHQ-4 scale. Males were more likely to have depression, and females were more likely to have anxiety symptoms.

It was reported that the coronavirus has shown the underlying vulnerabilities of autocracies rather than their strength, while in contrast, democracies are showing their capacity for innovation and adaptation, as one would expect, and signs of renewal, as one would hope. Furthermore, it briefly stated that regardless of jurisdiction, the specific actions many governments have taken to combat the pandemic are ultimately rooted in politics, not science. The pandemic has made politics extraordinarily relevant. The policy makers and leaders are trying between science and economy with its social impacts.

McKinsey & Company reported that to flourish during and after the pandemic, companies need a new set of skills, including social and emotional, advanced cognitive, and digital capabilities.

As mentioned by Department of Economic and Social Affairs of UN regarding World Economic Situation and Prospects (WESP) 2021 warns that the COVID-19 pandemic, which has delivered a heavy blow to economic activities worldwide, may exert devastating long-run socio-economic effects, unless global policy responses can ensure a robust and sustainable recovery. Those actions comprise smart investments in economic, social and climate resilience, revitalization of global trade, avoidance of premature austerity policies.

The COVID-19 pandemic has affected our life and is likely to accelerate the trajectory of the primary forces transforming the global business landscape — globalization, technology, demographics and environment. As companies focus on business continuity, they need to monitor how the pandemic is interacting with these forces and assess the resulting impacts across the organization. The major points are: Globalization: a new regionalism gains momentum, global competition accelerates, demographics: aging catalyzes global rebalancing, and environment: the race against the clock continues.

By now we have successful countries for control strategies and policies to bring COVID-19 infections to very low rate or nearly zero reported cases, whilst others tried are still on moderate and high infections rate despite by implementing vaccination and certain control measures. Nonetheless, the infection rate in not being under control is mainly due to inadequate control implementation and active population dynamic. There are other countries are still suffering high infection rate due to lack of vaccination, new mutants, highly active population dynamic, lack of resources and infrastructure, and in adequate control measures.

It is the time to have a coordinated, comprehensive, and integrated international control measures, vaccination and sharing resources. The individual countries have to be vigilant and check their control policies implementation and deficiencies. Leaders and policy makers need to look at the pandemic picture scientifically with political and economic support. Any country's state of the pandemic infection rate, whether it be good or bad, it could be changed due to certain factors and we have to be ready for the worst scenarios. However, we are highly optimistic that we are going to fight this invisible enemy. Eight global infections pattern have been found.

Index:

Title	Page
Preface	5
Global COVID-19 Control Strategies	6
Major Global Infections Patterns	9
Herd Immunity	14
Vaccination	15
Mutations & Variants	17
Social & Political Impact	19
Economic & Business Impact	21
Outlook	23

PREFACE

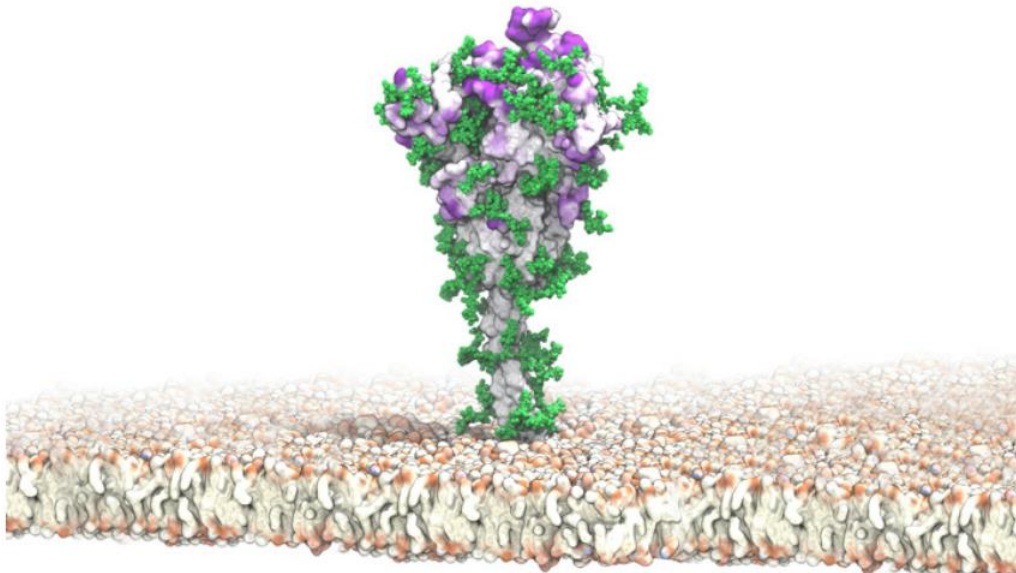
One year has passed for my eBook (lulu.com), published on 2nd June 2020, titled “COVID-19 & Our Life” (1), and my analysis and predictions for COVID-19 based on health, social, economic, business, and political factor were correct. We have to be optimistic and view COVID-19 pandemic at a positive and realistic outlook despite what we have gone through.

A few believe that the pandemic might last within a few months and eventually reach the post COVID-19 state. This statement is used highly inappropriately. We currently have better tools, information, control strategies, vaccines and medicine but still more is needed.

With collective measures and control strategies conducted globally, it is a matter of time that we will get through this pandemic. I expected in my eBook, June 2020, it could take us 3-5 years to obtain good control results globally. Our estimation for global control of COVID-19 pandemic could be similar as in June 2020, however, I do believe we might have 1-2 years more depending on global collective and integrated control strategies.

The balance between health and economic status and effects have taken the leaders around the world to plan the COVID-19 control strategies based on each country.

In comparison to last year (year 2020), we do have better knowledge, information, data and experience of COVID-19, but there are a lot to be learned and experienced.



This is not a painting, rather than it is created by advanced 3D simulations of the spike protein in action that crowns SARS-CoV-2, the coronavirus that causes COVID-19. This protein has settled here into one of its many possible conformations during the process of attachment a human cell before infecting it. (2)

GLOBAL COVID-19 CONTROL STRATEGIES

In 2020, a survey was of a cross-sectional, online, purpose-designed aimed to analyze the views of health system staff, tapping into their personal expertise on how the pandemic was initially handled. The countries formed an emergency task force, developed communication channels to citizens, organized health services to put the needed and appropriate control measures. Some countries did this better than others. It was found several significant differences between the WHO regions in how they are tackling the pandemic. (3)

COVID-19 control strategies are different for countries. Now the picture is getting clearer to assess the control strategies. In general, it seems some countries, vaccination including collective control measures are reasonable approach.

Following are some selected countries with different control strategies measures as ost are successful ones except Sweden as Control Strategy Change Case):

Vietnam:

The response to COVID-19 has been exceptional, and although some of its success derives from the country's unique context. Following are some early approaches taken:

- Investment in a public health infrastructure. (4)
- Early action, ranging from border closures and masks to testing and lockdowns
- Thorough contact tracing can help facilitate a targeted containment strategy
- Quarantines based on possible exposure, rather than symptoms only, can reduce asymptomatic and presymptomatic transmission.
- Clear communication is crucial.
- A strong whole-of-society approach engages.

