



Assessment 3

Semester 1, Session 2022/2023

TOPIC: Death Rates Due to COVID-19 Pandemic

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Introduction

This article intends to reveal the death rates due to the COVID-19 pandemic and the solutions to combat this problem. Referring to Merriam-Webster Dictionary (n.d.), death rate is the number of deaths in a specific population at a particular time. Mainly the death rates count in number per 1000 people during the year.

According to the journal by Mohan BS and Nambiar (2020), COVID-19 was originated in Wuhan, China in early December 2019. It spread quickly around the world, leading to a new global public health crisis. It originated in bats and human transmission directly, indirectly, or in close touch with infected people through coughs, sneezes, or speaking (para. 1). The symptoms are fever, cough, sore throat, tasteless and smellless. As this disease invades the respiratory system, it accumulates in the lung, causing pneumonia, breathing difficulties and fatal in worse conditions.

Bown (2021) explained when COVID-19 spread globally, almost all medical supplies such as hospital masks, gloves, gowns, and respirators are in shortage causing a global panic (para. 2). Most of the supplies are from China but China has decreased its exports to the world markets for its own use. Moreover, limited healthcare services also occurred during the pandemic. Doctors not only treat COVID-19 patients but also non-COVID-19 patients with chronic diseases. Consequently, a shortage of hospital beds happened to cause the patients unable to get treatment promptly and thus led to death eventually.

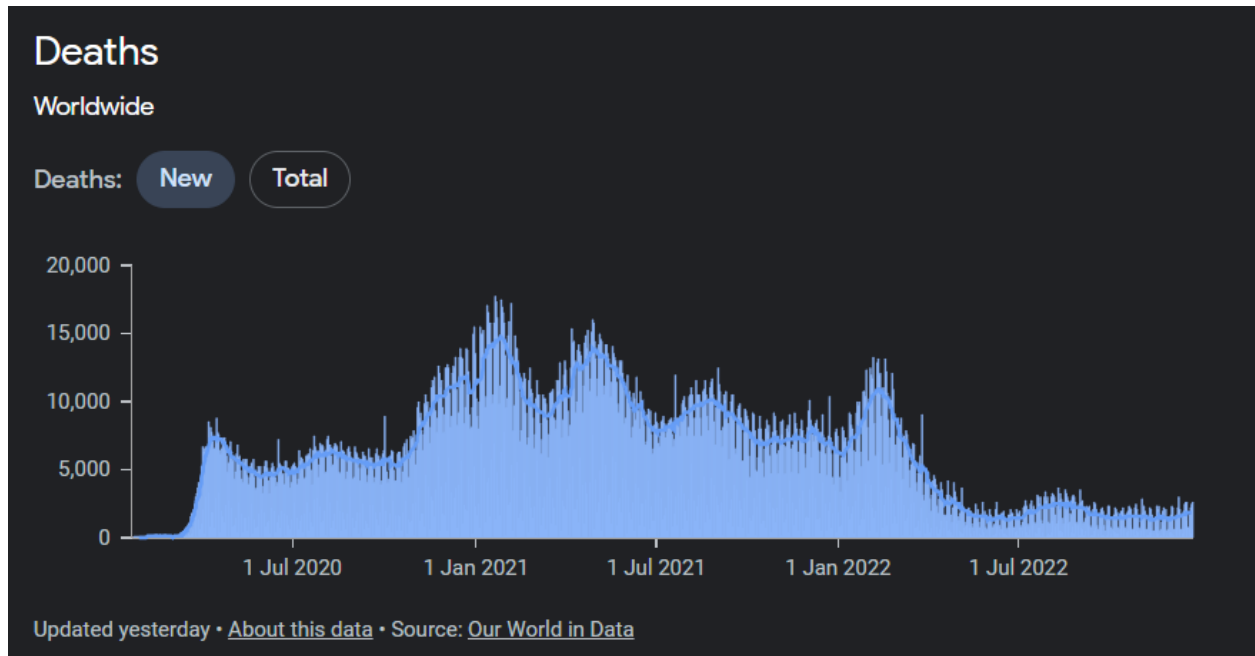
Data Collection Method

The methodology used in the report is the secondary data collection method, where data is collected from published articles, news, online websites, and other publications.

The data were obtained from official sources such as the World Health Organization (WHO) and the Ministry of Health in Malaysia, as well as from other online websites like Our World in Data. The data was analyzed to identify the problems faced by different countries and to understand their responses to the pandemic.

