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Implementing a coordinated global response to pandemics



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Introduction

The world has suffered many disease outbreaks over the years. Yet still, after so many pandemics and epidemics, recent events have shown us that we are still not fully equipped or prepared for major outbreaks. In this day and age, where our world has turned into a global village, it becomes harder for us to control the spread of disease and easier for diseases to travel from country to country. History has taught us that our international trades play a big role in creating pandemics. The modern, interconnected world only makes this easier. A virus or disease can travel from one side of the world to the other in a matter of hours, thanks to the various forms of transport. From then on it can easily spread within families, friends, co-workers and anyone we interact with from maybe three seconds up to years.

The ease in which a pandemic may be started has dire consequences in various forms. It is not only dangerous towards people's health, but also to economies, especially those in struggling countries. Small business owner will be forced to close, as people are encouraged to stay home and limit social contact. This will increase the unemployment rate and could potentially increase the poverty rate which would have an impact on the development in a country by making it come to a halt. Most of the governments haven't dealt with this global pandemic in an efficient way. This can be shown through putting a country in lockdown too late, which would in default increase the death rate.

Most developed countries should have done what The Republic of Korea did. They were able to flatten the curve without needing to be closing any small businesses, issuing staying at home orders and or inflict any highly strict measures like other high-income countries did. They did this by building high-capacity screening clinics and had over 600 testing centers. They used credit card transactions to track people who were contaminated and had a good treatment center. If people were coming to The Republic of Korea from aboard, they would have two weeks of mandatory quarantining. With this they sent masks



and a lot of food and living essentials. They put their people first which didn't make the the economy drop extravagantly. However, in England which is a high-income country as well they were not able to monitor the pandemic as well as The Republic of Korea did. This is because they started quarantine too late.

Definition of Key Terms

Antibody

When a person gets sick, their immune system creates antibodies. Antibodies are proteins that circulate your bloodstream. Their function is to recognize and fight off foreign bodies, for example viruses or bacteria. Some antibodies stay in your system to protect you in the future. The presence of antibodies in your system can determine whether or not you have, or had, a virus.

Asymptomatic

When a person is asymptomatic, they are infected with a disease, but do not present any of the common symptoms associated with it. Whether or not asymptomatic carriers of a disease are contagious is debatable and it is dependent on the disease. Asymptomatic carriers may develop symptoms later on and only then require treatment or might not experience any symptoms at all. A recent study has indicated that the infectivity of some asymptomatic carriers of the novel COVID-19 virus might be weak.

Epidemic

The CDC defines an epidemic as a sudden increase in the amount of cases of a particular disease or condition in a specific geographical location. Epidemics can occur when cases of an already prevalent disease (like a virus) spike rapidly, when an area that wasn't previously exposed to the disease experiences an outbreak or when people previously not susceptible to infection suddenly start getting sick from it.

Globalization

According to the WHO globalization is "the increased interconnectedness and interdependence of peoples and countries, is generally understood to include two interrelated elements: the opening of international borders to increasingly fast flows of goods, services, finance, people and ideas; and the changes in institutions and policies at national and international levels that facilitate or promote such flows."



Pandemic

The WHO globalization defines a pandemic as a worldwide spread of a new disease. This can be a new strain of a known disease (for example the 2009 influenza H1N1 pandemic) or an altogether new disease. During a pandemic, the general population usually doesn't have immunity against this disease and thus can cause a lot of fatalities. This disease must also be infectious, opposed to cancer for example. Diseases that have caused pandemics in the past often originated from animal influenza viruses.

Personal protective equipment (PPE)

PPE are garments, such as face masks, that are designed to protect against infection or injury.

Social distancing

Implementing a certain amount of space between people in a social group to curb the rate of infection of a particular disease.

Quarantine

A period of complete isolation which people or animals who have been exposed to a disease of infection undergo in order to avoid spreading the disease or infecting others.

