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DO VIRUSES CARE ABOUT POLITICS? A STUDY OF COVID-19 POLICY APPROACHES AND EFFECTS

Major Andrew Mills

JCSP 46

Solo Flight

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A STUDY OF COVID-19 POLICY APPROACHES AND EFFECTS**

By Major Andrew Mills

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We see what's happening. We see what's going on in other countries. We're looking at — we're learning from watching other countries, frankly. This is a very contagious — this is a very contagious virus. It's incredible. But it's something that we have tremendous control over.

- U.S. President Donald Trump, March 15, 2020, *Coronavirus Task Force Press Briefing*

You don't make the timeline, the virus makes the timeline.

- Doctor Anthony Fauci, March 25, 2020, *Interview on CNN's Prime Time*

INTRODUCTION

The novel coronavirus that originated in late 2019, which causes COVID-19, has wreaked havoc on health, economic and social systems around the world. Hundreds of thousands of people have died,¹ the global economy has contracted sharply with a historic rise in associated unemployment rates,² and social norms have been severely altered. A recent downward trend in new cases is finally providing some positivity, but a lack of a coordinated global response, coupled with major reporting flaws and misinformation, have impacted the world's ability to curb the spread of infection.

This pandemic has illuminated the strengths and weaknesses of various governments to handle such a threat. But aside from public blaming and anecdotal reasoning, what has caused certain nations to suffer much more dramatic losses than others? Policy approaches have ranged from passive to authoritarian, and their effectiveness can now be measured through reported statistics in order to help answer this

¹ The World Health Organization, "Coronavirus Disease 2019 Situational Report 100," *The World Health Organization*, March 30, 2020. Last accessed 1 May 2020, <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>.

² International Monetary Fund, "World Economic Outlook, Chapter 1 – The Great Lockdown, April 2020," *International Monetary Fund*, April, 2020. Last accessed 1 May 2020, <https://www.imf.org/en/Publications>.

question. This paper will discuss and compare the evolution of the pandemic in various nations from the initial outbreak until April 29, 2020³, examining the spread of the virus, the corresponding policy actions taken, and their effectiveness.

This analysis will be presented in three sections. The first will cover the global spread of the virus and the corresponding overall response, from its origins in the Chinese city of Wuhan to the major steps that have been widely applied to reduce its impact. Second, the responses of 10 countries with varying governance structures and geographical realities will be examined. This will include an analysis of each country against the global timeline, as well as the response each government took relative to their national rate of infection. Finally, the effectiveness of each country's response will be evaluated, as both a measure of how their policy approaches worked and how willing their populations were to follow the restrictions.

SECTION ONE – COVID-19 GLOBAL TIMELINE

Outbreak in China

In late 2019, a major health crisis began in the Chinese province of Hubei. It started as localized cases of pneumonia with unknown etiology in Wuhan, a city of over eight million within its urban centre.⁴ The original site tracing led officials to believe that the epicentre of the outbreak was a market in the city's downtown core in December, however recent genome studies contradict these timelines. It is now believed that the

³ April 29, 2020 marks the 100th Daily Situation Report from the World Health Organization on the pandemic, and was selected as the end point for this paper's analysis. Only data from these reports will be used for modelling to avoid statistical variance.

⁴ Population Stat, "China Population," last accessed 1 May 2020, <https://populationstat.com/china/>.

virus began to spread in November, without an exact geographical source known within Wuhan.⁵

As cases began to mount and the scope of the outbreak prompted national officials to act, China initially attempted to downplay the severity of the outbreak and control the narrative through state-run media.⁶ Eventually, due to increasing information leaks and political pressure, they reported their findings to the World Health Organization (WHO) on December 31, 2019. On January 7, 2020, Chinese authorities identified that these cases were in fact the result of a novel coronavirus, for which no human immunity was present in the global population. This information was reported to the WHO on January 11, along with the genetic sequence the following day. Shortly thereafter, the first case outside of China was reported in Thailand on January 13, marking the date the outbreak became an international incident.⁷

The WHO Passively Alerts the World

Once the potential threat of the virus was realized, the WHO began alerting the international community. Beginning on January 21, they have been publishing and distributing daily Situation Reports (sitreps), which summarize critical events, report on global cases and deaths, outline preparedness and responses, and provide recommendations and advice to both governments and the public. As more information about the virus became known, an International Health Regulations Emergency

⁵ Alexandre Hassanin, "Coronavirus Origins: Genome Analysis Suggests Two Viruses May Have Combined," *World Economic Forum*, March 20, 2020. Last accessed 1 May 2020, <https://www.weforum.org/agenda/2020/03/coronavirus-origins-genome-analysis-covid19-data-science-bats-pangolins/>.

⁶ BBC News, "Coronavirus: Why China's Claims of Success Raise Eyebrows," *BBC News*, April 7, 2020. Last accessed 1 May 2020, <https://www.bbc.com/news/world-asia-china-52194356>.

⁷ The World Health Organization, "Coronavirus Disease 2019 Situational Report 1," *The World Health Organization*, January 21, 2020. Last accessed 1 May 2020, <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>.

Committee meeting was held on January 23 to discuss the way ahead. Although considered, the decision was made not to declare the virus as a Public Health Emergency of International Concern (PHEIC), despite 584 cases being reported in seven different countries.⁸

Merely a week later, a PHEIC was declared on January 30,⁹ after the number of confirmed cases had risen sharply to 7,818 across 19 countries, with 170 deaths.¹⁰ Throughout February and the beginning of March, the WHO worked closely with national health organizations around the world. As the number of affected countries and global cases increased exponentially, it became evident that community transmission was occurring on a global scale. This prompted the WHO to declare the virus a global pandemic on March 11.¹¹ The global spread of the disease in comparison to the PHEIC and pandemic declarations can be seen in Figure 1:

⁸ The World Health Organization, “International Health Regulations Emergency Committee on Novel Coronavirus in China,” *The World Health Organization*, January 23, 2020. Last accessed 1 May 2020, [https://www.who.int/news-room/detail/23-01-2020-statement-on-the-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\)](https://www.who.int/news-room/detail/23-01-2020-statement-on-the-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov)).

⁹ The World Health Organization, “Coronavirus Disease 2019 Situational Report 11,” *The World Health Organization*, January 31, 2020. Last accessed 1 May 2020, <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>.

¹⁰ The World Health Organization, “Coronavirus Disease 2019 Situational Report 10,” *The World Health Organization*, January 30, 2020. Last accessed 1 May 2020, <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>.

¹¹ The World Health Organization, “WHO Director-General's Opening Remarks at the Media Briefing on COVID-19 - 11 March 2020,” *The World Health Organization*, March 11, 2020. Last accessed 1 May 2020, <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>.