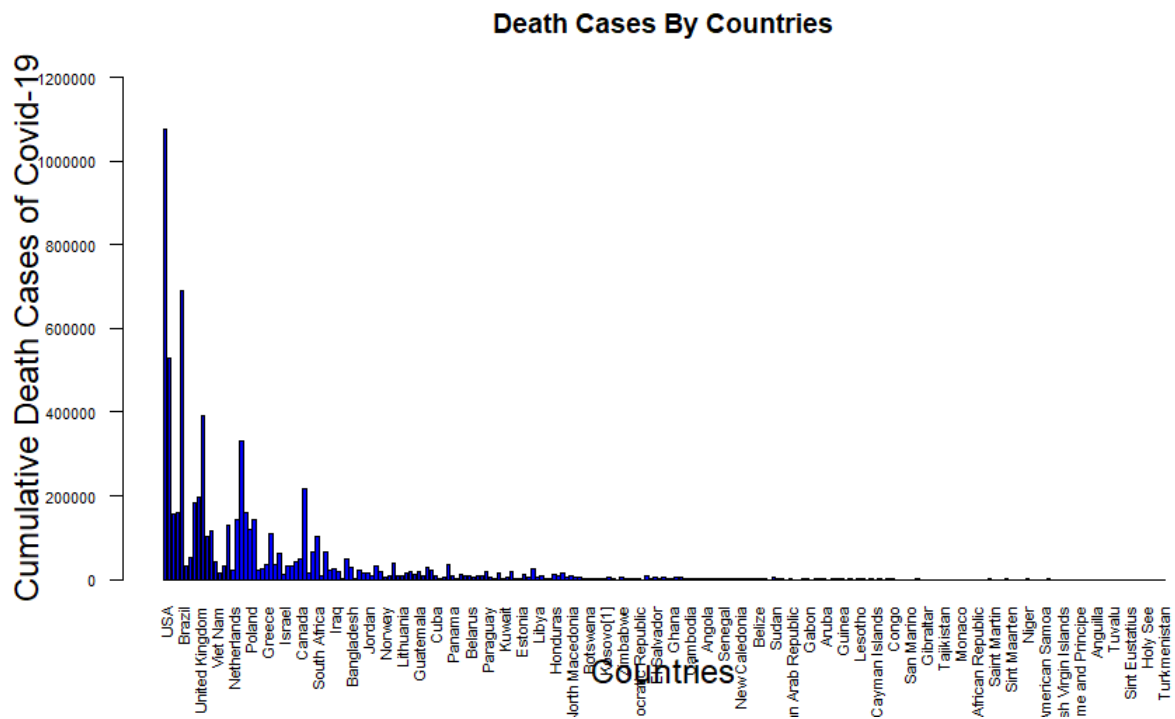
The report also used a CSV file from WHO, which includes cumulative COVID-19 cases and deaths for global and 247 countries, as well as daily cases and deaths for each country. The CSV file is updated till 16 December 2022. The data was extracted and visualized using RStudio.

Death Cases in Different Countries



According to the chart from Our World in Data (2022), as of 16 December 2022, the global cumulative COVID-19 death cases is 6,642,832. The death cases started to spike in March 2020 when the virus was introduced and has impacted the world for more than two years. The death chart can be described as a ‘rollercoaster’ with fluctuations in the number of deaths.

Using the global cumulative death cases divided by the cumulative COVID-19 cases, the global death rate of COVID-19 calculated is **0.01%** so far which means an average of 10 death cases occurring per 1000 covid cases.



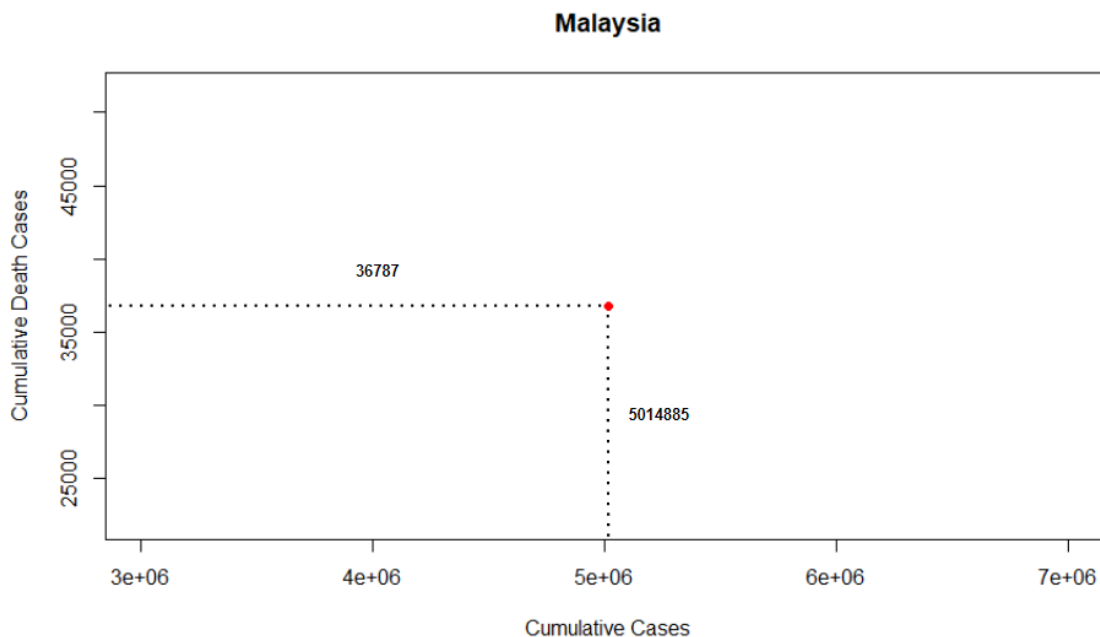
The bar chart extracted using RStudio based on the imported CSV file above showed the cumulative death cases for each country until 16 December 2022. From the data, 237 countries have been plotted on the graph and obviously, the United States has the most death cases whereas some countries have relatively low death cases because they have a low population.

There are many factors that affect the death rates due to COVID-19 such as health facilities, services, age, prior diseases and gender. For instance, Yanez et al. (2020) stated that people aged 65 years or older had strikingly higher COVID-19 mortality rates compared to younger individuals. From this result, we truly believe that the elderly have a weaker immune system compared to the younger.