General Overview

The human and animal populations have had a long history of pandemics and epidemics. The fast spread of diseases nowadays can be accredited to globalization. The many international travels, national and international tourism, and trade systems that are in place have created a worldwide interdependence and interconnection, and therefore make it all the more difficult to control and limit infected areas.

Ebola (2014 - 2016)

Near the end of 2013 the first cases of the biggest Ebola Virus Disease (EVD) outbreak recorded were reported in Guinea. The disease then made its way through West-Africa. EVB has a very high mortality rate and, though originally the disease spread from animals to humans, now easily spreads from human to human upon contact.



The fast spread from Guinea to surrounding countries can be attributed to weak surveillance systems, increased mobilization across borders and poor public health infrastructure, according to the Centers for disease control (CDC). Research also showed that some civilians were unwilling to comply with the measures that were in place to control further spread of EVD, due to the belief that they clashed with their culture and traditions. Eventually, awareness campaigns were started with the support of local leaders. This seemed to reach and educate civilians and was a vital part in making them comply with the rules. Health care workers from all over the world were deployed to West-Africa. Assistance was also sent to help with, among other things, data collection, testing and education. Some countries implemented stricter screening procedures at their airports for those at risk of EVD.

Eventually, after 30 months, the outbreak ended with almost 30,000 reported cases and over 11,000 deaths. Though cases of EVD still pop up, countries now have a better capability to control spread and treat the disease. Rapid response teams with doctors are deployed to areas where new cases have shown. There, the teams conduct an investigation into where potential secondary cases might appear through contacts. These people are isolated and tested in treatment facilities.

Influenza

A common misconception is that the influenza virus is just like the common cold, when in reality it is much more serious. It can cause severe illness and infections that result in death. The flu can be especially dangerous for those with pre-existing problems, such as asthma.

In 1918 there was a severe pandemic that hit the whole world. An estimated 500 million people were infected and 50 million people died. An abnormality in this pandemic was the high mortality rate under healthy young adults and teenagers. There was no vaccine and treatment for secondary complications were scarce. Scientists and researchers did not yet understand what made the virus so destructive. Due to the limited aid that medicine had to offer and the fact that only little information about the virus was known, the only source of protection was isolation, quarantine and hygiene.

In 1957-1958 another pandemic emerged in Asia, which spread further to the USA. The death toll is an estimated 1 million people. Most deaths were due to complications that arose due to a weakened immune system caused by the flu. A vaccine was developed fairly quickly and the availability of treatments for the secondary complications stopped the pandemic.



A third pandemic started in 1968, dubbed the 'Hongkong virus'. Around 1 million people died, mostly citizens who were 65+. The strain of virus that started this pandemic still circulates to this day, undergoing constant mutations in the form of a seasonal flu that lets it infect people.

The influenza viral genome undergoes small mutations. Every time a new viral strain develops, your body is once again exposed to the flu. The antibodies you've created the previous time you came down with the flu no longer work against the new strain of virus. These changes cause 'flu season' in areas. Usually the mutations are minor (this is called antigenic drift), but every so often a major viral change (this is called antigenic shift) occurs. The magnitude of the mutation is so great that very little people have any antibodies that can fight it. This change is what usually causes pandemics. These mutations in viral strains don't solely apply to influenza. They're a form of evolution in many viruses, others include the coronavirus strain.

The most recent flu pandemic was in 2009. The countries with the highest number of infections were those with widespread testing and surveilling. This suggested that countries with a lower amount of infections may have had just as many or even more infections, but they went undetected. Out of all previous pandemics, we were most prepared for this one due to the funds that were put into preparation for pandemics. Most of the deaths were among people ages 30 to 50, which is notable due to it previously being more among the elderly. The WHO advised countries not to implement widespread testing, stating "such measures are resource intensive and can very quickly strain capacities" and further urged countries not to close their borders or limit travel, due to vaccine manufacturers assuring the WHO vaccines would become available shortly (because Influenza was already a known virus with existing vaccines that would help with development of a new one).