New Zealand:

The leaders have taken an elimination strategy as an essential approach. This approach also been applied by Australia appear to have joined a small group of countries and jurisdictions pursuing an explicit, or implied, elimination goal, albeit by different strategies. Others including mainland China, Hong Kong, Taiwan, South Korea, Vietnam and a number of small island states and territories. Countries can prevent disease and death from COVID-19. They been able to move from managing ongoing pandemic transmission within their populations to have strategic choices about prevention and control options such as vaccines and therapeutics as they become available. (5)

Sweden (Control Strategies Change Case):

The government by early days of the pandemic. At the beginning of the COVID-19 pandemic, took an alternative route to battle the virus. Instead of lockdown, closing schools and social spaces, they relied on citizens' common sense and willingness to follow social distancing rules. As the death rate from COVID-19 is now higher, the government took new measures to control the virus as it closed its borders with Norway and Denmark and the King then asked Swedes to wear face masks in public for the first time, such as on public transport. (6) In a study that was focused on the Swedish case to quantify the effect of a lockdown on COVID-19 infections and deaths. It was found that: The effect to be sizable and robust across specifications: it ranges from -27% to -77% for infections and from -26% to -82% for deaths, and the actual adjustment of mobility patterns in Sweden suggests there has been substantial voluntary social restraint, although the adjustment was less strong than under the lockdown scenario. (7)

Australia:

In early days, the Federal government responded quickly closing international borders and implementing a mandatory home isolation program for returning Australian citizens. The returned travelers were checked by police for adhering to quarantine requirements. Mandatory hotel quarantine system was applied in which hotel rooms were often guarded by police or military. The states and territories also temporarily shut their borders down. Australia's lockdown restrictions and behavioral safety protocols were also enacted swiftly. These actions have allowed Australia to reach zero cases at certain stages of the pandemic. (8)

Israel:

Israel is currently one of the highest countries in the world for COVID-19 vaccination. Katie Wrenn, an epidemiologist at GlobalData, comments: "Israel's smaller geography, smaller population size, and a large digitalized medical system has given the country an advantage in speed of vaccination. This indicates that regions with less-structured healthcare systems may take much longer to implement such a program. (9)

In a separate study it was mentioned that preliminary findings show evidence of the effectiveness of vaccines in preventing severe cases of COVID-19 at the national level in Israel and it was reported that the receipt of COVID-19 vaccines by eligible persons can help limit spread of disease and potentially reduce the occurrence of severe disease. (10)

USA:

The diagnosed cases been reduced sharply from as high as more than 260,000 on 9th January 2021 to around 50,000-80,000 cases per day from 14th April. In this regard, vaccination ratio been increased, and public awareness increased. (14)

It is now more than 32 million people have been diagnosed. As the vaccine is administered, it is likely to be some time before most Americans have access, and infections, hospitalizations and deaths are expected to increase. (12)

CDC as stated will implement activities using a phased approach to the pandemic that accounts for immediate and long-term public health needs, including anticipating and preparing for future global public health emergencies. (13)

The goals of CDC's strategy for global response to COVID-19 are to:

1. Limit transmission of COVID-19;
2. Minimize the impact of COVID-19 in vulnerable populations;
3. Reduce specific health threats that pose current and future risk to the United States;
4. Increase the scientific knowledge about SARS-CoV-2 (the virus responsible for COVID-19) and provide global public health leadership; and
5. Support the development of long-term health security in low- and middle-income countries.

UK:

UK succeeded in reducing COVID-19 infection as strict periodical measures implemented with gradual easing upon updated data. As May 17, 2021 several measures will be eased. The clear path and gradual easing of control measures in addition to vaccination have resulted in significant reduction in reported infection numbers as it was more than 60,000 on 6th January, 2021 and then decreased to around 2000-30000 cases daily in first week of May, 2021. (14)

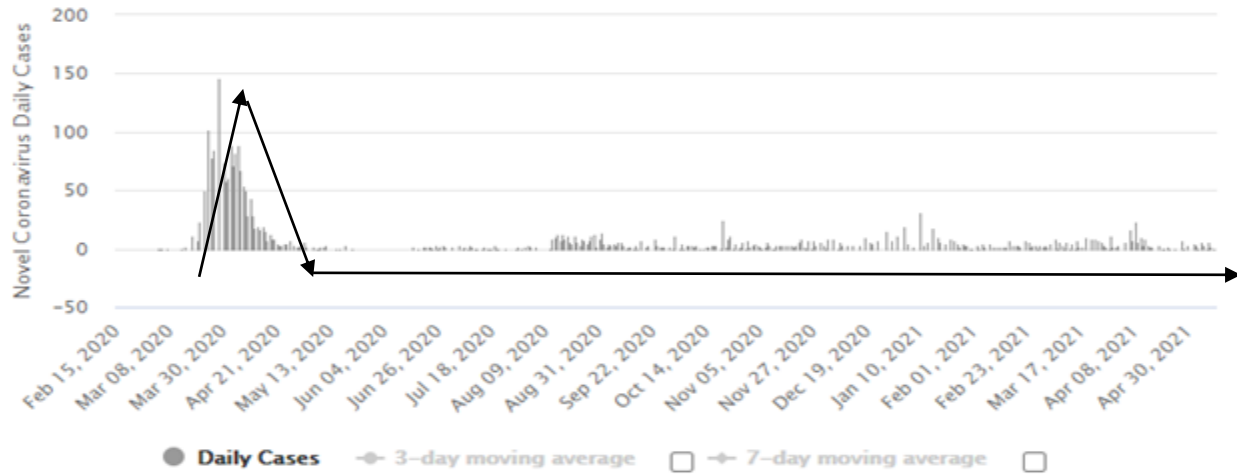
China:

It is the first country to report COVID-19 cases. The government taken swift and prompt action to control pandemic. Strict lock down upon centralized epidemic response system. Only 3% of China's elderly population live in care homes, whereas in several western countries, such facilities have been major sources of infection. (15)

It was reported by Li Bin, deputy head of the National Health Commission, told a press conference in Beijing "China has endeavored to steadily increase its vaccinated population," said Li, noting that a total of 15 supervisory groups had been dispatched to provide guidance across the country. (16)

Major Global Infections Patterns:

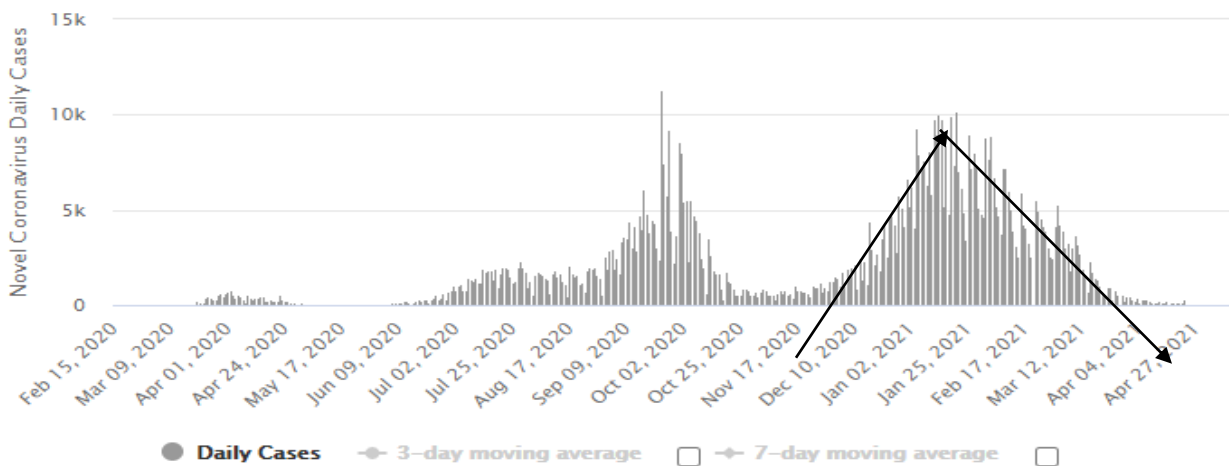
Pattern 1: China, New Zealand, Australia, Singapore & Vietnam



Pattern 1 Daily Infections

- The pattern shows direct decrease to very low or zero point. The control strategies based on swift control and strict lock down measures.