For further research, we have picked the 3 most relevant countries to perform our analysis of death rates of COVID-19 which are Malaysia, United States and China.

Malaysia

According to Hashim et al. (2021), the COVID-19 outbreak is the greatest disease outbreak to have hit Malaysia since 1918. The first wave of COVID-19 has 22 covid cases with no deaths and full recovery of all cases. But, it led to the second wave with the highest infection rate of 6.5% for the Sri Petaling Tabligh cluster and making up 47% of all cases in Malaysia.



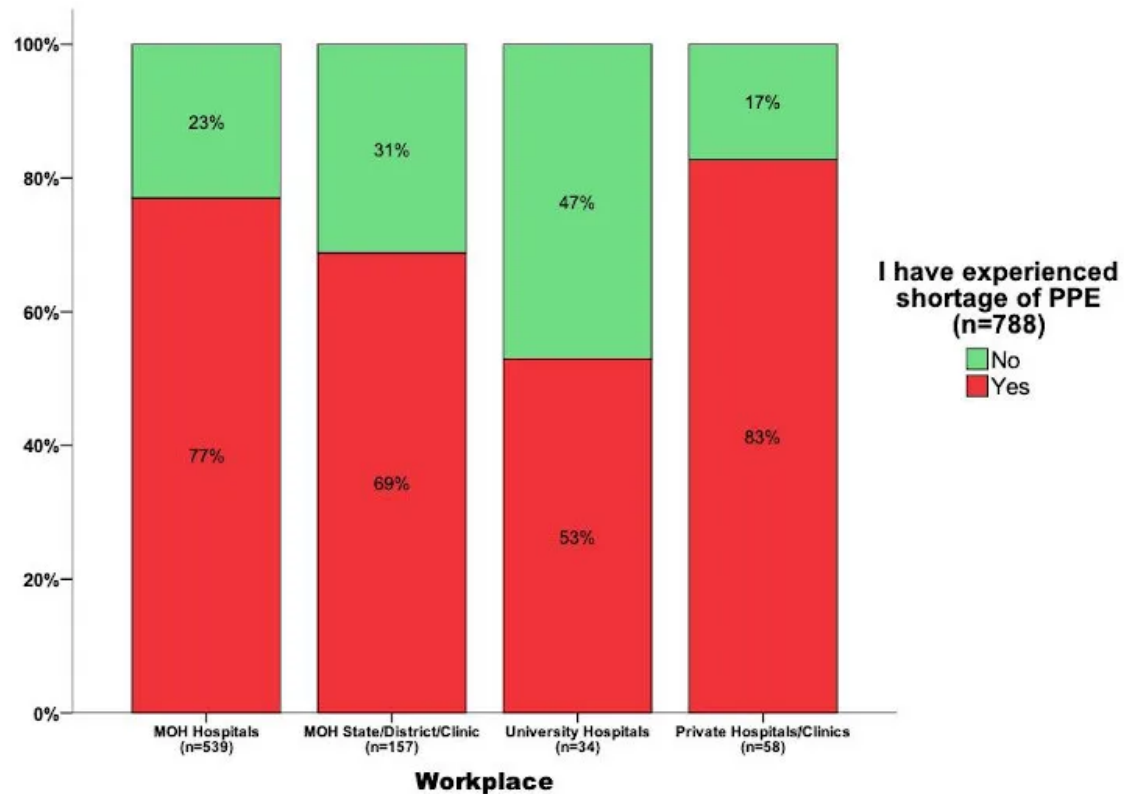
By referring to the chart extracted using RStudio based on the imported CSV file, as of 16 December 2022, Malaysia has accumulated 5014885 COVID-19 cases and 36787 death cases.

$$\underline{\underline{36787 / 5014885 = 0.73\% \text{ of death rates}}}$$

The overall fatality rate is 0.73% which means there are an estimated 7 to 8 death cases per 1000 COVID-19 cases.

An important aspect to combat COVID-19 is the healthcare system. In the beginning, the COVID-19 test samples were carried out in Malaysia's government laboratories. According to Hashim et al. (2021), at the end of April 2020, Malaysia had conducted an estimated 4700 tests per million people which is far lower compared with Singapore's about 17000 tests per million people (para. 38). This is because widespread COVID-19 and increasing workload in these laboratories prevent them from meeting the daily demand for testing.

The availability of sufficient personal protective equipment (PPE) and adequate human resources are two further ineluctable risks to the healthcare system. According to Muhyiddin (n.d., as cited in Yusof, 2020), 500 million will be allocated to buy equipment such as PPE and ventilators, while RM100 million will be utilized by the Health Ministry to engage 2000 additional workers on a contract basis (para. 4). Healthcare staff and PPE must work together for proper COVID-19 management since the healthcare staff needs to have access to the necessary level of PPE. Therefore, PPE is a valuable asset hoarded due to huge demand.