Coronavirus

Coronaviruses stem from animals, but sometimes the virus passes on to humans. It is thought that bats passed on SARS as well as COVID-19 to humans. From 2002-2004 a SARS-CoV-1 outbreak emerged from China. 8,422 people were infected. The death rate was 11%. The virus presented flu-like symptoms. China remained tight-lipped in the early stages of the outbreak, later receiving international backlash for not communicating the severity of the disease.

In late 2019 a new SARS emerged titled SARS-CoV-2, which is often referred to as COVID-19 or coronavirus, in Wuhan, China, which rapidly spread to other areas. The Chinese authorities put affected places into quarantine, in an attempt to limit spread. However, there



has been speculation that China had been withholding information at the start of the outbreak from the WHO to maintain their image. Whilst this has not been confirmed, this apparent lack of communication may have impacted the rest of the viral spread significantly. Within just a few weeks the virus had spread globally, moving the epicentre of the outbreak from China to Europe and later the Americas. Currently there are 21.8 million reported cases with a 3.5% fatality rate, but the amount of infected is suspected to be much higher due to the lack of widespread testing in some countries, as well as many people, primarily from the younger generation who are less vulnerable to this virus, are asymptomatic and therefore unaware they've been infected. The amount of deaths has so far reached 773 thousand.

The WHO has advised countries not to travel to, or trade with countries that are affected. The organization states governments should opt to restrict travel and movement all together for long periods of time, saying it can interfere with aid and support. The WHO also stated it is smarter to shift attention to prevention of disease spread, rather than figuring out which travelers coming into countries are infected. The general recommendation is to closely monitor reports of influenza-like symptoms and pneumonia, keep the general public informed on the status of their country, follow the International Health Regulations (IHR, 2005), and urges member states not to interfere too much with international traffic.

The general public has been advised to upkeep personal hygiene, implement social distancing, self-isolate if feeling cold-symptoms and in some countries and areas, wear face masks.

Consequences of the COVID-19 measures

Even though the WHO advised against unnecessary travel restrictions, many countries decided to implement their own independent measures. This caused a massive dent in many economies. China's Purchase Managers' Index (PMI), economic indicators of private sector companies, fell from 53.0 to 27.5 within a month. With the undeniable role the country plays in the international trade system, this alone has put many businesses all over the world in trouble. Italy's GDP dropped a devastating 3.8% so far, predicted to fall as low as -11.8% by the end of 2020. The last time Italy had undergone such a drastic drop of their GDP, was right after World War II. Workers in Foreign Direct Investment (FDI)-dependent developing nations have arguably been hit the hardest, not getting benefits and 1/3 of all jobs in Africa have been lost.

The economy and governments aren't the only ones who've suffered. Hate crimes against Asians have grown, fueled by misinformation, conspiracy theories and fear.



The internet and media play a big role in our world, most couldn't imagine life without them. Unfortunately, they created a platform that allows lies and false statistics to be spread. Additionally, some political figures have fueled such issues by promoting false narratives. In a time where the public will look up to their leaders seeking reassurance and will follow examples set by them, it is vital they don't further encourage fear and hate.

Conspiracy theories and misinformation have also started a range of protests against the lock down measures. People in these protests have not been keeping an appropriate distance, nor have they been wearing face masks. This puts many at risk of COVID-19. It is important to keep the public well informed and to refute any false information that has been spread.

A lot of people do not fully understand the dire consequences of COVID-19. Many of the youth do not take it seriously and make light of the situation by hosting corona themed parties, even though social distancing is being heavily advised and promoted. This carelessness is caused mostly by the lack of awareness of how brutal and dangerous the virus can really be.

Other pandemics

One of the most famous pandemics was in the 14th century: The Bubonic Plague. The disease overtook the world and killed 75 - 200 million people. It would take Europe almost 200 years to get its population back up to the amount it was pre-pandemic. Though there are many theories as to why the pandemic ended, we are still not completely sure as to why. The most popular and most likely theory is that the pandemic ended due to the implementation of quarantines, the spike in cremations, better personal hygiene and self-imposed isolation.