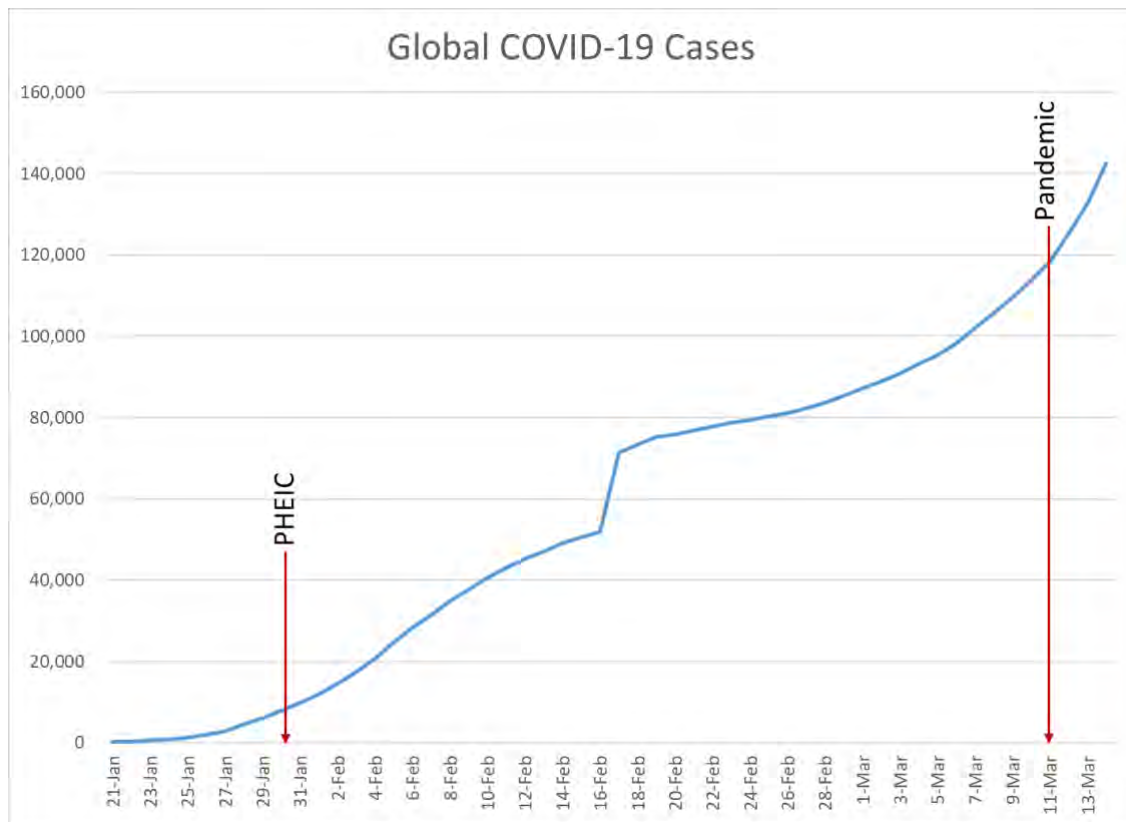


Figure 1: Global COVID-19 Cases and WHO Assessed Status

Source: Generated from WHO Sitreps #1-53

When the pandemic was declared, the WHO had officially reported 118,319 cases and 4,292 deaths across 114 countries.¹² Despite this delay, the highest global threat level had been reached, and the WHO would now take a backseat to individual governments in the fight against the virus.

The World's Response

Although some early measures had been taken by a range of countries, including restrictions and advisories surrounding travel to and from China, very few had taken drastic action to address the rate of transmission. Whether due to a lack of information, a

¹² The World Health Organization, "Coronavirus Disease 2019 Situational Report 51," *The World Health Organization*, March 11, 2020. Last accessed 1 May 2020, <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>.

sense that it was not their nation's problem, or a fear of disrupting their economies and social framework, the virus had spread uncontrolled. This changed in mid-March, as the increasing knowledge of the virus, shocking statistics and the pandemic declaration finally prompted significant government action.¹³ Figure 2 depicts the number of restrictive measures implemented globally through March 26:

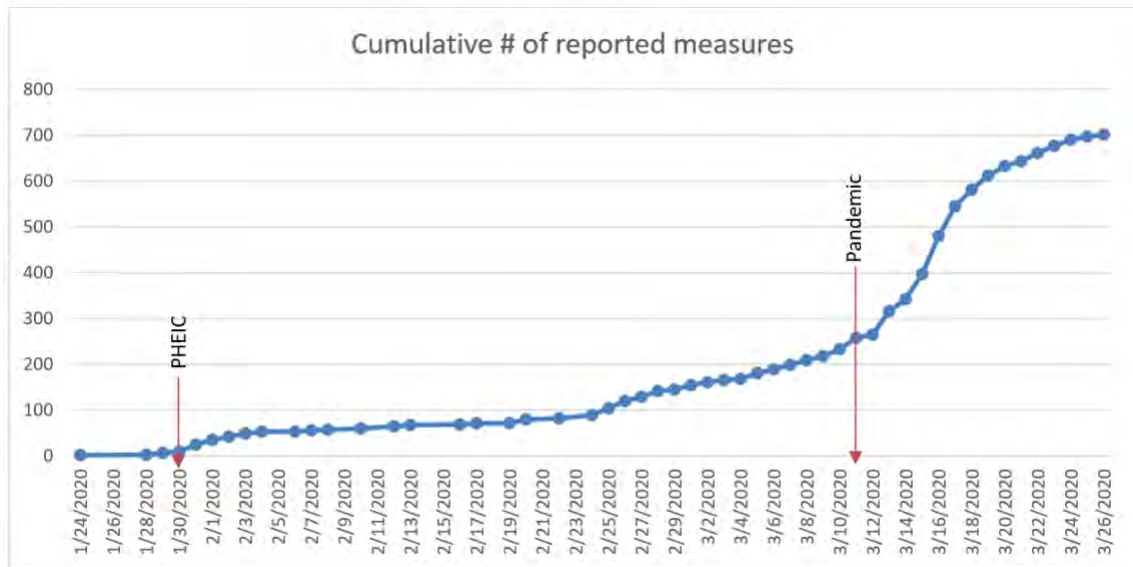


Figure 2: Globally Reported Measures Implemented by Governments

Source: WHO Sitrep #67

Following the pandemic declaration on March 11, there was an exponential increase in reported measures implemented by governments over the next two weeks, leveling off by the end of March. The majority of these responses have focused on restricting the movement of people in and out of countries, and limiting the proximity of people to one another through social distancing and the closure of non-essential businesses. The specific policies, delivery approaches and sequencing have varied, and

¹³ The World Health Organization, "Coronavirus Disease 2019 Situational Report 67," *The World Health Organization*, March 27, 2020. Last accessed 1 May 2020, <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>.

will be discussed in Section Two. However, given the global nature of a pandemic and the international dependencies to reduce the overall spread, the overall effort to “flatten the curve” can be examined. The cumulative number of global cases and deaths, effective April 29, is displayed in Figure 3:

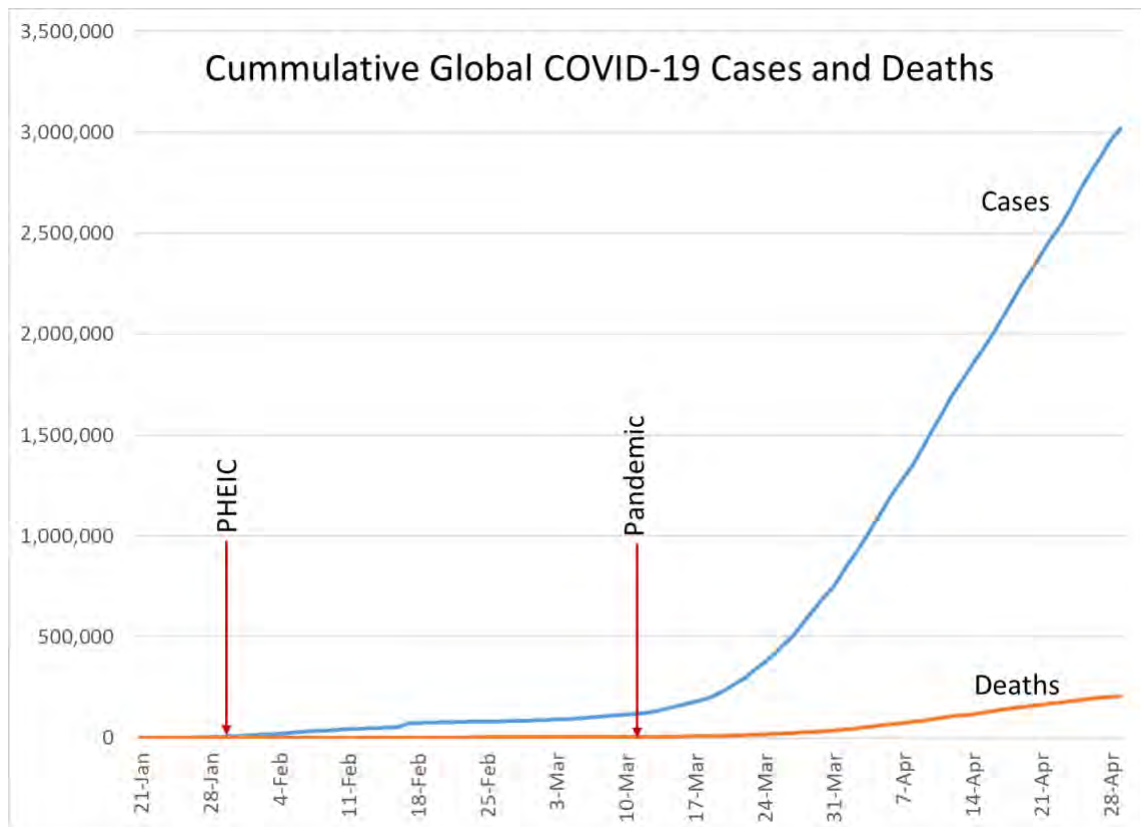


Figure 3: Global Spread of COVID-19 by Calendar Date

Source: Generated from WHO Sitreps #1-100

The initial indication from this graph is that the measures have had very little impact, but this is not the case. By presenting the number of new daily cases and deaths rather than the cumulative number, we can determine if the spread is continuing at the same acceleration:

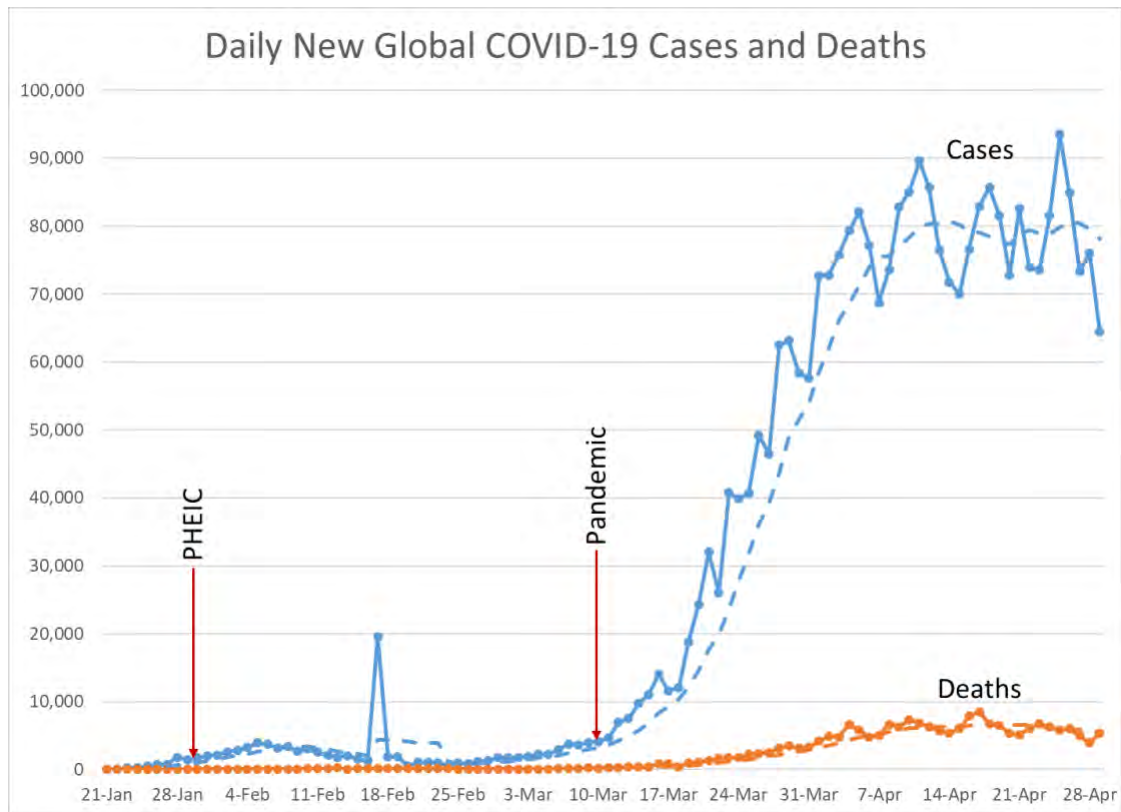


Figure 4: Daily COVID-19 Cases and Deaths¹⁴

Source: Generated from WHO Sitreps #1-100

Although still spreading at a rate of approximately 80,000 new cases per day, the rate has leveled off. The cumulative effects of governmental responses brought some control to the pandemic, effectively buying critical time for healthcare systems, supply chains and medical research teams to better prepare and react.¹⁵ The problem is that although effective, the global response was far too late, as the spread of the virus expanded exponentially over the weeks following the pandemic declaration. It had already penetrated communities around the world, and given how much information was

¹⁴ Trend lines depicting 7-day floating averages are added to indicate the overall curve.

¹⁵ Claire Gillespie, "Coronavirus Experts Want to 'Flatten the Curve' to Fight the Pandemic - Here's What That Means," *Health.com*, March 13, 2020. Last accessed 1 May 2020, <https://www.health.com/condition/infectious-diseases/coronavirus/flatten-the-curve-meaning>.

known to the WHO, it is surprising that they did not take these steps earlier.

Unfortunately, they did not view the importance of declaring a pandemic to the same degree as national governments. During the press release on March 11, the WHO Director-General, Dr. Tedros Adhanom Ghebreyesus, stated the following:

WHO has been assessing this outbreak around the clock and we are deeply concerned both by the alarming levels of spread and severity, and by the alarming levels of inaction. We have therefore made the assessment that COVID-19 can be characterized as a pandemic. Pandemic is not a word to use lightly or carelessly. It is a word that, if misused, can cause unreasonable fear, or unjustified acceptance that the fight is over, leading to unnecessary suffering and death. Describing the situation as a pandemic does not change WHO's assessment of the threat posed by this virus. It doesn't change what WHO is doing, and it doesn't change what countries should do.¹⁶

It would appear that the WHO were worried about how this declaration might cause others to over-react, yet they themselves appear to have viewed it as mere semantics. It is impossible to state with any degree of certainty what an earlier declaration would have accomplished, but it can be argued that based on the observed reaction that it would have reduced the spread and saved lives.¹⁷ As a counter argument, it is possible that it would not have advanced the response time of individual countries, as each restriction carries with it a corresponding negative impact on both the global and their individual economies. Governments were already concerned about the downward trajectory of stock markets, due to significant losses suffered in the weeks before significant action was taken, as exemplified by the Dow Jones Index in Figure 5:

¹⁶ The World Health Organization, *WHO Director-General's Opening Remarks...*

¹⁷ Devan Cole, "Fauci Admits Earlier COVID-19 Mitigation Efforts Would Have Saved More American Lives," *CNN*, April 12, 2020. Last accessed May 3, 2020, <https://www.cnn.com/2020/04/12/politics/anthony-fauci-pushback-coronavirus-measures-cnn-tv/index.html>.

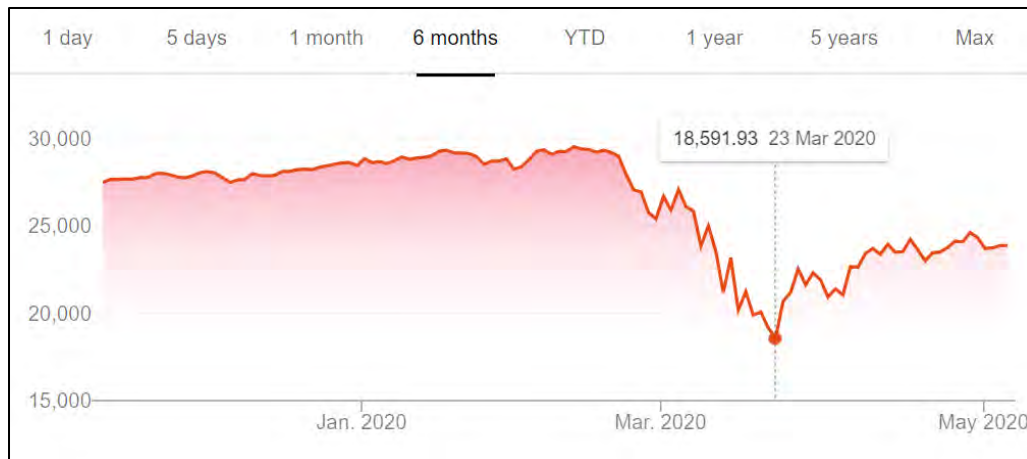


Figure 5: Dow Jones Index, November 2019 – March 2020

Source: Markets Insider, *Dow Jones Index*

Regardless of the date the pandemic was declared, it is not surprising that countries were hesitant to act until this point. Given the severe consequences of these preventative measures, coupled with the unprecedented nature and recent inexperience of dealing with a pandemic of this scale,¹⁸ this inaction is not surprising. In order to gain better understanding of the decision-making behind these measures, individual country responses must be analyzed.

SECTION TWO – INDIVIDUAL COUNTRY RESPONSES

The 10 countries selected were chosen due to their relatively comparable population sizes,¹⁹ economic development, and health care capacities, while providing a wide range of governance structures and pandemic responses. They include China, Russia and Iran to present authoritarian approaches; South Korea and Australia to provide

¹⁸ Global Preparedness Monitoring Board, “A World at Risk – Annual Report on Global Preparedness for Health Emergencies,” *Global Preparedness Monitoring Board*, September, 2020. Last Accessed May 3, 2020. PDF accessed via <https://www.theguardian.com/global-development/2019/sep/18/a-deadly-virus-could-kill-80-million-people-in-hours-experts-warn>.

¹⁹ All selected countries have a population above 25 million. Department of Economic and Social Affairs, “World Population Prospects.” *United Nations*, last accessed May 3, 2020, <https://population.un.org/wpp/>.

a democratic contrast in the Pacific region; Italy, Germany and the United Kingdom to examine the spread in Europe; and the United States and Canada to look at how North America reacted.