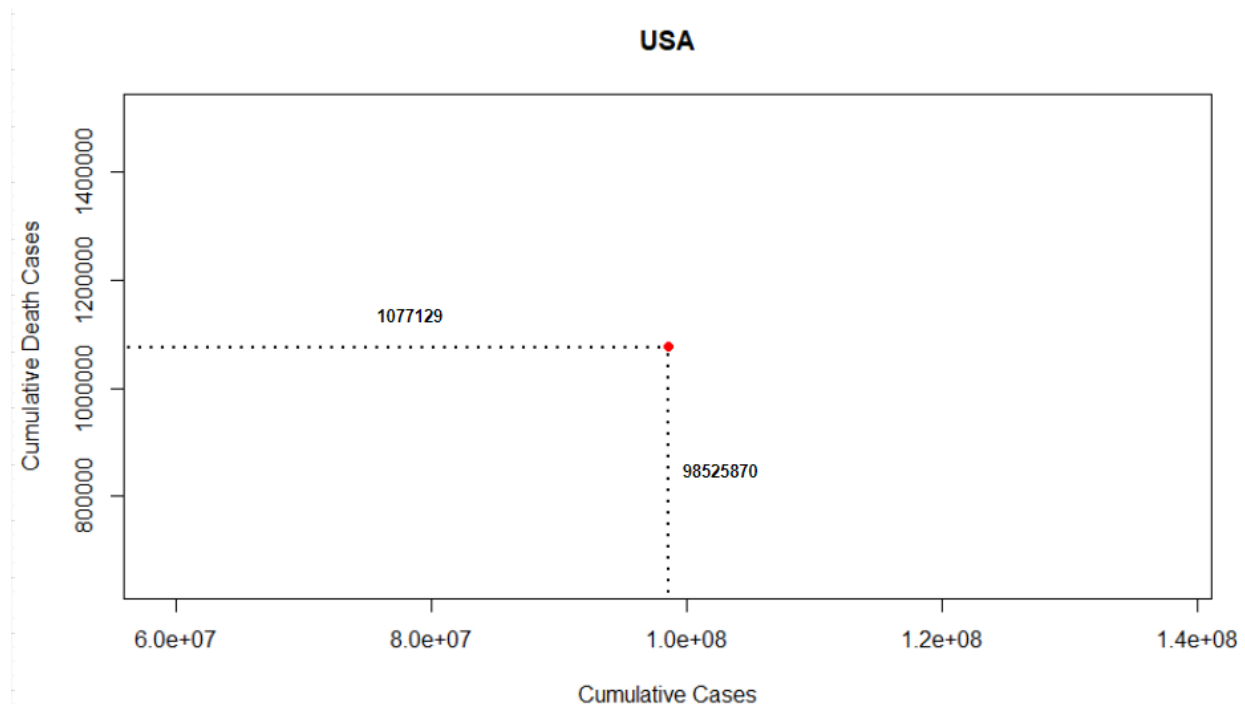
Although the government has spent a lot of money to solve this issue, Lim (2020) revealed that about 53% to 83% of the respondents to the survey which consists of doctors, nurses and allied healthcare workers, reported having a scarcity of PPE supplies at their place of employment.

Some even volunteer to sew isolation gowns, head coverings and boot covers, while other groups make their own head coverings and provide them to frontliners. On the other side, many of them are experiencing burnout and tiredness, as a result of the shortage of healthcare personnel and being required to work around the clock, which could be harmful to their mental and physical health.

In brief, the scarcity of PPE, healthcare workers, health facilities, and test sampling in Malaysia has led to deaths from COVID-19 infection.

United States

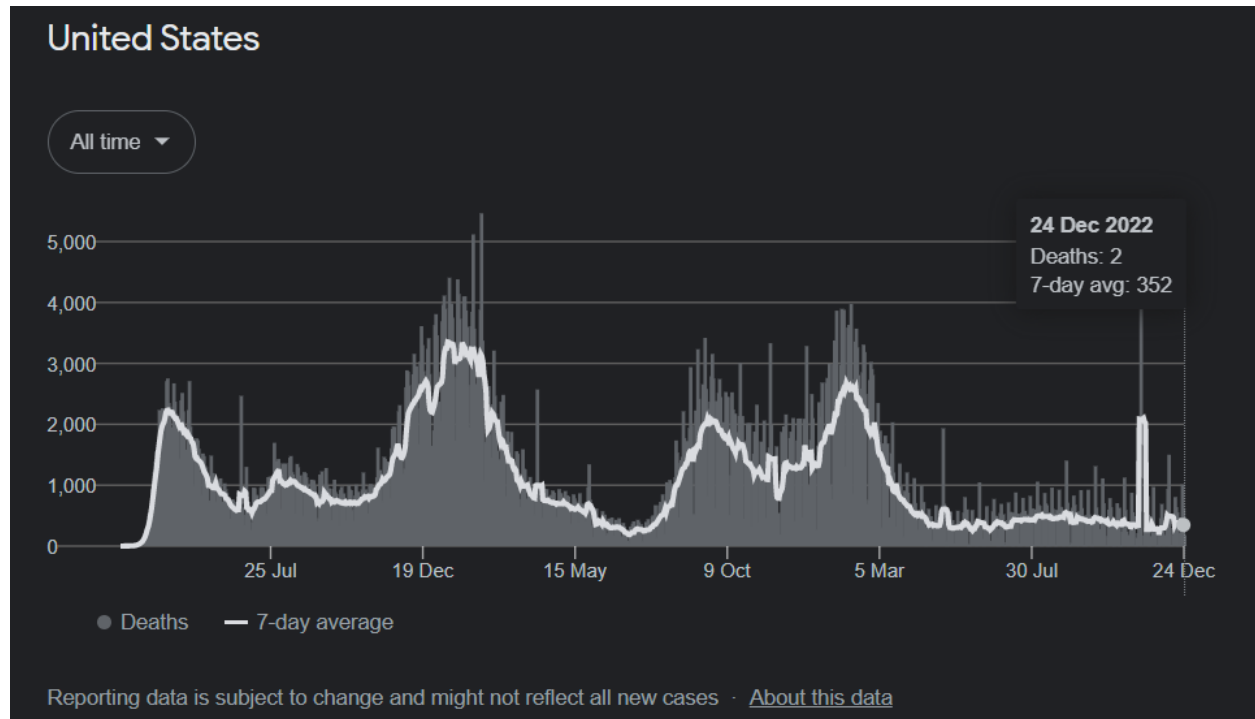
According to Statista *Novel Coronavirus (COVID-19) Deaths by Country Worldwide as of 2023* (n.d.), the statistics showed the United States has one of the highest numbers of COVID-19 deaths in the world. The high population of the US (estimated at 332 million) is likely a contributing factor in this case.