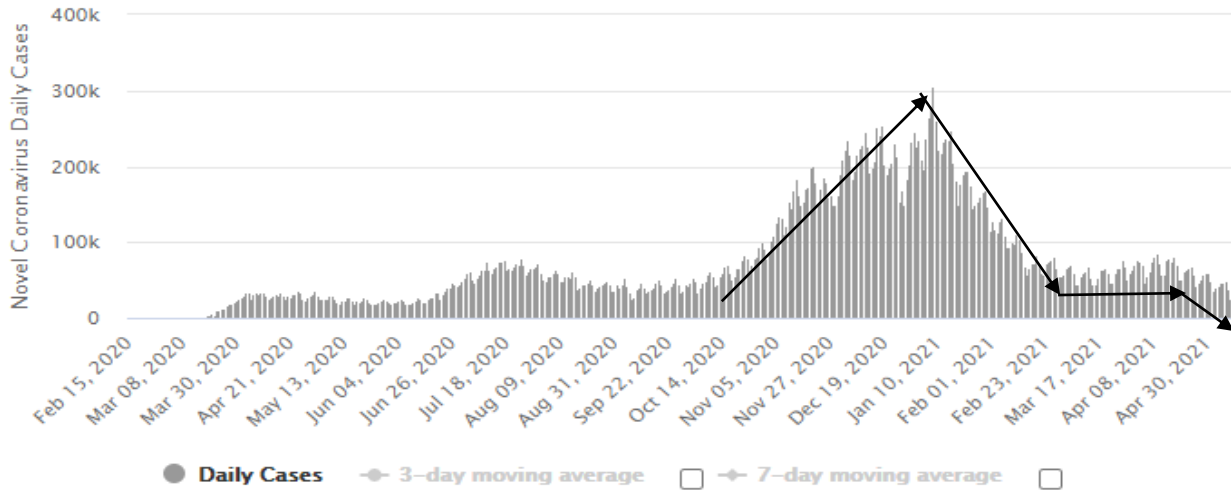
Pattern 2: UK and Israel



Pattern 2 Daily Infections

- This pattern shows sharp decrease in reported infection rate after 2nd / 3rd wave due to gradual control measures and high vaccination rate.

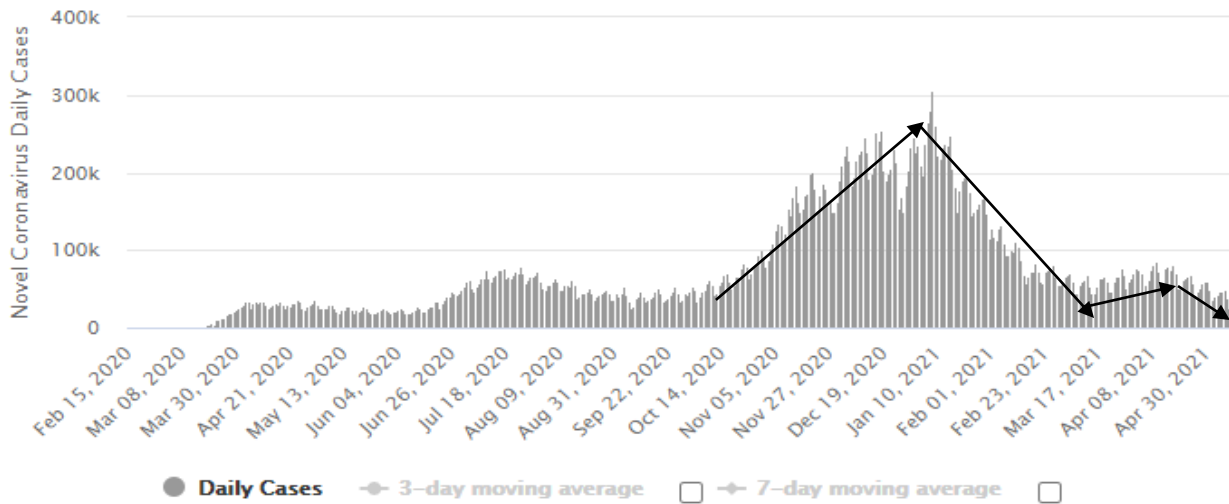
Pattern 3: USA



Pattern 3 Daily Infections

- This pattern shows high vaccination rate combined with selected control measures upon different states combined with different active population dynamic.

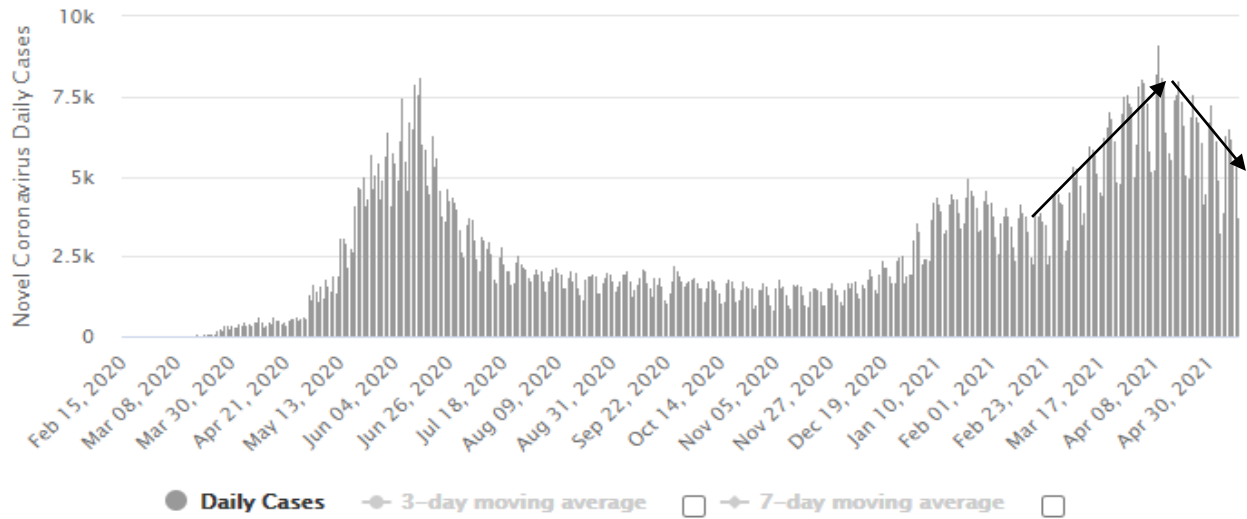
Pattern 4: France, Italy, Germany and Spain



Pattern 4 Daily Infections

- The pattern shows ongoing vaccination at moderate rate combined with gradual control measures affected by active population dynamic.