The number of reported cases is used when evaluating the timelines associated with taking action, as it was the key information available to governments that outlined the severity of the outbreak and influenced their decisions. However, they are inherently flawed as a measurement of the actual statistics for several reasons.²⁰ Therefore, reported deaths will be used to evaluate the effectiveness of government action, as they are much more accurately reported and thus a better representation of the actual levels of infection within a country.²¹

The Overall Spread by Country

By examining the number of cases by country by calendar date, the evolution of COVID-19 in real time can be observed:

²⁰ Reported cases are contingent upon a positive test for COVID-19, and the accessibility and protocols surrounding testing has been wildly inconsistent from one country to the next; health experts and scientists suspect that large portions of the populations may be carrying and spreading the virus without showing any symptoms at all.

²¹ Nidhi Subbaraman, "Why Daily Death Tolls Have Become Unusually Important in Understanding the Coronavirus Pandemic," *Nature*, April 9, 2020. Last accessed May 3, 2020, <https://www.nature.com/articles/d41586-020-01008-1>.

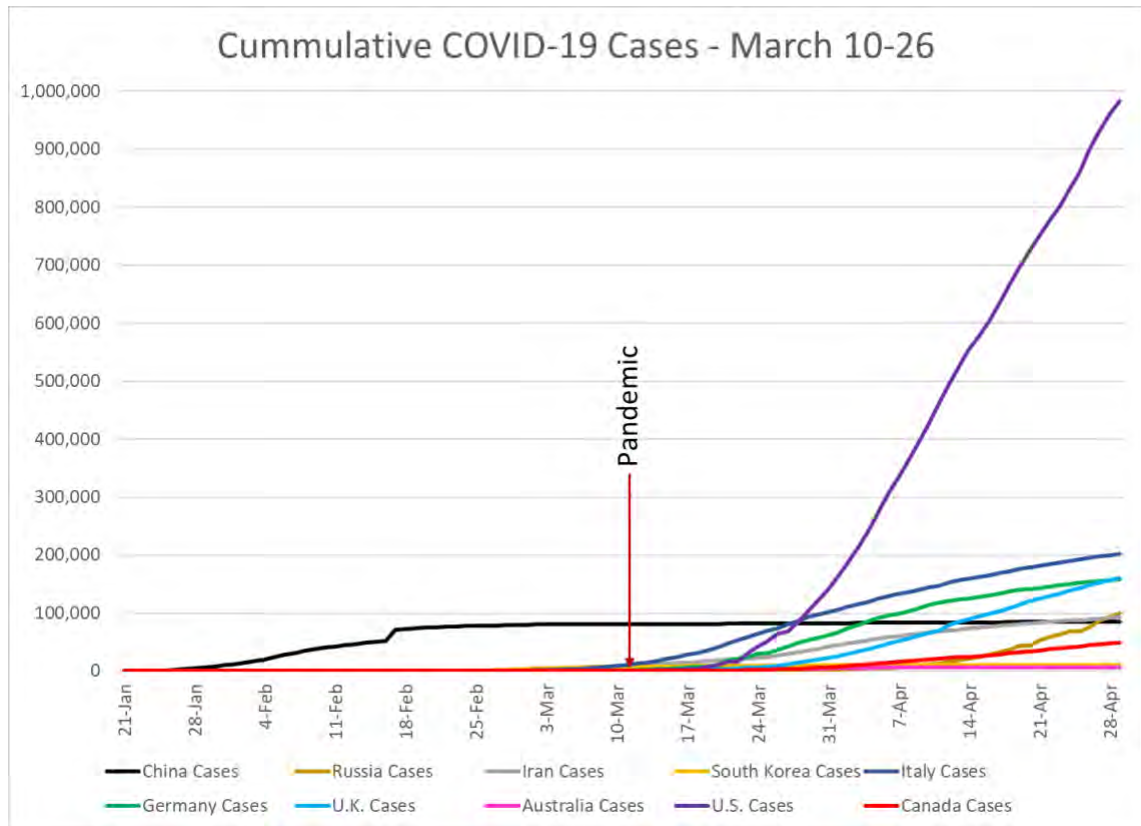


Figure 6: Total COVID-19 Cases Over Time

Source: Generated from WHO Sitreps #1-100

Other than the suspicious flattening of China's curve and the rapid acceleration of the outbreak in the U.S., this representation is not overly useful. The scale of the graph and extended timeline outside of the critical decision-making period makes it difficult to assess, therefore a focused data set for this timeframe is used:²²

²² The two-week period following the pandemic declaration as per Figure 2.

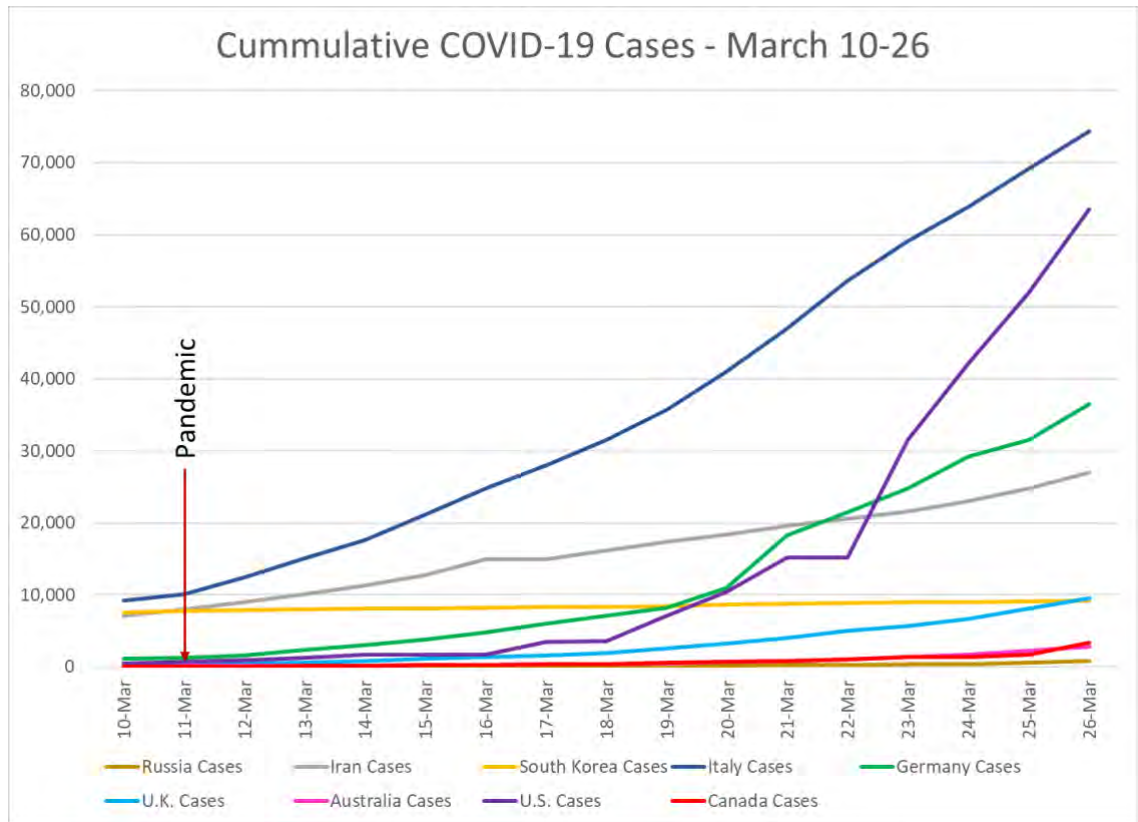


Figure 7: Real Time Number of COVID-19 Cases, March 10-26²³

Source: Generated from WHO Sitreps #50-66

At the time of the pandemic declaration, two distinct groups are observed: Italy, Iran, and South Korea were all above or nearing 10,000 cases, while the remainder were significantly lower, as seen in Table 1:

²³ The outbreak in China and the associated response occurred much earlier than the rest of the world in late 2019, and therefore is not reasonably comparable to the other countries by calendar date and was excluded in the graph above.

Table 1: Cumulative Cases by Country on March 11, 2020

Country	# of Cases on March 11, 2020 (Pandemic Declared)
Italy	10,149
Iran	8,042
South Korea	7,755
Germany	1,296
U.S.	696
U.K.	373
Australia	112
Canada	93
Russia	7

Source: WHO Situation Report #51

The first group represents the first major outbreaks outside China,²⁴ who were at a significant disadvantage as there was only China's response as precedence when their numbers began to swell. The second group were not only afforded more time to react before being overwhelmed with cases, but also had the benefit of observing the reactions of the harder hit nations. This largely influenced the measures that were implemented, but was far from the only factor; political ideologies, governance structures and geographic realities also heavily contributed to the process.