From the chart extracted using RStudio based on the imported CSV file collected, as of 16 December 2022, the US is having 98525870 cumulative COVID-19 cases while the cumulative death cases are 1077129.

$$\underline{1077129 / 98525870 = 1.1\% \text{ of death rates}}$$

Based on these data, it is estimated that 11 deaths occur per 1000 COVID-19 cases. According to *First Confirmed Case of COVID-19 Found in U.S.* (2020), the first case of COVID-19 in the US was detected on 21 January 2020 and the first death occurred on 29 February 2020.



According to the chart extracted from Our World in Data, the US experienced multiple waves of COVID-19, with a spike in deaths in March 2020. There were further spikes in deaths from January to February 2021 and June to September 2022.

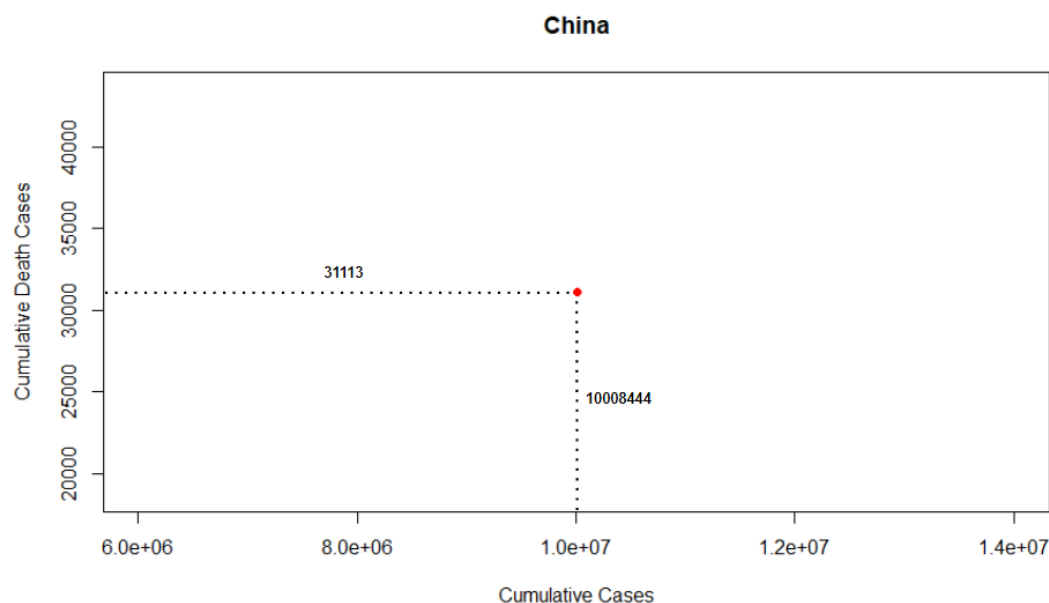
On the COVID-19 front, the United States is faced with many significant obstacles. 36 individuals per km² make up its dense population. Without complete shutdowns, social isolation is unimaginable, particularly in large cities with packed streets, buses, trains and workplaces. Hand washing and coughing are mainly absent. According to Gasbarre (2021), 50% of

Americans still do not clear their hands using soap before eating (para. 7). Worse still, US Water Alliance (2019) stated that 2 million Americans lack access to safe water for handwashing (p. 11). This has caused widespread of COVID-19 in the US due to their lackadaisical attitudes toward the pandemic.

Not surprisingly, racial and ethnic discrimination still exists during the pandemic. According to Deane et al. (2021), Black Americans are consistently less likely to get a vaccine (para. 35). Black Americans have to endure systemic racism and discrimination which has created deep mistrust of medical institutions and unequal access to care and treatment towards them. Thus, the fatality rates are much higher among Black Americans in the US.