It has been 200 years since the first Cholera pandemic occurred. Since then there have been 6 additional outbreaks. The spread has been due to increased migration. The start of the outbreaks is accredited to poor hygiene, contaminated food and water supply, overpopulated and poor living conditions and wars. At the end of the 19th century there were medical developments that created treatments and vaccines for the disease. Most of the recent Cholera pandemics and current outbreaks have started in developing countries. They stopped in Europe after many cities refined their water systems and general hygiene.



Major Parties Involved and Their Views

World Health Organization (WHO)

The World Health Organization obviously plays a big role in mitigating public health outbreaks. The organization created The Emergency Response Framework (ERF), a guide for disaster such as, but not limited to, pandemics. The framework has been very useful in the ongoing COVID-19 outbreak. WHO has also established the Information Network for Epidemics (EPI-WIN) to combat misinformation.

New Zealand

New Zealand is the first country to have eradicated the recent Coronavirus. The country had some of the strictest lock down measures in the world, fueled by scientific findings, and they have proven to be effective. New Zealand restricted social contact, all forms of travel, closed down all non-essential buildings and attractions and closed its borders. However, all these measures have gravely impacted the economy. Statistics show that it will take years until the economy will improve to how it was pre-corona.

China

The Chinese government has handled the COVID-19 pandemic with extreme, but necessary measures. In addition to the somewhat conventional measures as lockdowns, bans on mass gatherings and urging personal hygiene, Chinese authorities had door-to-door health checkups, they isolated health care workers in the temporary hospitals, inspected and monitored inhabitants of large apartments and even made use of new technology: drones and facial recognition software with heat detection to monitor people's temperature. The drones spray chemicals to disinfect areas and their speakers inform citizens of the dangers of covid-19. These measures seemed to have worked, as China isn't the epicenter of the outbreak anymore, the USA is.

Italy

Italy was hit the hardest of the European countries. The virus spread extremely rapidly throughout the country. Italy was quick to declare a state of emergency. The country placed bans on mass gatherings, non-essential businesses and buildings and restricted travel, and placed travelers in mandatory quarantine. Despite its efforts, Italy still has one of the highest amounts of active cases. This amount is most likely much higher, as many people who have been infected haven't been tested.



World Bank

The World Bank plays an important role in pandemic outbreaks. It helps countries strengthen their healthcare systems and come up with pandemic preparedness plans. In the current COVID-19 pandemic the World bank has helped in many ways such as “disease surveillance, food safety, and crisis response, sharing international experiences on managing similar crises, and impact analysis of the outbreak on the global economy”.

The United States of America

Currently, the USA has almost 5,9 million active cases of COVID-19 and over 180,000 deaths. It’s the new epicentre of the COVID-19 virus. America has struggled to put their population first, instead focusing on economic values, though not being completely successful as currently over 40 million people have lost their jobs. In addition to this, there is an issue of widespread misinformation, poor and late implementation of measures, faulty testing, lack of preparedness and pre existing problems in the healthcare system.

Timeline of Events

14th century	The Bubonic Plague was at its worst during this period
1817-1824	The first cholera pandemic
1881-1896	The fifth cholera pandemics. This was the last significant outbreak in Europe
1918-1920	Influenza pandemic
1957	Influenza pandemic
1961-1975	The last cholera pandemic
1968	Influenza pandemic
2009	Influenza pandemic
2013	The WHO released the first edition of the ERF