Authoritarian Responses – China, Iran & Russia

This is the most difficult group to assess, as their government structures are not vested in transparency and accountability to the public.²⁵ While this makes developing an accurate picture difficult externally, it provides certain advantages to their governments. Draconian measures, violent enforcement and the sacrifice of smaller

²⁴ Anjali Singhvi *et al*, "How the World's Largest Coronavirus Outbreaks Are Growing," *The New York Times*, March 12, 2020. Last accessed May 2, 2020, <https://www.nytimes.com/interactive/2020/world/coronavirus-maps-italy-iran-korea.html>.

²⁵ Statistics are often safeguarded, numbers that are released are often inaccurate, and strategic messaging is tightly controlled by state media.

groups to protect the overall public are much easier to apply when the rights and freedoms of their citizens are not paramount.

In China as previously discussed, the initial response was to isolate and cover-up the outbreak before the world became aware. As external pressure mounted, angst grew among their citizens, and the scope of the virus could no longer be hidden, the government eventually acted decisively. The rapid lockdown of Wuhan on January 23,²⁶ the cancellation of all mass gatherings for the Chinese new year,²⁷ the implementation of stringent internal travel restrictions,²⁸ and the closure of schools²⁹ attempted to avoid a catastrophic spread in the most populated country in the world. Figure 8 displays this timeline:

²⁶ Reuters, "Wuhan Lockdown 'Unprecedented', Shows Commitment to Contain Virus: WHO Representative in China," *Reuters*, January 23, 2020. Last accessed May 3, 2020, <https://www.reuters.com/article/us-china-health-who-idUSKBN1ZM1G9>.

²⁷ Beijing Tourism, "Beijing Cancels Large-Scale Activities," *Beijing Tourism*, January 24, 2020. Last accessed May 1, 2020, <http://english.visitbeijing.com.cn/a1/a-XENVJYBE5E26E371B1BF96>.

²⁸ Beijing Tourism, "Beijing to Suspend Inter-Provincial Passenger Bus Service to Curb Spread of New Coronavirus," *Beijing Tourism*, January 26, 2020. Last accessed May 1, 2020, <http://english.visitbeijing.com.cn/a1/a-XENVPM07AD3A08469FE0A4>.

²⁹ Beijing Tourism, "Beijing Delays School Opening to Curb Virus Spread," *Beijing Tourism*, January 27, 2020. Last accessed May 1, 2020, <http://english.visitbeijing.com.cn/a1/a-XENVSAF9AAB0703AB9CF91>.

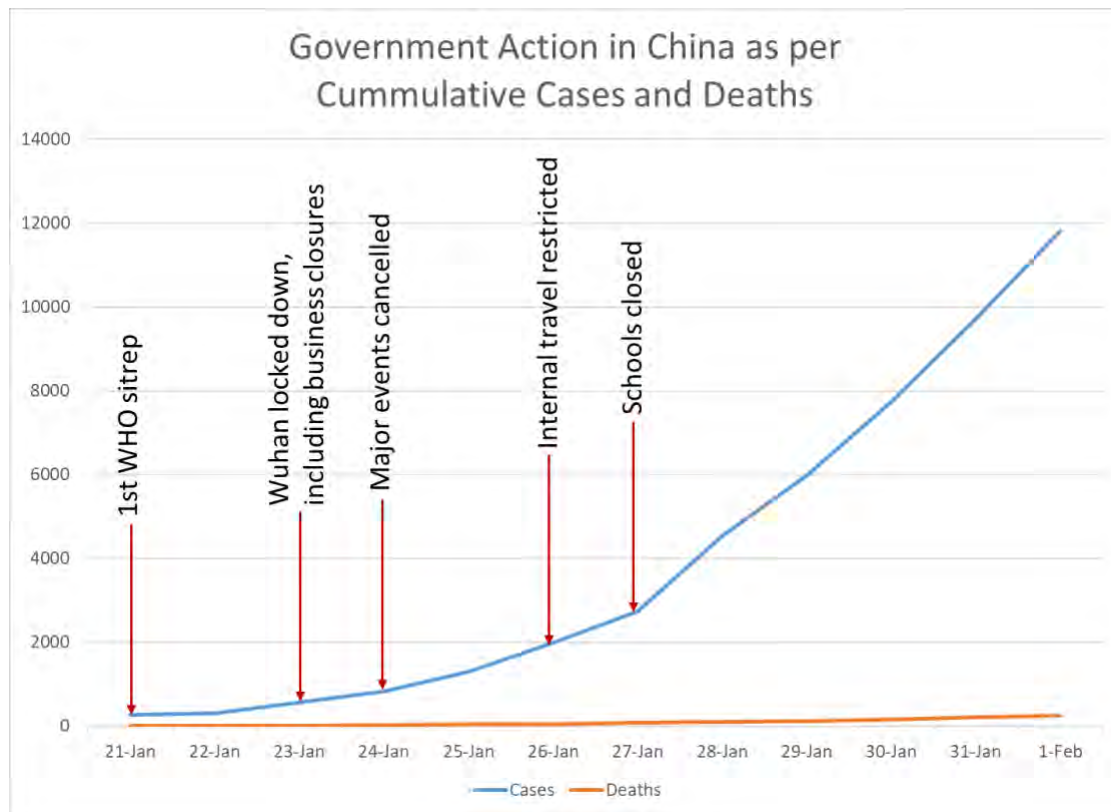


Figure 8: Measures Taken by the Chinese Government

Source: Generated from WHO Sitreps #1-12

Unfortunately, China's desire to suppress the narrative of the virus' spread and the associated delay had major consequences. It is now estimated that by acting a mere three weeks earlier, 95% of the cases could have been avoided,³⁰ which could have reduced the severity of the global pandemic. To their credit, their actions were rapid and coordinated once begun. However, severe enforcement of these measures, including alleged apartment buildings being welded shut, door-to-door temperature checks and forced

³⁰ Ian Sample, "Research Finds Huge Impact of Interventions on Spread of COVID-19," *The Guardian*, March 11, 2020. Last accessed May 3, 2020, <https://www.theguardian.com/world/2020/mar/11/research-finds-huge-impact-of-interventions-on-spread-of-covid-19>.

removal of those with symptoms were reported.³¹ Perhaps too heavy-handed for western societies to follow, this aggressive response did provide valuable lessons to the rest world, yet would go unheeded for weeks.

In Iran, an uncoordinated and chaotic scene emerged. On February 19, with 26 countries reporting infection, they still had not reported a single case.³² Yet the following day they recorded their first two deaths, becoming the only country studied in this paper that recorded deaths before infected patients.³³ Some important initial steps were taken, such as the closing of schools, however no social distancing or quarantine guidelines were provided or enforced. On February 24, the Deputy Health Minister, Iraj Harirchi, indicated that the government would not implement quarantines, stating:

With regard to quarantines – we are absolutely against them. Quarantines belong to pre-WWI – to the Plague, cholera, stuff like that. The Chinese themselves are not so pleased with the quarantine there. After all, quarantines have consequences...let's assume that we shut down Qom for ten consecutive days. Everybody would go traveling, and this will cause the disease to spread all over the country.³⁴

Also on February 24, President Rouhani stated that officials had “mobilized all of our resources” to contain the disease “in the shortest time with the minimum casualties,”³⁵ yet had still taken such minimal action by March 17 that five former Iranian

³¹ The Passionate Eye, “Documentary Captures Extreme Distress in Wuhan, China, During the Coronavirus Epidemic,” *CBC News Network*. Last accessed May 3, 2020, https://www.cbc.ca/passionateeye/m_features/documentary-captures-extreme-distress-in-wuhan-china-during-the-coronavirus

³² The World Health Organization, “Coronavirus Disease 2019 Situational Report 30,” *The World Health Organization*, February 19, 2020. Last accessed 1 May 2020, <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>.

³³ The World Health Organization, “Coronavirus Disease 2019 Situational Report 31,” *The World Health Organization*, February 20, 2020. Last accessed 1 May 2020, <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>.

³⁴ The Iran Primer, “Coronavirus Strikes Iran: Timeline,” *The Iran Primer*, April 21, 2020. Last accessed May 2, 2020, <https://iranprimer.usip.org/index.php/blog/2020/feb/24/coronavirus-strikes-iran>.