China

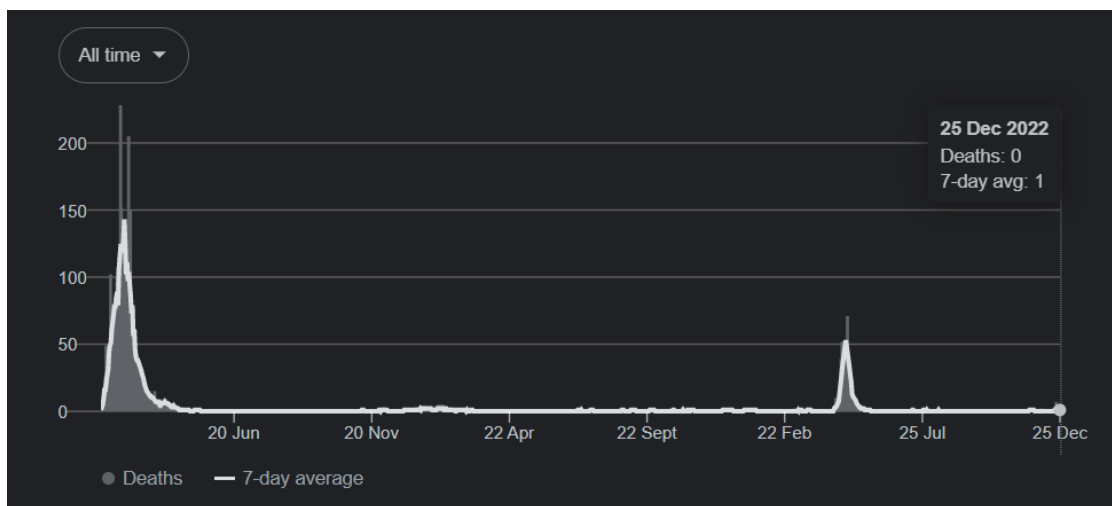
China is one of the most populated countries in Asia, thus it can't be avoided from having high covid cases. AlTakarli (2020) stated that China was the first country reported to experience an outbreak of the covid-19. The first COVID-19 case was reported on 31 December 2019 in Wuhan. The COVID-19 then spread rapidly to all other provinces of China.



Referring to the chart extracted using RStudio based on the imported CSV file, as of 16 December 2022, China is having 98525870 cumulative COVID-19 cases while the cumulative death is 1077129 cases.

$$\underline{\underline{31113 / 10008444 = 0.31\% \text{ of death rates}}}$$

Hence, the death rate calculated is 0.31% for China. There will be an estimated 3 to 4 death cases per 1000 COVID-19 cases which is relatively low compared to other countries.



Referring to the chart extracted from Our World in Data (2022), China effectively controlled the COVID-19 outbreak through a zero-COVID strategy, including immediately locking down affected provinces. However, a new outbreak in Shanghai from March to May 2022 resulted in a hike in deaths.

China also faces a lot of challenges in dealing with this pandemic. First, China's elderly population has poor vaccination rates, which contributes to overcrowded hospitals and high death rates. According to Zhang et al. (2022), only 62% of the 5.8 million individuals older than 60 who were vaccinated, and 38% received a booster shot (para. 3). This is because a considerable amount of them suffer from underlying diseases. If strong public health measures

like lockdown of neighbourhoods experiencing large epidemics and confinement of infected cases in shelter hospitals are not implemented, the mortality toll among elderly persons who have not had vaccinations might be significant.

Besides, some patients are unable to access hospital care because they are unable to obtain permission for treatment, even for chronic and life-threatening conditions. According to Duckett et al. (2022), a 98-year-old woman died while awaiting the result of a COVID-19 test before she could receive medical care for chronic renal failure, while an aged patient died because he could not receive his dialysis treatment (para. 14).

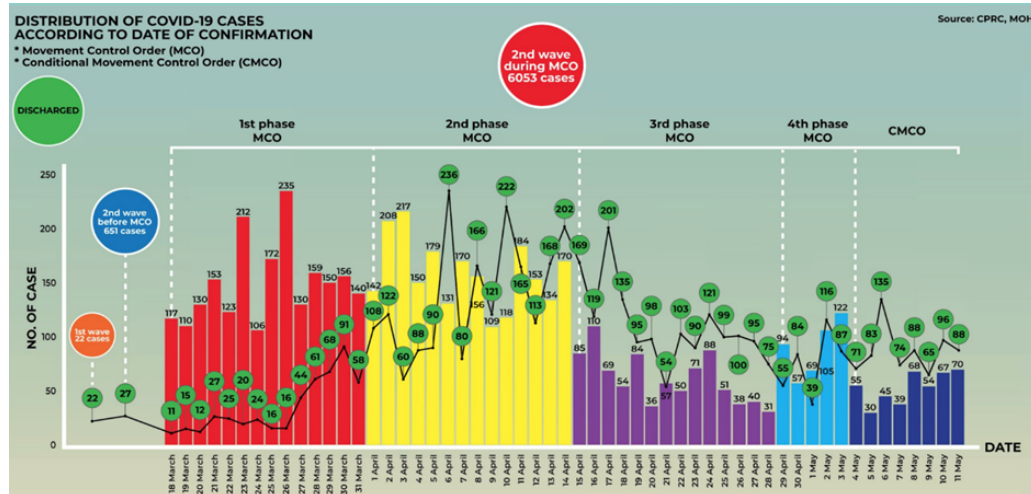
The increase in death cases of COVID-19 has caused suicides and mental health issues in China. The mental health deterioration can stem from numerous factors including the constant fear of contracting the virus, losing loved ones to the illness and the impact of being quarantined. According to Duckett et al. (2022), a district health official reportedly committed suicide while at work as a result of the stress of his COVID-19 enforcement responsibilities, while a female journalist in Shanghai reportedly fell from a skyscraper after her medications ran out (para. 4). Thus, this COVID-19 outbreak threatens not only physical health such as coughing and breathing difficulties but also has significant repercussions on mental health.