August 8th, 2014	The WHO declared the Ebola epidemic to be a Public Health Emergency of International Concern (PHEIC)
2017	The WHO releases the second edition of the Emergency Response Frameworks Publication (ERF)
December, 31st 2019	Cluster of pneumonia cases are reported in Wuhan
January 3rd, 2020	China informs the World Health Organization of an outbreak
January 13th, 2020	The first cases of COVID-19 are reported outside of China, in Thailand
March 11th, 2020	The WHO declared the COVID-19 outbreak as a pandemic.
April 14th, 2020	The International Monetary Fund declares the economic ramifications due to this pandemic will be the worst ever experienced
April 23rd, 2020	President Donald Trump suggests ingesting disinfectants could possibly help treat the virus, sparking more disinfectant ingestion related hospitalizations in the US. This is an example of how dangerous misinformation can be.
May 27th, 2020	The UN warns that the COVID-19 virus threatens 14 million people's access to meals in Latin America and the Caribbean.
June 8th, 2020	New Zealand declares the country corona-free Experts estimate 540 Americans could die of the virus due to the protests against racism
July 7th, 2020	Africa Development Bank reveals almost 50 million people might be pushed into extreme poverty due to the ongoing pandemic Donald Trump officially states his plans to withdraw from the WHO, effective as of 6 July 2021
July 9th, 2020	The WHO reveals an Independent Panel for Pandemic Preparedness and Response (IPPR) that will assess the global response to the pandemic.



July 20th, 2020	The EU agrees on a \$859/ €750 billion COVID-19 stimulus package to strengthen economies, especially those of countries who were most affected by the virus.
August 11th, 2020	Russia is the first country to approve a COVID-19 vaccine. The fast approval caused international skepticism and concern about the safety of the vaccine.

UN involvement, Relevant Resolutions, Treaties and Events

- A resolution by the General Assembly stating “its commitment to international cooperation and multilateralism and its strong support for the central role of the UN system in the global response to the coronavirus disease 2019 (COVID-19) pandemic” 2 April 2020 **(A/RES/74/270)**
- The Emergency Response Framework (ERF) is a guide for disaster response, created by the WHO in 2013 and revised in 2017.
- The High-level Panel on the Global Response to Health Crises created guidelines for protecting humanity from future health crises (A/70/723), which are implemented under the Global Health Crises Task Force created by the Secretary General, 1 July 2016
- The UN Comprehensive Response to COVID-19 was created in June 2020 by the Secretary General, aimed to create a global health response, a recovery plan and increase preparedness for future pandemics.
- The UN framework for the immediate socio-economic response to COVID-19 aims to help and rebuild societies and economies impacted by COVID-19 with support from the Recovery Trust Fund that has already given 47 countries 45 million USD.

Evaluation of Previous Attempts to Resolve the Issue

In the International Health Regulation (IHR, 2005) the role of Member States and the WHO in upkeeping the global public health security are outlined. The regulations define terms and set out rules and obligations countries must oblige with. (See appendix I)



The World Health Organization created an Emergency Response Framework (ERF) in 2013. It's been proven to be detailed and effective.

The United Nations Secretary-General's COVID-19 Response and Recovery Trust Fund aims to help countries cope with the detriments they face due to COVID-19, especially focusing on developing countries. The fund has already helped 47 countries and relinquished 45 million USD.

After the 2014 Ebola epidemic the Global Health Crises Task Force was created for one year. The Task force held quarterly meetings in which they discussed faults and improvements for the The High-level Panel on the Global Response to Health Crises' recommendations. The Task Force helped with preparedness for future health crises and enlarged the UN's competence.

Possible Solutions

We have experienced many pandemics and disease outbreaks. Every time we learn new lessons on how to be better prepared for the inevitable and unpredictable, next outbreak. Although the ERF and IHR have both been very useful, they miss a few key points.

History has taught us that usually by the time reports of an outbreak are announced, it is too late to stop the spread from leaving the epicenter. It is therefore important that all countries communicate their findings in a timely manner. A big issue in the statistics however, is that they are not always accurate. Many nations do not have the proper resources for widespread testing, so the amount of people who are infected but are asymptomatic, go under the radar. In reality, the amount of sick people in statistics, for example, the coronavirus, is much higher than documented. The lack of widespread testing also means more people will get sick because of all the infected people unknowingly spreading diseases and infections.