³⁵ *Ibid.*

health ministers wrote a letter to the president urging him to take “fundamental steps.”³⁶ During this critical period from late February to mid-March, no lockdowns were implemented and religious centres were kept open, with leaders encouraging that pilgrimage continue to these places of healing.³⁷ Significant action was finally taken towards the end of March as cases climbed above 15,000, yet the government continued to focus on blaming western nations instead of educating and setting an example for their people.³⁸ These events are depicted in Figure 9:

³⁶ Radio Farda, “Former Health Ministers Urge Iran's Rouhani to Take Urgent Steps Against Coronavirus,” *Iran News*, March 19, 2020. Last accessed May 2, 2020, <https://en.radiofarda.com/a/former-health-ministers-urge-iran-rouhani-to-take-urgent-steps-against-coronavirus/30497424.html>.

³⁷ Middle East Monitor, “Iran Cleric Encourages Visitors to Qom Religious Sites, Despite Coronavirus Fears,” *Middle East Monitor*, February 27, 2020. Last accessed May 2, 2020, <https://www.middleeastmonitor.com/20200227-iran-cleric-encourages-visitors-to-qom-religious-sites-despite-coronavirus-fears/>.

³⁸ This was best displayed on March 22, when Supreme Leader Ayatollah Khamenei rejected the United States’ offer of humanitarian assistance, stating “several times Americans have offered to help us to fight the pandemic. That is strange because you face shortages in America. Also you are accused of creating this virus.” Reality Check Team, “Coronavirus: Iran is Facing a Major Challenge Controlling the Outbreak,” BBC News, March 27, 2020. Last accessed May 2, 2020, <https://www.bbc.com/news/world-middle-east-51642926>.

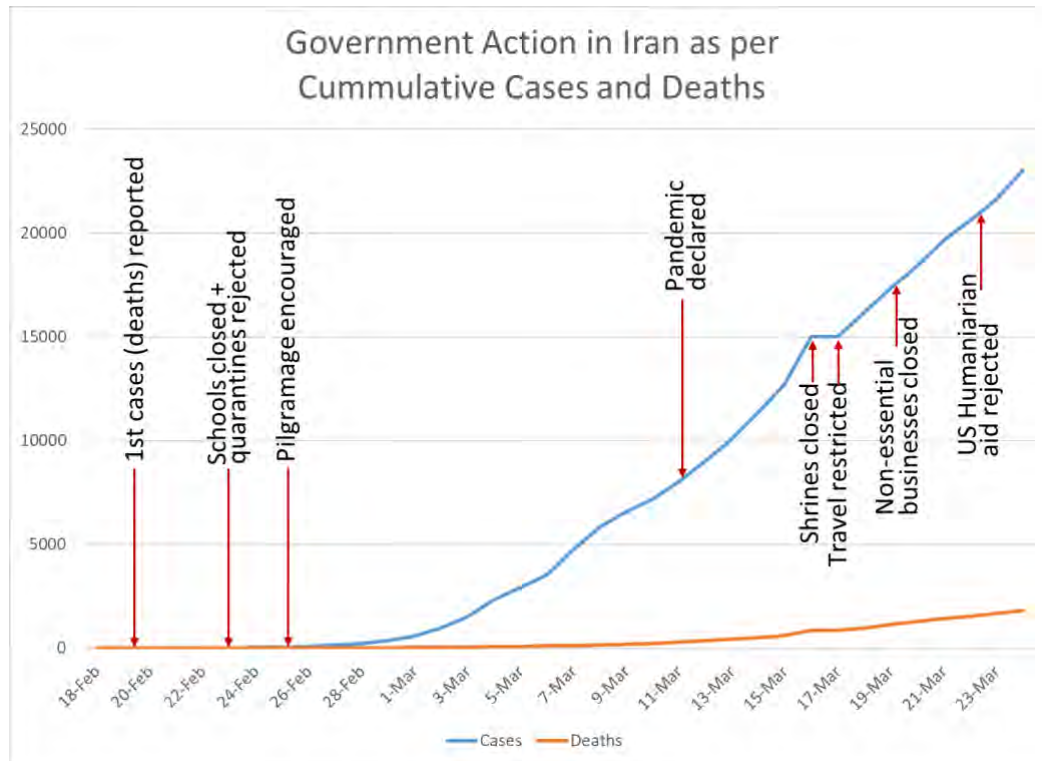


Figure 9: Measures Taken by the Iranian Government

Source: Generated from WHO Sitreps #29-64

This clearly demonstrates a significant delay in the implementation of restrictive measures while the infection spread rapidly, while also highlighting the lack of rapid coordination that China was able to provide.

In Russia, a nation dedicated to secrecy and the projection of strength, much is unknown or widely disputed. Despite having the longest border with the epicentre of the outbreak (China), official numbers and statements by President Putin seemed to indicate they had been successful in suppressing the virus' spread and that the threat was minimal.³⁹ As of March 11, when the WHO declared COVID-19 a pandemic, only seven cases had been officially reported, which is highly controversial given the comparison to

³⁹ Mary Ilyushina, "Why does Russia, population 146 million, have fewer coronavirus cases than Luxembourg?" *CNN*, March 22, 2020. Last accessed May 3, 2020, <https://www.cnn.com/2020/03/21/europe/putin-coronavirus-russia-intl/index.html>.

other nations.⁴⁰ This is particularly curious given that very few nationwide measures were reported until mid-March, with many sources claiming the official statistics were woefully under-reported and thus misleading decision-making, due to a lack of testing and massive delays in processing the results.⁴¹

Beginning on March 14, school closures, travel and border restrictions, and business closures were implemented over the following two weeks. Lockdowns, however, were not established until March 30, as official statistics began to climb following a reduction in bureaucratic red tape on March 23, which allowed doctors to access positive test results.⁴² Although officially reported much later than nearly all large nations, the full impact of the virus was finally being felt, and the government scrambled to react. To compound the overall confusion, mixed messaging continued to emerge from President Putin. On April 14, Putin admitted the country was having "a lot of problems" and that the public-health situation is "changing practically every day, and unfortunately not for the better."⁴³ Yet a mere four days later, he addressed the nation and stated that "the situation is under full control."⁴⁴ Despite this assurance, the sequence of events depicts a different scenario:

⁴⁰ As previously outlined in Table 1.

⁴¹ Polina Ivanova, Maria Tsvetkova, and Anton Zverev, "Exclusive: Moscow has More Coronavirus Cases than State Testing Shows, Private Lab Data Suggest," *Reuters*, April 17, 2020. Last accessed May 3, 2020, <https://www.reuters.com/article/us-health-coronavirus-russia-tests-exclu/exclusive-moscow-has-more-coronavirus-cases-than-state-testing-shows-private-lab-data-suggest-idUSKBN21Z25S>.

⁴² Marc Bennetts, "As Corona Casualties Mount, Putin Keeps a Low Profile," *Politico*, April 16, 2020. Last accessed May 3, 2020, <https://www.politico.eu/article/coronavirus-russia-vladimir-putin-keeps-low-profile/>.

⁴³ Bennetts, *As Corona Casualties Mount...*

⁴⁴ President of Russia, "Easter Greetings," *Office of the President of Russia*, April 19, 2020. Last accessed May 3, 2020, <http://en.kremlin.ru/events/president/transcripts/63222>.