Alternative Solution

The outbreak of COVID-19 at a blistering pace which is life-threatening. Death cases are accumulating day by day while the world is racing to halt the spread of the virus and thus reduce the death cases rate. Thus, there are several solutions that countries have made to combat this fatal problem.

Movement Control Order (MCO)

In order to scale down the number of death cases, a movement control order (MCO) has been imposed on all Malaysians in March 2020. According to the statistics extracted from the Desk of the Director-General of Health Malaysia (2020), this action successfully deters the hike up of fatality rate after the third phase of MCO.



This is due to the reason that MCO prohibits Malaysians from hopping out from home unless there is an emergency case. Besides, all educational institutions, businesses and industries are required to close. Moreover, practicing the standard operating procedure (SOP) announced

by the government is mandatory for every Malaysian. As a result, the spread of COVID-19 is able to come to a halt.

Temporary Hospital

During the outbreak of the COVID-19 pandemic, inadequate medical equipment and healthcare services were the biggest problems. In this case, some countries have set up temporary shelters for the COVID-19 patients. However, China has made an impressive effort where it has been recognised as a model country in combating death cases. The most prominent effort that China has done is the construction of temporary hospitals within 2 weeks.

According to the article *Wuhan Hospital Built in under 2 Weeks* (2020), a temporary hospital with 6000 beds was built in Jilin City within 6 days while a 1000-bed hospital was built in Wuhan city within 10 days. Thus, there will be enough medical care and facilities to treat and cure COVID-19-positive patients, causing the number of death cases to reduce.



Photo released by China's Xinhua News Agency (2020) shows the construction site of the Huoshenshan temporary hospital which was built in Wuhan, central China's Hubei Province. Even though the hospital was built within several days, the room was well-equipped with

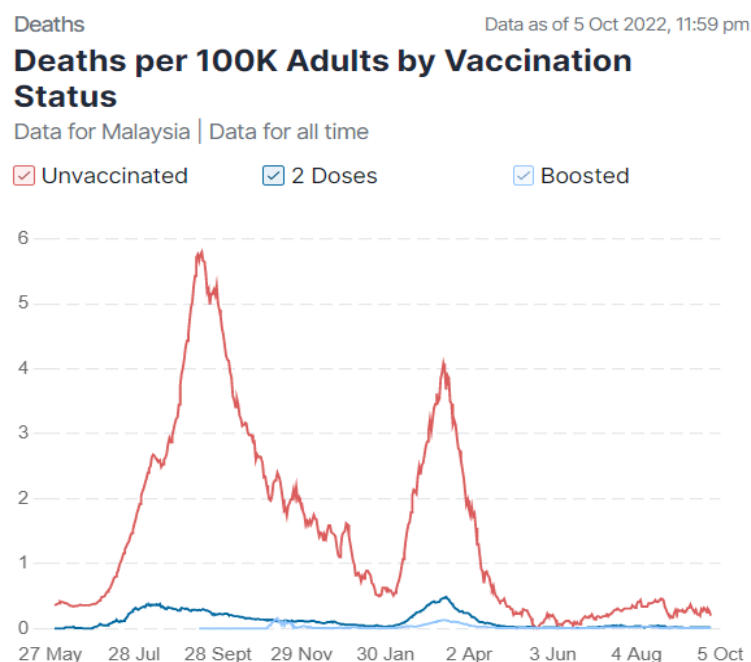
medical devices like an oxygen tank and ECG monitor as well as a television for entertainment purposes.

Main Solution - Vaccination

Since 2020, international organizations, the pharmaceutical industry and the government have been working on the development of COVID-19 vaccines to reduce the number of death cases around the world. According to Watson et al. (2022), vaccination prevented about 14.4 million deaths due to COVID-19 infection in 185 countries and territories as of 8 December 2021 (para. 3). The model is based on the reported COVID-19 death cases and the results represent 79% of deaths were reduced globally. This study shows that the development and distribution of COVID-19 vaccines saved millions of lives.