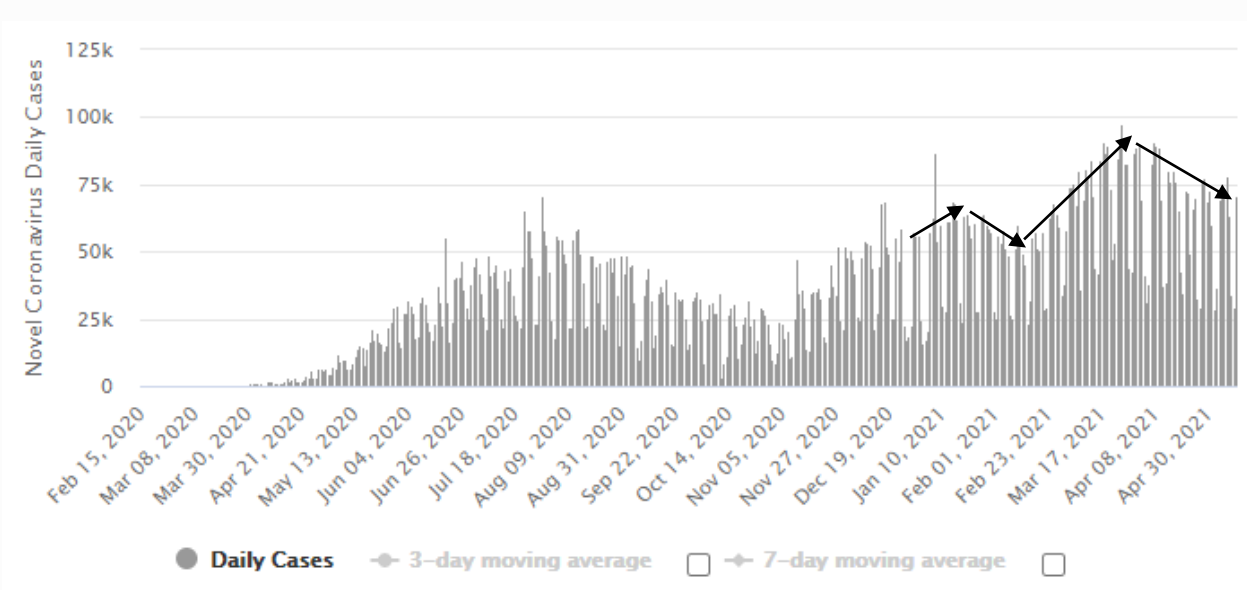
Pattern 5: Chile and Seychelles



Pattern 5 Daily Infections

- This pattern shows ongoing high infection rate despite high vaccination rate but low control measures implementation and active population dynamic.

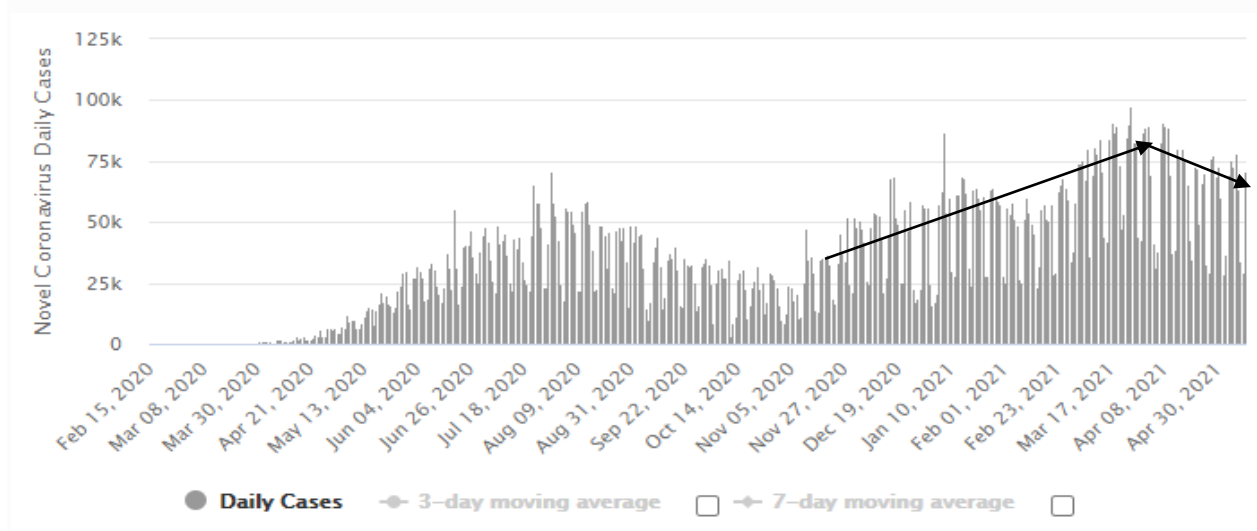
Pattern 6: Brazil and Columbia



Pattern61 Daily Infections

- The pattern shows ongoing high infection rate with low vaccination rate and control measures implementation.

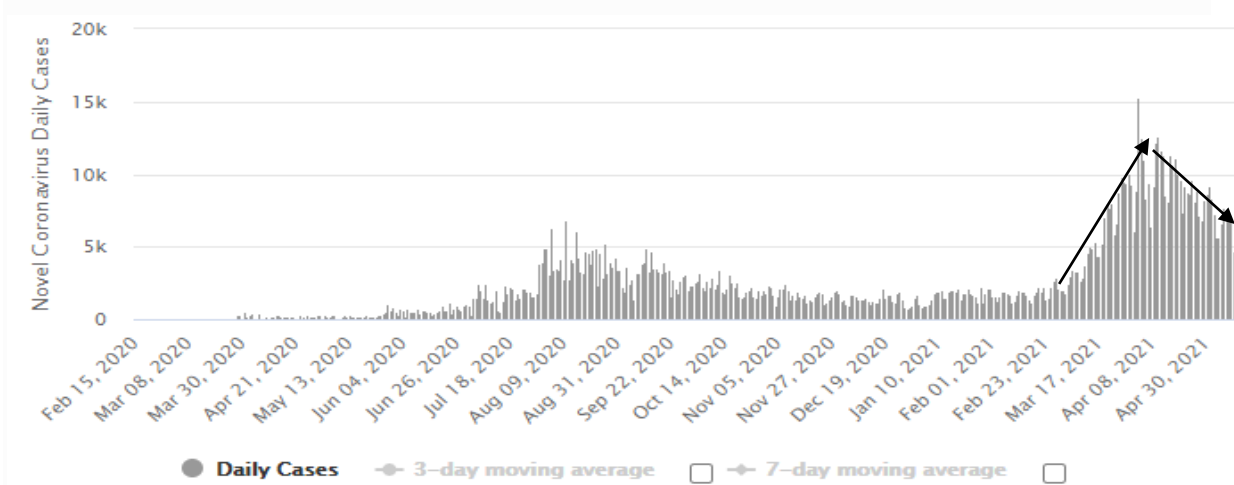
Pattern 7: UAE and Bahrain



Pattern 7 Daily Infections

- This pattern for the countries with high vaccination rate in addition to high testing and tracing measures. The ongoing infection rate due to high number of testing and tracing in addition to active population dynamic. Bahrain is characterized by high population density and active population dynamic. Extensive control strategies and measures to be continued.

Pattern 8: Philippines



Pattern 8 Daily Infections

- This pattern for Philippines and similar countries as Philippines implemented strict home quarantines and a lockdown on business and transportation in regions with significant COVID-19 cases with low vaccination rate and high population dynamic.

Control Strategies View

We are in the 2nd year of pandemic and every day we learn newer information about COVID-19 pattern as this is a fundamental step to realize the nature of COVID-19. The countries that have taken the required measures are continuing vigilance, testing and tracing and vaccination as they are easing control measures and lock downs. The new mutations emerged as a challenge to policy and decisions makers.