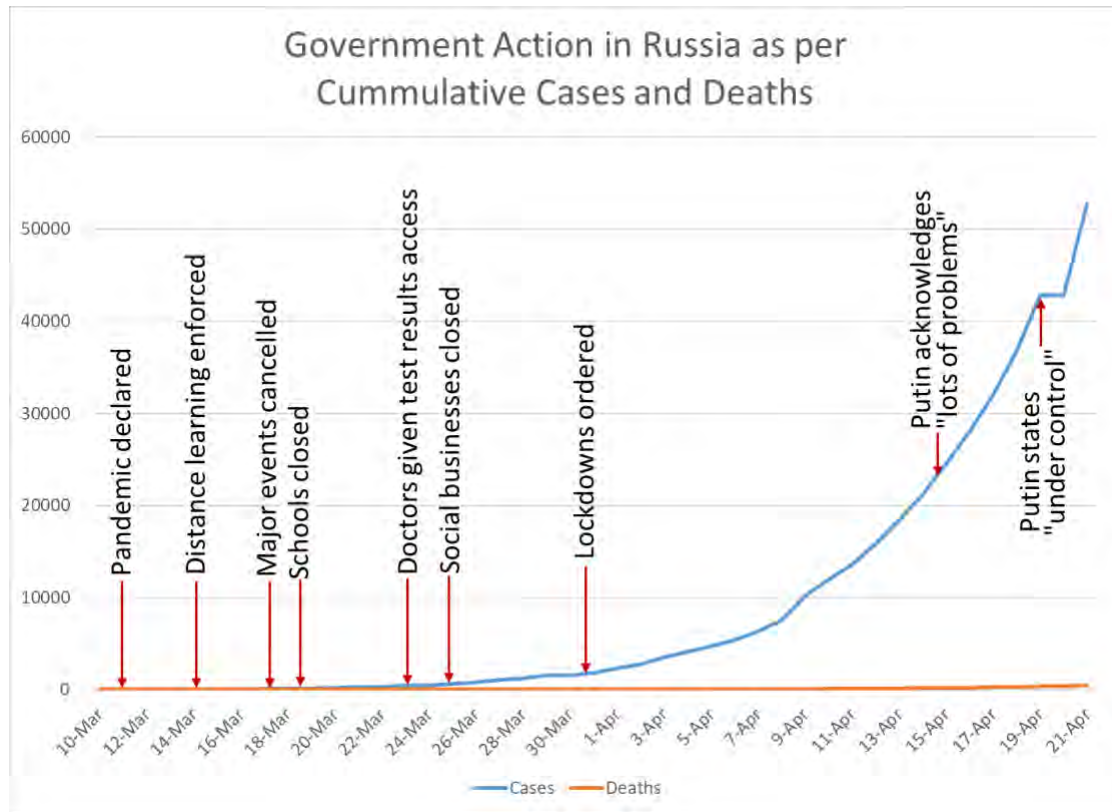


Figure 10: Measures Taken by the Russian Government

Source: Generated from WHO Sitreps #50-92

It is very likely that statistics were either inaccurate due to testing delays, or were being withheld to avoid disrupting the economy and/or acknowledging weakness on the world stage. Clearly a level of concern was reached in mid-March, as measures began to be put into place and transparency for test results was granted, leading to a rapid spike in statistics. Although authoritarian measures like facial recognition and oppressive isolation enforcement were then put into place,⁴⁵ the secretive nature of the state delayed

⁴⁵ Anton Troianovski, "Not Just a Crisis: Coronavirus Is a Test for Putin's Security State," *New York Times*, March 19, 2020. Last accessed May 3, 2020, <https://www.nytimes.com/2020/03/19/world/europe/coronavirus-russia-putin.html>.

a timely national response that could have mitigated the initial spread, which is now raising alarms.⁴⁶

Democratic Responses – South Korea, Australia, Italy, Germany, UK, US & Canada

This group is significantly easier to analyze.⁴⁷ This does not mean that timelines, specific actions and levels of risk acceptance were identical, but the overall types of measures applied did not vary significantly in most cases. The general response was a combination of travel restrictions, the cancellation of major activities, the closure of borders to all non-residents, the closure of schools and non-essential businesses, and the implementation of some combination of quarantines, lockdowns and social distancing measures. By amending Figure 7 to include only these democratic countries, while adding the major government measures, the overall timeline of policy decisions can be compared:

⁴⁶ Chris Brown, “‘This Situation is Very Scary’: Coronavirus is Disrupting Vladimir Putin’s Russia,” *CBC News Network*, April 30, 2020. Last accessed May 3, 2020, <https://www.cbc.ca/news/world/russia-brown-scary-coronavirus-1.5548593>.

⁴⁷ The heightened transparency of their democratically elected governments provides more accurate statistics to evaluate, the protection of human rights and overall accountability of governments limits the range of government options, and international collaboration and science driven decision-making resulted in relatively similar approaches that can be more easily measured against one another.

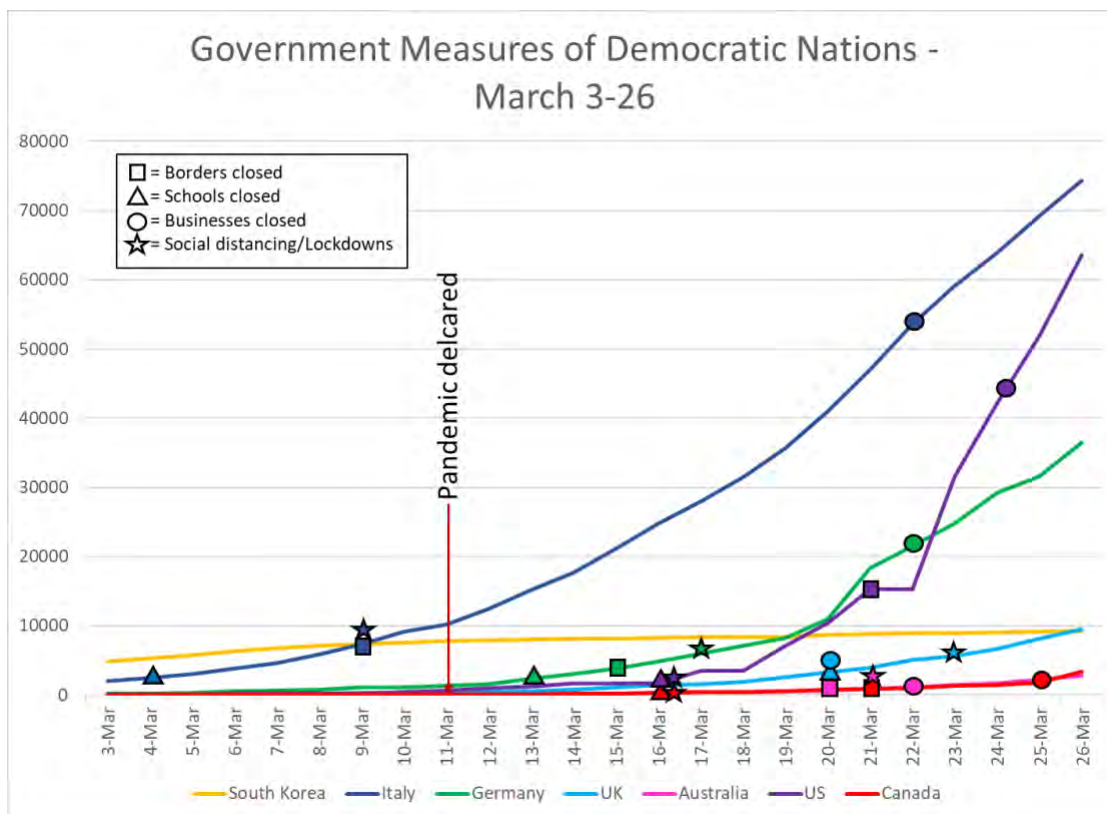


Figure 11: Measures Taken by Democratic Governments

Source: Generated from WHO Sitreps #43-66

One notable detail is that South Korea did not follow the same sequence of events, yet managed to flatten their outbreak much more significantly than the other countries. Rather than choosing restrictive measures to reduce movement and physical exposure of their entire population, they instead focused on mass testing and containment of those infected.⁴⁸ By March 2, they had completed 109,591 tests, which was 2,138 people tested per 1M of the population. For perspective at that time, Italy had only

⁴⁸ Jason Beaubien, "How South Korea Reined in The Outbreak Without Shutting Everything Down," *National Public Radio*, March 26, 2020. Last accessed May 1, 2020, <https://www.npr.org/sections/goatsandsoda/2020/03/26/821688981/how-south-korea-reigned-in-the-outbreak-without-shutting-everything-down>.

completed 386 tests/1M people, and in the U.S. it was less 1.5 tests/1M people.⁴⁹ This provided much more accurate and timely data, which enabled outbreak tracing and swift quarantine protocols surrounding confirmed cases, along with those whom they contacted.⁵⁰

The next observable trend is the rough geographical timeline; South Korea was hit first, followed by Europe, then North America, and lastly Australia. For the most part the measures followed this timeline, with a few notable exceptions. Italy's slow reaction can be noted from the high number of cases at the time of policy implementation, despite acting before other countries.⁵¹ The U.K. had a very slow reaction in comparison to other European nations based on date, as they seemed to align their decisions much more closely with North America, and also chose to keep their borders open.⁵² Australia acted last, and the decision was made to keep schools officially open.⁵³ The restrictions in North America were part of a coordinated effort by the U.S. and Canada to synchronize their responses,^{54,55} although this corresponded with much lower numbers at the time in Canada. Finally, all countries were hesitant to close non-essential businesses, likely due to the economic impact that it would cause.

⁴⁹ Max Fisher and Choe Sang-Hun, "How South Korea Flattened the Curve," *The New York Times*, March 23, 2020. Last accessed May 1, 2020, <https://www.nytimes.com/2020/03/23/world/asia/coronavirus-south-korea-flatten-curve.html>.