Malaysia

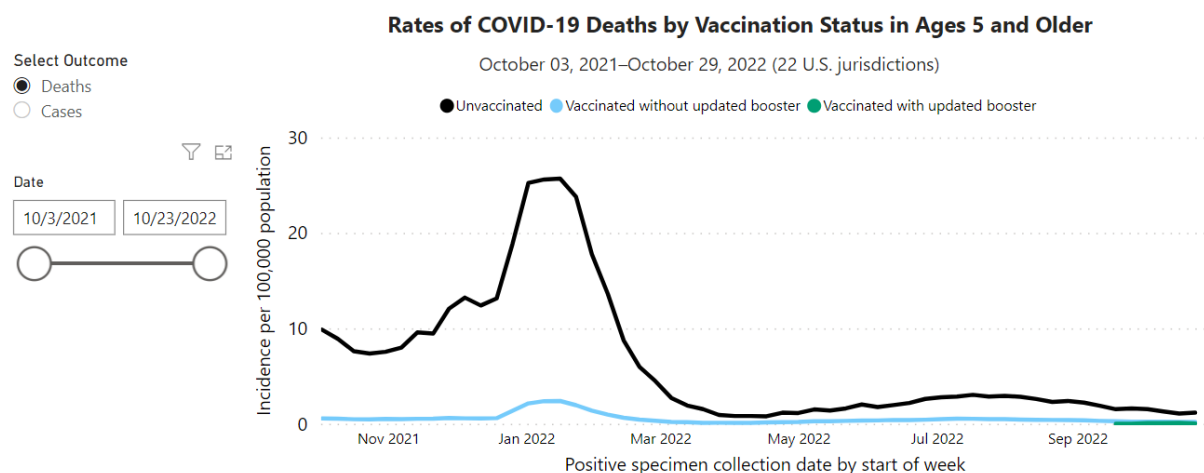
Malaysia's government launched the National COVID-19 Immunisation Programme in February 2021. Vaccines that have been approved to be used are Pfizer-BioNTech, Oxford-AstraZeneca, and so forth. According to the article *COVID-19 Vaccines Cut ICU Risk by 83%, Deaths by 88% in Malaysia* (2021), complete COVID-19 vaccination has prevented death by 88% (para. 1). The data showed us that the efficiency of vaccination in preventing deaths due to COVID-19 infection is high.



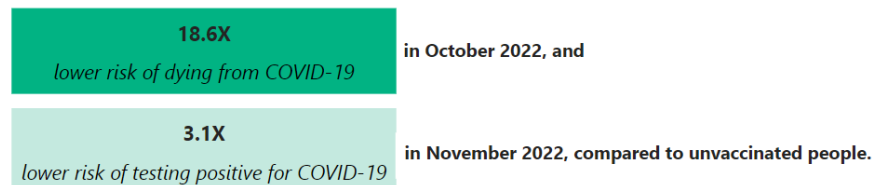
Referring to the data extracted from the COVIDNOW (n.d.), people receiving vaccines with a booster have the lowest death rates per 100k adults, followed by people receiving 2 doses of vaccines and the death rates of unvaccinated people are the highest. The chart proves that complete vaccination will definitely help in lowering the risk of deaths caused by COVID-19.

United States

Vaccines such as Pfizer-BioNTech and Moderna were approved to be used in the United States. According to Pettypiece et al. (2021), the goal of administering 100 million vaccine doses was achieved in March 2021 and 200 million vaccine doses were achieved in April 2021 (para. 1 & 4). This showed that the pace of vaccination had rapidly increased.




People aged 5 and older vaccinated with an updated (bivalent) booster had:



Referring to the chart adapted from the Centers for Disease Control and Prevention (2021), those vaccinated with a booster will have an 18.6 times lower risk of death due to COVID-19 infection compared to unvaccinated people in October 2022.

Estimates of COVID-19 Attributable Deaths, Hospitalizations, and Infections Averted by the U.S. Vaccination Program Between December 12, 2020, and November 30, 2022

	Averted number	95% Credible Interval*
Deaths	3,255,656	3,088,126 to 3,410,112
Hospitalizations	18,585,131	17,780,337 to 19,355,830
Infections	119,851,779	112,698,238 to 127,129,565

 Download data

* Credible Intervals reflect the range of uncertainty associated with estimates.

Source: Meagan C. Fitzpatrick et al., "Two Years of U.S. COVID-19 Vaccines Have Prevented Millions of Hospitalizations and Deaths," *To the Point* (blog), Commonwealth Fund, Dec. 13, 2022. <https://doi.org/10.26099/whsf-fp90>

Referring to the data extracted from research by Fitzpatrick et al. (2022), the vaccination programme launched has prevented about 3.2 million deaths due to COVID-19 infection as of November 2022. From the data, we can conclude that the vaccination programme implemented has effectively reduced the number of death cases in the United States.

China

As a country with about 1.41 billion people, China launched their vaccination programme in December 2020. The approved vaccines to be used like Sinopharm BIBP and CoronaVac originated in China. According to Zheng (n.d., as cited in Bai & Leng, 2022), the director of the Development Center for Medical Science and Technology of the National Health Commission (NHC) stated that those aged 80 years old and above who received 3 doses of vaccine had a 9.3

times lower risk of deaths (para. 13). These statements showed that vaccination is indeed protecting people which lowered the death cases caused by COVID-19 in China.

Conclusion

It is undeniable that the COVID-19 pandemic has destroyed economies, creating chaos in global healthcare systems and snuffing out lives on a scale which is beyond imagination. This enemy came unexpectedly and without any sign.

As a result of our research, the United States has the highest number of death cases while China is one of the model countries in dealing with the COVID-19 pandemic. Alternative solutions such as lockdowns and the construction of temporary hospitals lend a big hand in combating this disease. However, after our research, we found that vaccination is the most effective way to stop the spreading of the pandemic.

Every cloud has a silver lining. Although COVID-19 brings numerous negative impacts to us, we can still look on the bright side of things. In fact, people are now taking more care of self-hygiene and health as they value their lives more. Besides, family bonds have been strengthened since the outbreak of the COVID-19 pandemic. They are no longer just busy at work but will spend quality time with their families. Last but not least, people are more likely to believe in science and technology where they will take initiative to get vaccinations as well as learn to use the electronic gadget as everything is moving to online gradually.

In a nutshell, this pandemic is not the first. Neither will it be the last. Hence, let us do our best to fight this contagious virus and win the war against COVID-19.

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