The challenge of implementing response strategies to manage transmission and highlight the impact of health and control measures implementation between-country inequalities. As reported, the countries with high-income settings have the resources to devote for health and control measures, while lower-income settings are pressured to emulate such initiatives, but often lack the resources and infrastructure to do so. (17)

There is an urgent demand for United Nations, leaders and related organizations to look at inequalities and consider it as an integral part of the global control strategy. The aim should be to reduce COVID-19 infections to very low and zero point globally. This could be achieved by world leaders and related organizations well, sharing information, resources, expertise, and systemic plan. Complete eradication might take time as there will be remaining areas and small numbers in some countries. This fact shows us that we might need longer time to have a global complete eradication of COVID-19 pandemic.

Control strategies:

1. Vaccination.
2. Testing, isolation and tracing.
3. Distancing.
4. Personal health measures.
5. Countries health protocols and measures.
6. Partial and complete lock down.
7. Enhancing resources.
8. Adequate health and medical facilities, settings, resources and manpower.

We will overcome the pandemic and will be going to our normal life as we are learning and adapting to the new norm.

Herd Immunity

It was reported that even with vaccination efforts in full force, the theoretical threshold for vanquishing COVID-19 looks to be out of reach.

Worldwide vaccination is getting to a steady path and numbers of vaccinated people are increasing, while people have reasonably begun to ask: how much longer will this pandemic last? It's an issue surrounded with uncertainties. As it was reported Long-term prospects for the pandemic probably include COVID-19 becoming an endemic disease, much like influenza. (18)

I have discussed on my eBook, titled "Our Life & COVID-19", we have to cope with new norms, and we need 3-5 years to overcome the pandemic. (1)

It was mentioned "in the near term, scientists are contemplating a new normal that does not include herd immunity. Here are some of the reasons behind this mindset, and what they mean for the next year of the pandemic". Lauren Ancel Meyers, executive director of the University of Texas at Austin COVID-19 Modeling Consortium said "We're moving away from the idea that we'll hit the herd-immunity threshold and then the pandemic will go away for good," (18)

It was reported that vaccines developed by Moderna and Pfizer–BioNTech, for example, are highly effective at preventing symptomatic disease, but it is still unclear whether if they can protect people from becoming infected, or from spreading the virus to others. That poses a problem for herd immunity. Shweta Bansal, a mathematical biologist at Georgetown University in Washington DC mentioned that "Herd immunity is only relevant if we have a transmission-blocking vaccine. If we don't, then the only way to get herd immunity in the population is to give everyone the vaccine,". Matt Ferrari, an epidemiologist at Pennsylvania State University's Center for Infectious Disease Dynamics in University Park mentioned that at least theoretically "A perfectly coordinated global campaign could have wiped out COVID-19, "It's a technically feasible thing, but in reality it's very unlikely that we will achieve that on a global scale. (18)

The real proportion of the population that has to be vaccinated to induce herd immunity is not known. This will likely vary according to several factors such as the community, the vaccine and other factors. However, achieving herd immunity with reliable, safe and effective vaccines makes disease rarer and saves lives. (19)

It is estimated that herd immunity would require around 80-90% of the population to have COVID-19 immunity, either through prior infection or vaccination. Therefore, public advised to get the vaccination. (20) From my point of view, I believe this is more reliable and appropriate measure for COVID-19 herd immunity.

Vaccination

As reported by CDC, that the best to take the first vaccine available. Vaccines are safe, effective and reduce risk of severe illness. (21)

As mentioned that vaccinated people are very unlikely to suffer asymptomatic COVID-19 infections. The study findings by CDC showed that fully vaccinated with the Pfizer-BioTech or Moderna vaccines were 90% less likely to be infected with SARS-CoV-2. Only 1.07% were asymptomatic of infections. (22)

Infectious disease physician Dr. Kent Stock said, age is a factor and out of those who were hospitalized, most were in their 80s and 90s, “You would speculate that the very old are less likely to respond to any kind of vaccination and therefore may not generate protective antibodies,” (23)

Many vaccinated people are getting side effects such as fever, headache, feel nauseous or bogged down with fatigue. However, these indicate immune response has been activated. Even not having vaccine side effects, body still protected. (24)

It was reported in a more than 365,000 households in the United Kingdom that a single dose of the COVID-19 vaccine (Pfizer or AstraZeneca) cuts risk of transmitting SARS-CoV-2 to their closest contacts by as much as half. (25)

It is worth to mention what US President Joe Biden has said, “COVID-19 must be beaten everywhere, or it comes back to haunt us again.” COVID-19 knows no borders. The more people we vaccinate—*everywhere*—the sooner the pandemic will end. (26)

As per Thursday, 13th May, 2021 there were 257 vaccines are in development, 78 are now in clinical testing and 14 in use. (MILKEN INSTITUTE) as following: (27):

1. Janssen Pharmaceutical Companies/ Beth Israel Deaconess Medical Center/ Emergent BioSolutions/ Catalent/ Biological E/ Grand River Aseptic Manufacturing (GRAM)/ Sanofi/ Merc. Vaccine type: Non-Replicating Viral Vector.
2. Moderna/ National Institute of Allergy and Infectious Diseases (NIAID)/ Biomedical Advanced Research and Development Authority (BARDA)/ Lonza/ Catalent/ Rovi/ Medidata/ BIOQUAL/ Baxter BioPharma Solutions/ Sanofi. Vaccine type: RNA-Based.
3. BioNTech/ Pfizer/ Fosun Pharma/ Rentschler Biopharm. Vaccine type: RNA-Based.
4. University of Oxford, Oxford Biomedica, Vaccines Manufacturing and Innovation Centre, Pall Life Sciences, Cobra Biologics, HalixBV, Advent s.r.l., Merck KGaA,

the Serum Institute, Vaccitech, Catalent, CSL, and AstraZeneca/IQVIA. Vaccine type: Non-Replicating Viral Vector.

5. Chumakov Federal Scientific Center for Research and Development of Immune and Biological Products of the Russian Academy of Sciences. Vaccine Type: Inactivated Virus.
6. Anhui Zhifei Longcom Biopharmaceutical/ Institute of Microbiology, Chinese Academy of Sciences. Vaccine type: Protein Subunit.
7. Gamaleya Research Institute, Vaccine type: Non-Replicating Viral Vector.
8. CanSino Biologics/ Beijing Institute of Biotechnology/ Petrovax. Vaccine type: Non-Replicating Viral Vector.
9. Research Institute for Biological Safety Problems, Republic of Kazakhstan. Vaccine type: Inactivated Virus.
10. Wuhan Institute of Biological Products/ Sinopharm. Vaccine type: Inactivated Virus.
11. Sinovac/ Instituto Butantan/ Bio Farma. Vaccine type: Inactivated Virus.
12. Beijing Institute of Biological Products/ Sinopharm. Vaccine type: Inactivated Virus.
13. Federal Budgetary Research Institution (FBRI) State Research Center of Virology and Biotechnology "VECTOR", Vaccine type: Protein Subunit.
14. Bharat Biotech/ Indian Council of Medical Research/ National Institute of Virology/ Ocugen/ Precisa Medicamentos. Vaccine type: Inactivated Virus.

As there are already several vaccines undergoing 3rd stage trials, therefore it is expected more vaccines to be in use in coming 2-3 months.

Mutations & Variants:

After the first genetic sequence of SARS-CoV-2, Wuhan-Hu1 (the first genetic sequence identified) and USA-WA1/2020 (the first identified in the United States) more variants have emerged due to change in the genetic sequence of the SARS-CoV-2 virus. A new variant (virus variant or genetic variant) of SARS-CoV-2 may have one or more mutations that differentiate it from the reference sequence or predominant. (28)

It is mentioned that the geographic separation tends to result in genetically distinct variants. Bollinger reported that: "All RNA viruses mutate over time, some more than others. For example, flu viruses change often, which is why doctors recommend that you get a new flu vaccine every year." While Ray says, "There is new evidence from laboratory studies that some immune responses driven by current vaccines could be less effective against some of the new strains. The immune response involves many components, and a reduction in one does not mean that the vaccines will not offer protection. (29)

It is noted that mutations happen every year for flu virus, similarly, we have to look at this point of view for COVID-19.