When looking at past pandemics, the role science and medicine has played in them is undeniable. Vaccines and medical treatments have shown to decrease the amount of infected people. It takes time and effort to create adequate vaccines and treatments. It also takes a lot of money and resources. Therefore, having a committee of virologists and epidemiologists with proper sufficient funding and direct access to findings already in place before the outbreaks, could be advised in stopping the spread as fast as possible.



It is important we take the time to analyze all the statistics that have come forth from our most recent pandemic. Though it is still in full blow, some countries have handled the pandemic very well. Some manage to almost fully eliminate the virus from their country. Obviously, the additional measures these countries have used have been proven to be quite effective. We should carefully examine and take an example from these measures when preparing for future pandemics.

With the rapidly changing world comes the danger of diseases and infections spreading more rapidly and causing a pandemic. Some will be so new that we wouldn't be at all prepared if they were to come true. We should strive to always be ahead of such predicaments. A committee, similar to the Global Health Crises Task Force (seeing as the Task Force did have positive results, but no longer exists), that meets and discusses new inventions and information and revises old preparation plans, seeing to that they don't get outdated may be an approach.

Humans by nature are social beings. Many governments have imposed lock downs and urge staying home, but for many the lack of social contact for extended periods of time has proven to be quite difficult. In some countries a series of protests have started against the corona measures. People don't social distance in these protests and often don't wear masks, which puts more and more people at risk. Government officials should create better ways to enforce the rules of the measures, as well as work on prevention of spread in the first place. For example, New Zealand only had 6 cases of the COVID-19 virus when they imposed some of the strictest lockdown measures currently in use in the world. The early catch is what gave the country a head start in limiting the spread of the disease. The earlier an outbreak is handled, the easier the outbreak is stopped. This is also a reason why nations should invest into better surveillance and personal protective equipment.

Misinformation is a very powerful, but also a very dangerous tool. False information, conspiracy theories and statistics have been surfacing the media. In some cases, they enforce fear, and in others they make people underestimate the dangers of diseases. The latter is one of the reasons that fuel the ongoing protests. Governments should work together to combat the spread of misinformation and the fear that goes along with it. The false news is currently also fueling racism towards Asians. In the future new pandemics can fuel xenophobia and racism as well. Some political leaders haven't been helping this situation either. The best thing to prevent backlash is to keep the public well informed, coming from trustworthy, reputable (government) sources, as well as vigorously refuting false information that fuels hate and fear.



Lack of information is just as dangerous as misinformation. Many people, especially amongst the youth, don't yet fully grasp the nature of this pandemic. Corona themed parties are being hosted, making light of the dire situation. Psychologists believe that this is due to lack of representation of how brutal COVID-19 can really be. The absence of awareness can be remedied by ad-campaigns that not only share statistics to a broader audience, but also depict ramifications of the disease.

Investing in prevention technology and personal protective equipment (PPE) is vital. Recent events have shown that people are prone to panic buying and hoarding PPE, creating a shortage for others. Prices for PPE have also significantly gone up, making it harder for some to access them. Some governments have opted to send out free masks to their citizens. Masks not only protect the people wearing them, but also the people the wearers come in contact with. In some countries these are used all the time, regardless if there's a disease outbreak or not. PPE is very important and vital in keeping citizens safe. Therefore investing in it and distributing them during the next outbreak, without having to fear a shortage would be a smart move.

Moreover, we have now seen how truly beneficial technology can be during a pandemic. China has advanced facial recognition software, cameras with thermal sensors, to determine if someone's running up a fever, drones meant to usher people inside and AI with various different capabilities. These innovations are quite useful and would make a great change if they were employed all over the world. Especially with technology always being in a developing stage, with more research in a few years these technologies can be widely used with even more functions.

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Appendices

Appendix I

https://www.who.int/hac/about/erf_.pdf