The risk of new variants will be as before for people who are elderly or have significant underlying health conditions. While a virus being more infectious and equally dangerous will in itself lead to more deaths in an unvaccinated population. Some research suggests (Evidence is not conclusive) the UK variant may be associated with a 30% higher risk of death in individuals. In one study, it suggests the Brazilian variant may resist antibodies in people who've already had Covid and should therefore have some immunity, while it was reported that the Pfizer vaccine can protect against the new variants, although slightly less effectively. Existing vaccines can be redesigned to better tackle emerging mutations. (30)

Gronvall said "It's possible that more variants might emerge that are not covered by the vaccine," "That's why it's important that these breakthrough cases are investigated". In this regard Ravel from the University of Maryland said "If, on the other hand, "you start seeing over and over the same variant in that population, that's when you start to be worried,". It was shown that the vaccines generally are working extremely well, even against the variants. In the latest real-world findings from Israel, where the variant first identified in Britain is dominant, the Pfizer-BioNTech vaccine was 95% effective, while in a study in Qatar, where the variant that emerged in South Africa made up half the cases, the Pfizer-BioNTech vaccine was only 75% effective. (31)

Most concerning variants share the same mutations, even when they appear on different continents. That may mean that the virus can mutate in only a limited number of ways. As Gronvall said: "Maybe it's not possible for the virus to have entirely different mutations that we haven't seen yet and still function." (31)

Investigators and experts around the world are studying and keeping eye on COVID_19 variants and mutations. the mutation E484K present in the South African variant B.1.351 seems to create a greater risk for reinfection and decrease some of the efficacy of COVID-19 vaccines. The same E484K mutation has also been found to be present in the Brazilian variant P.1 and the New York variant B.1.526. While some investigators think that the rate of change in the virus may start too slow as they are considering that the virus may reach a fitness level whereby multiple mutations have evolved at once, leading the virus to not evolve at the same pace as it did initially. Gottlieb explained, "It did a lot of evolution very quickly because of the intense pressure it was under and its wide spread," Gottlieb said. "Now, it's reached a new fitness level, and it's rate of change is going to start too slow." (32)

In regard to what Gronvel commented, it might mean that the virus can mutate in only a limited number of ways, I think we have to be cautious and take into our account of the possibility that mutations can have more ways rather only limited number of ways. We do not have full and complete picture of COVID-19.

The advice to avoid infection remains the same for all strains: wash your hands, keep your distance, wear a face covering and be vigilant about

Social & Political Impact

Social Aspect:

A study focusing on the mental health impact of the pandemic after the initial lockdowns in USA has been carried on. It was that the prevalence of depression (39%), anxiety (42%) and psychological distress (39%) were computed from the PHQ-4 scale. Males were more likely to have depression, and females were more likely to have anxiety symptoms. It was concluded that interdisciplinary and multisectoral approaches are recommended in the USA along with population-based interventions on mental health improvement given the high prevalence of depression and anxiety. (33)

Pew Research (USA) gave the public a chance to tell us in their own words how the pandemic has affected them in their personal lives. Accordingly, it was found that the vast majority of Americans (89%) mentioned at least one negative change in their own lives, while a smaller share (though still a 73% majority) mentioned at least one unexpected upside. Most have experienced these negative impacts and silver linings simultaneously: Two-thirds (67%) of Americans mentioned at least one negative and at least one positive change since the pandemic began. (34)

Political Aspect:

It was reported that the coronavirus has shown the underlying vulnerabilities of autocracies rather than their strength, while in contrast, democracies are showing their capacity for innovation and adaptation, as one would expect, and signs of renewal, as one would hope. (35)

Keith Grint, Emeritus Professor, Warwick University, UK, mentioned that the coronavirus has revealed that some of our contemporary myths are suspect – particularly the UK and US's claim of exceptionalism. The role of leadership is not to pretend that the unique values of a country will save them, but to support those that need help, and suppress those that remain irresponsible, for whatever reasons. (36)

It was mentioned that regardless of jurisdiction, the specific actions many governments have taken to combat the pandemic are ultimately rooted in politics, not science. The pandemic has made politics extraordinarily relevant. (37)

The challenge of COVID-19 resulted in different outcomes around the world. Problems of reporting and standards do not make precise comparisons easy, but few would disagree that the reported deaths by South Korea, Thailand, and Vietnam together represent far better results than the reported deaths reported by Brazil, the United Kingdom, and the United States. Adjusting these figures for population—the first group has about a third of the citizens of the second group—does not explain why COVID-19 mortality differs by a factor of nearly 500. Neither typical proxy measures such as gross national income per

capita nor national rankings on the 2019 Global Health Security Index have any meaningful association with performance on covid-19. (38)

The politics role as reported that it is ranging from authoritarianism in China, to single party socialism in Vietnam, to representative democracy in New Zealand, successful efforts to thwart the pandemic's spread seem to rely less on politics, and more on national cooperation. In Western Europe democracies, Belgium's hard lockdowns did not win strict public adherence, and Sweden's *laissez-faire* policy did not achieve the hoped-for herd immunity. In the Americas, conservative leaders in the US (Till Feb, 2021) and Brazil turned a blind eye to reality with their live-and-let-die philosophy. All, to a varying extent, resulted in disturbingly high COVID per-capita death tolls. The response to the pandemic—or lack thereof—became politicized in many countries, often resulting in the least favorable outcomes. Political opinions pervade modern public health, vastly impeding progress towards population health, achieving unity for the greater good, and protecting our fellow human beings. But the disease itself is not political; thus, the response should not be politicized. (39)

Economic & Business Impact

In my eBook, June 2020, I discussed my own social model of pandemic briefly stating that we will go through coping period. In this regard, it also was reported by McKinsey & Company, May 2021 that during the pandemic, we learned to cope; in the post pandemic world, we need to learn to thrive. (40)

McKinsey & Company reported that to flourish during and after the pandemic, companies need a new set of skills, including social and emotional, advanced cognitive, and digital capabilities. Boards and management responded to the pandemic by working harder and collaborating more on crisis management. In the survey, 73 percent of respondents said they believe that conditions will improve in the next six months. Sentiment is most buoyant in North America and Greater China and most negative in India and Latin America, where the pandemic has recently taken a devastating toll. Meanwhile, workers may be too groggy to feel optimistic about anything. (40)

The pandemic has intensified the need for a digital shift for organizations and individuals, who are encouraged to approach work, interpersonal engagement, and communication differently. The pandemic has intensified the need for a digital shift for organizations and individuals, who are encouraged to approach work, interpersonal engagement, and communication differently. (41)

The pandemic will lead to a permanent shift in the world and its politics, especially in health, security, trade, employment, agriculture, manufacturing goods production and science policies as for the world economy to recover from the contraction will take time. Since this new world might provide great opportunities for some countries that did not dominate world production before, governments should develop new strategies to adjust the new world order without much delay. (42)

M. Szmigiera reported that there is widespread agreement among economists that it will have severe negative impacts on the global economy. Early estimates predicated that, should the virus become a global pandemic, most major economies will lose at least 2.9 percent of their gross domestic product (GDP) over 2020. This forecast was already restated to a GDP loss of 4.5 percent. To put this number in perspective, global GDP was estimated at around 87.55 trillion U.S. dollars in 2019 – meaning that a 4.5 percent drop in economic growth amounts to almost 3.94 trillion U.S. dollars in lost economic output. (43)

Guan and colleagues used real-time ship tracking data from before and during the pandemic model. It was the supply chains to some countries with strong trading links to China (for example, Australia and Malaysia) have been affected in ways that resemble the results of their model (although to a lower extent than predicted), others with equally strong links (for example, Vietnam) have managed to increase their trade, contrary to the model's predictions. Understanding the propagation of the economic shock from COVID-19, which can be informed by real-time observations as well as model predictions, will help to better allocate international aid and economic stimuli. (44)

As mentioned by Department of Economic and Social Affairs of UN regarding World Economic Situation and Prospects (WESP) 2021 warns that the COVID-19 pandemic, which has delivered a heavy blow to economic activities worldwide, may exert devastating long-run socio-economic effects, unless global policy responses can ensure a robust and sustainable recovery. Those actions comprise smart investments in economic, social and climate resilience, revitalization of global trade, avoidance of premature austerity policies. (45)

Results suggest that containment measures have had, on average, a very large impact on economic activity—equivalent to a loss of about 15 percent in industrial production over a 30-day period following their implementation. Using novel data on fiscal and monetary policy measures used in response to the crisis, we find that these policy measures were effective in mitigating some of these economic costs. We also find that while workplace closures and stay-at-home orders are more effective in curbing infections, they are associated with the largest economic costs. Finally, while easing of containment measures has led to a pickup in economic activity, the effect has been lower (in absolute value) than that from the tightening of measures. (46)

Outlook

The COVID-19 pandemic have affected our life and is likely to accelerate the trajectory of the primary forces transforming the global business landscape — globalization, technology, demographics and environment. As companies focus on business continuity, they need to monitor how the pandemic is interacting with these forces and assess the resulting impacts across the organization. Major points:

- Globalization: a new regionalism gains momentum
- Technology: global competition accelerates
- Demographics: aging catalyzes global rebalancing
- Environment: the race against the clock continues

It is noted that the pandemic is unfolding in different time frames and ways in regions around the world, leading to divergent economic, political, and societal implications. COVID-19 has intensified China's growth slowdown, but Beijing has used past crises to make geostrategic shifts for long-term advantage and may do so again. The pandemic is unfolding in different time frames and ways in regions around the world, leading to divergent economic, political and societal implications. COVID-19 has intensified China's growth slowdown, but Beijing has used past crises to make geostrategic shifts for long-term advantage and may do so again. (47)

Six prominent thinkers reflect on how the pandemic has changed the world as following (48):

- James Manyika: The world after COVID-19 is unlikely to return to the world that was. Many trends already underway in the global economy are being accelerated by the impact of the pandemic.
- Daniel Susskind: As time has passed, it has also become clear that much of what is most distressing about this crisis is not new at all. Striking variations in COVID-19 infections and outcomes appear to reflect existing economic inequalities.
- Jean Saldanha: In *The Pandemic Is a Portal*, Indian author Arundhati Roy writes, "Historically, pandemics have forced humans to break with the past and imagine their world anew. This one is no different. It is a portal, a gateway between one world and the next."
- Sharan Burrow: The world after the first wave of COVID-19 must be more inclusive, resilient, and sustainable. Too many countries suffered the external shocks of COVID-19 without universal social protection, robust public health systems, a plan to reach net-zero carbon emissions by 2050, or a sustainable real economy with quality jobs.
- Sergio Rebelo: COVID-19 will leave a lasting imprint on the world economy, causing permanent changes and teaching important lessons. Virus screening is likely to become part of our life, just like security measures became ubiquitous after 9/11.

- Ian Bremmer: The global order was in flux well before the COVID-19 crisis. Coronavirus has accelerated three of the key geopolitical trends that will shape our next world order... which will await us on the other side of this pandemic.

Ten characteristics post COVID-19 world as reported by Credit Suisse: (49)

1. Inflation tail risks: Fears of rising inflation may be exaggerated, but the concern is that the post-COVID-19 world will be one of sluggish growth and barely visible inflation.
2. Multilateralism: The COVID-19 pandemic has affected geopolitics, primarily by exacerbating existing trends away from multilateralism to increasing multi-alignment.
3. Democracy/autocracy: There is no evidence that authoritarian regimes are more successful than democratic countries in fighting pandemics
4. Big state: The policy reaction to the COVID-19 pandemic has been swift and forceful, and the extension of state powers may well outlast it.
5. Nearshoring: Though globalization will not reverse (but rather slow further), we can expect more emphasis on regional diversification, nearshoring of production, and resilience rather than cost-efficiency.
6. Surveillance: In the twenty-first century, we will view nations in terms of their information capacity (their ability to analyze situations and make rapid changes).
7. Work: Having experienced the benefits and challenges of remote working during the pandemic, employers and employees may want to continue these working practices, but the legal framework for these new forms of work must change as well. Demand for office space and business travel will probably decrease because of the shift toward remote working and cost pressures that companies face.
8. Education: The growing demand for EdTech, which the COVID-19 pandemic has brought about, may change the way we learn and the approach education.
9. Inequality: COVID-19 is likely to exacerbate income inequalities and uneven cross-country wealth distribution and inequality of opportunities.
10. Decentralization: By opening up alternatives for workers to exercise their professions at a greater distance from the city, remote work is fostering a decentralization of economic activity in developed countries. Rural areas and small cities are becoming more attractive.

KPMG 2020 CEO Outlook Reported following Key developments include (50):

- Talent and a new working reality: Businesses are looking to change their recruitment strategies as remote working has widened their potential talent pool and companies may be rethinking their office space in the short-term while also considering the future of work.

- Shifting risk agenda: Since the start of the pandemic, 'Talent risk' has risen to be named as the most significant threat to the growth of their businesses ahead of 'Supply chain risk' and a 'Return to territorialism'.
- Digital acceleration: Business leaders are betting on major dimensions of digital transformation and the majority have seen this accelerate during the lockdown.

Philips "Future Health Index (FHI) 2021" as reported (51):

- The FHI identified three key trends for post-pandemic healthcare: the acceleration of virtual care delivery; a stepwise approach in digital transformation from telehealth to AI adoption; and an increased focus on building sustainable healthcare systems.
- As the threat of the pandemic decreases and vaccination programs roll out across the world, the disparities and health inequities that were illuminated have affected political change

References

- (1) Our Life & COVID-19. Review & Prospects, Health, Social, Economic Impacts & Challenges. Dr Ahmed Mukhtar. ISBN: 9781716873850, 2nd June, 2020. Lulu.com. USA.
- (2) Dynamic View of Spike Protein Reveals Prime Targets for COVID-19 Treatments. Posted on May 6th, 2021 by Dr. Francis Collins, NIH Director's Blog.
- (3) International survey of COVID-19 management strategies. Riccardo Tartaglia, Micaela La Regina, Michela Tanzini, Chiara Pomare, Rachel Urwin, Louise A Ellis, Vittorio Fineschi, Francesco Venneri, Chiara Seghieri, Peter Lachman et al. November 20, 2020 . *International Journal for Quality in Health Care*, Volume 33, Issue 1, 2021.
- (4) Emerging COVID-19 success story: Vietnam commitment to containment. Todd Pollack (i), Guy Thwaites (ii), Maia Rabaa (ii), Marc Choisy (ii), Rogier van Doorn (ii), Le Van Tan (ii), Duong Huy Luong (iiia), Dang Quang Tan (iiib), Tran Dai Quang (iiib), Phung Cong Dinh (iv), Ngu Duy Nghia (v), Tran Anh Tu (v), La Ngoc Quang (vi), Nguyen Cong Khanh (v), Dang Duc Anh (v), Tran Nhu Duong (v), Sang Minh Le (vii), Thai Pham Quang (v), Vu Duong (viii), and Exemplars in Global Health. March 05, 2021, Our World In Data.
- (5) New Zealand's COVID-19 elimination strategy. Michael G Baker, Amanda Kvalsvig and Ayesha J Verrall. *Med J Aust*. 2020 Aug 13 : 10.
- (6) Why Sweden is set to change its COVID-19 controls. Patrick Attack, Europe 19:40, 21-Feb-2021, GCTN.
- (7) The lockdown effect: A counterfactual for Sweden. Benjamin Born, Alexander M. Dietrich, and Gernot J. Müller. April 8, 2021. PLOS ONE.
- (8) What Can We Learn from Australia's Covid-19 Response? William A. Haseltine, Mar 24, 2021, FORBES
- (9) Israel to be first country in the world to control COVI-19 through vaccination. 20th Jan, 2021. Global Data.
- (10) Real-life Evidence That Vaccine Can Prevent Severe COVID-19. Bridget M. Kuehn, MSJ. April 27, 2021. *JAMA*.
- (11) Tracking the Spread of the Coronavirus Outbreak in the U.S. May 2021, bloomberg.com

- (12) Nita H. Shah,¹ Ankush H. Suthar, and Ekta N. Jayswal· Academic Editor: Vladimir V. Mityushev. 21 May 2020, International Journal of Mathematics & Mathematical Sciences. Volume 2020
- (13) CDC Strategy for Global Response to COVID-19 (2020-2023). Jan. 20, 2021. CDC, USA.
- (14) <https://www.worldometers.info/coronavirus/>
- (15) Chin's successful control of COVID-19, Tlaha Burki. The Lancet, Volume 20, Issue 11, P1240-1241, November 01, 2020.
- (16) Vaccination top strategy of China's current COVID-19 response Officials. March 03, 2021. Xinhua Net.
- (17) COVID-19 response strategies: considering inequalities between and within countries. Lincoln Leehang Lau, Natalee Hung & Kendall Wilson. International Journal for Equity in Health, volume 19, Article number: 137 (2020)
- (18) Five reasons why COVID herd immunity is probably impossible. Christie Aschwanden, 18 MARCH 2021, NEWS FEATURE.
- (19) Coronavirus disease (COVID-19): Herd immunity, lockdowns and COVID-19. 31 December, 2020. WHO.
- (20) How close are we to herd immunity for COVID-19?, 5th April, 2021. MU Health Care.
- (21) Different COVID-19 Vaccines. Updated Apr. 3, 2021. CDC.
- (22) It's official: Vaccinated people don't transmit COVID-19. DAVID Z. MORRIS AND SY MUKHERJEE. April 2, 2021. FORTUNE.
- (23) Hospitals see rare COVID-19 cases in fully vaccinated patients. By Lillian Donahue | March 29, 2021. WIS News.
- (24) Your COVID-19 Vaccine Is Still Working Even If You Don't Have Side Effects. 5th April, 2021. Healthline.com.
- (25) One vaccine dose can nearly halve transmission risk. 5 May, 2021, NATURE
- (26) Pathfinder International Calls for Global Equity in Access to COVID-19 Vaccines. Pathfinder International, February 1, 2021.
- (27) Milken Institute. VACCINES IN USE. MAY 13, 2021.
- (28) SARS-CoV-2 Viral Mutations: Impact on COVID-19 Tests. 9th May, 2021. US Food & Drug Administration.
- (29) New Variants of Coronavirus: What You Should Know. Robert Bollinger, & Stuart Ray, John Hopkins Medicine, 9th May, 2021
- (30) What are the India, Brazil, South Africa and UK variants? By Michelle Roberts, Health editor, BBC News online, 8th May, 2021
- (31) COVID Variants May Emerge That Are Not Covered By Vaccine, Scientists Warn. Steve Baragona. May 09, 2021, VOA News.
- (32) Expert: Convergent Evolution Occurring Among COVID-19 Variants, With Mutations From Abroad Simultaneously Hitting the US. Alana Hippensteele, May 5, 2021, Pharmacy Times

- (33) USA during the COVID-19 pandemic. Jagdish Khubchandani, Sushil Sharma, Fern J Webb, Michael J Wiblishauser, Sharon L Bowman. 11 January, 2021. Journal of Public Health.
- (34) In Their Own Words, Americans Describe the Struggles and Silver Linings of the COVID-19 Pandemic. BY PATRICK VAN KESSEL, CHRIS BARONAVSKI, ALISSA SCHELLER AND AARON SMITH. MARCH 17, 2021, PEW RESEARCH CENTER
- (35) Why Democracies Do Better at Surviving Pandemics. Dr Robin Niblett CMG & Dr Leslie Vinjamuri, 26 MAY 2020, Chatham House.
- (36) The World Turned Upside Down. Keith Grint, Emeritus Professor, Warwick University, UK. 15 May 2020. Ila International Leadership Association. Ila Global Network Org.
- (37) The politics of COVID-19 results in pandemic winners and losers. December 15, 2020. The Conversation
- (38) Political economy of covid-19: extractive, regressive, competitive, 22 January 2021. BMJ.
- (39) COVID-19 Isn't Political; Its Response Shouldn't Be Politicized. DOMINIQUE VERVOORT and HLONI BOOKHOLANE. January 25, 2021. Global Health Now.
- (40) COVID-19: Implications for business. May 5, 2021 | Executive Briefing, McKinsey & Company
- (41) COVID-19: Business and Economic Impact. Joël Le Bon, 14th May, 2021. John Hopkins Carey Business School.
- (42) The early impact of the Covid-19 pandemic on the global and Turkish economy Ömer AÇIKGÖZ and Aslı GÜNAY. 21.04.2020. Turkish Journal of Medical Sciences.
- (43) Impact of the coronavirus pandemic on the global economy - Statistics & Facts. M. Szmigiera, May 7, 2021. Statista.
- (44) Observed impacts of the COVID-19 pandemic on global trade. Jasper Verschuur, Elco E. Koks & Jim W. Hall. Nature Human Behaviour volume 5, pages305–307 (25 February 2021).
- (45) World Economic Situation And Prospects: February 2021 Briefing, No. 146. Department of Economic and Social Affairs, United Nations.
- (46) IMF Working Paper Asia and Pacific Department The Economic Effects of COVID-19 Containment Measures * Prepared by Pragyan Deb, Davide Furceri, Jonathan D. Ostry, Nour Tawk Authorized for distribution by Jonathan D. Ostry August 2020.
- (47) What the COVID-19 crisis means for the geostrategic outlook Mary Cline, Courtney Rickert McCaffrey and Kyle Lawless. 29 April, 2020, EY.
- (48) FINANCE & DEVELOPMENT, JUNE 2020, VOL. 57, NUMBER 2. **Life Post-COVID-19**
- (49) 10 characteristics of a post-COVID-19 world. Credit Suisse. 16.12.2020.
- (50) KPMG 2020 CEO Outlook. COVID-19 Special Edition.
- (51) Report: Healthcare leaders have an optimistic outlook beyond COVID-19. By Sophie Porter, May 07, 2021, Health Care IT News