⁵⁰ *Ibid.*

⁵¹ Caroline Kantis, Samantha Kiernan, and Jason Socrates Bardi, "Updated: Timeline of the Coronavirus," *Think Global Health*, April 22, 2020. Last accessed May 2, 2020, <https://www.thinkglobalhealth.org/article/updated-timeline-coronavirus>.

⁵² Financial Times, "Britain's Open Borders Make it a Global Outlier in Coronavirus Fight," *Financial Times*, April 16, 2020. Last accessed 2 May, 2020, <https://www.ft.com/content/91dea18f-ad0e-4dcb-98c3-de836b1ba79b>.

⁵³ Australian Government, "Key Coronavirus Updates Archived by Day," last accessed May 3, 2020, <https://www.australia.gov.au/coronavirus-updates>.

⁵⁴ Canadian Government, "Office of the Prime Minister of Canada – News Releases," last accessed May 3, 2020, <https://pm.gc.ca/en/news/news-releases>.

⁵⁵ United States Government, "White House – Briefings & Statements," last accessed May 3, 2020, <https://www.whitehouse.gov/briefings-statements/>.

Another method of looking at the individual responses is by beginning the time scale with the first recorded case in each country. This offsets the delays in each country's outbreak,⁵⁶ and government responses can be evaluated as “days since” they became aware it had spread to their respective populations:

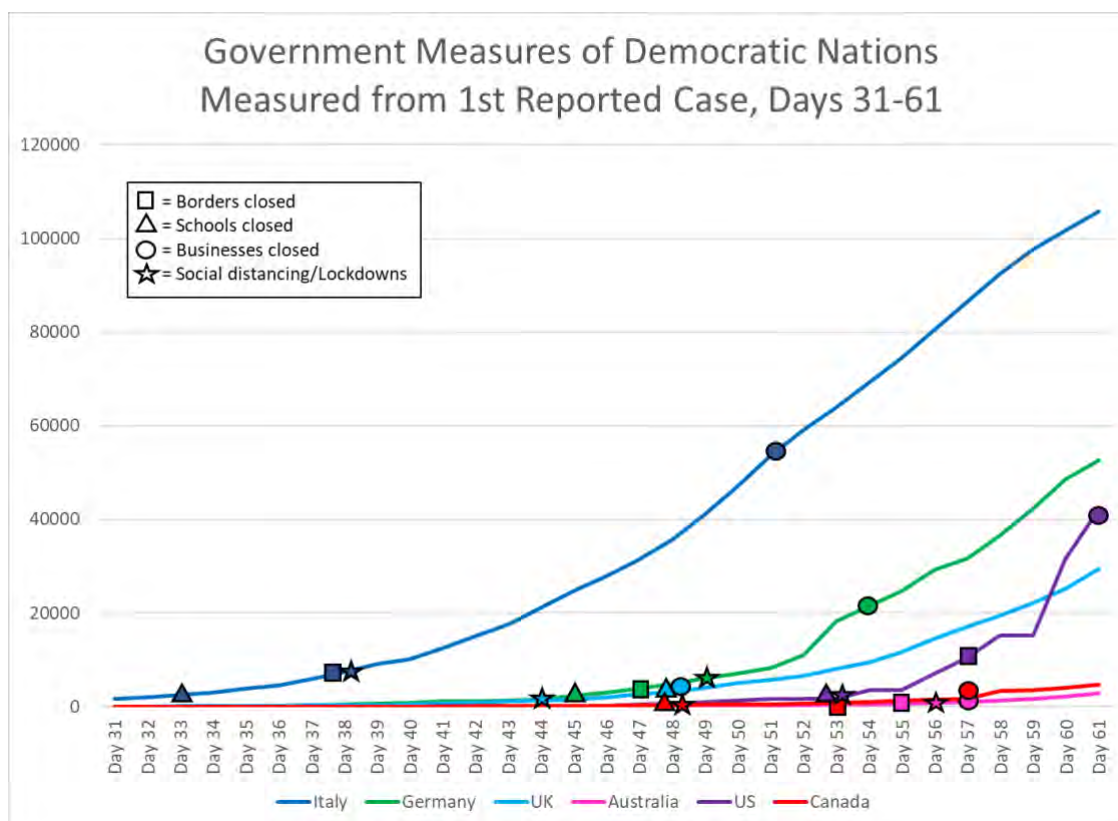


Figure 12: Measures Taken by Democratic Governments Adjusted to 1st Case

Source: Generated from WHO Sitreps #43-66

In Europe, this graph shows that the U.K.'s response was actually more aligned with Germany and Italy's individual timelines. Australia had a very slow response in comparison to their first case, however the overall number of cases remained so low that there would have been relatively little pressure on the government to impose sweeping restrictions. In North America, this highlights that in addition to the number of cases

⁵⁶ This corresponds to the idle time before a country's first positive test.

being higher in the U.S. at each decision point, Canada's actions were also quicker than the U.S. response based on their respective outbreaks.

The data can also be assessed by ignoring the timeline altogether, focusing on the number of cases and deaths reported at the time of decisions:

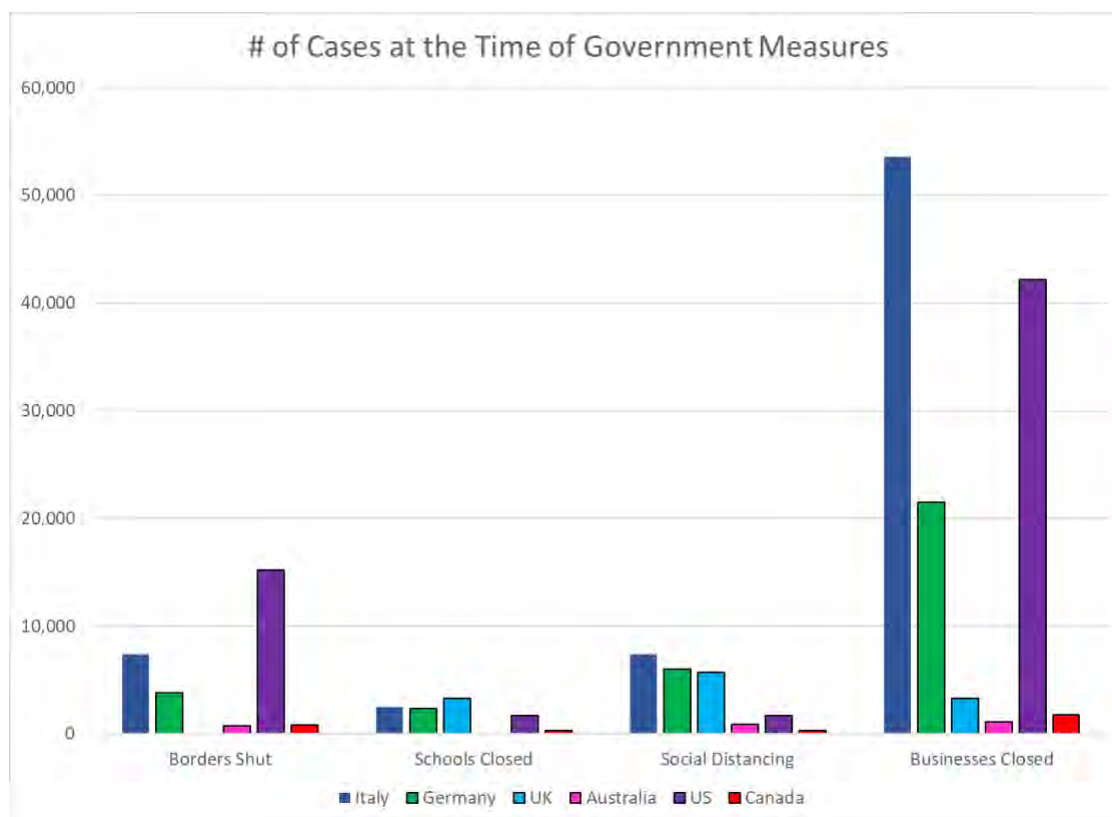


Figure 13: Number of Cases when Governments Implemented Measures

Source: Generated from WHO Sitreps #43-66

The nature of Italy's miscalculation is much more clear in these terms. Although they seemed to act quickly in terms of calendar dates and based on initial case identification, the number of cases at the times of these decisions demonstrate delayed reactions. The other major delay that can now be observed is the hesitance by the U.S. to

take action, which has been echoed by countless media outlets.⁵⁷ This is particularly true for closing the borders and shutting businesses, which is no surprise for a purely capitalist nation with an election on the horizon, as they are so closely tied to trade and the economy. Canada, meanwhile, seemed to implement an action plan in the early stages of its outbreak despite failing to act earlier in the overall timeline as the outbreaks of other nations were observed. In order to determine if these timelines were in fact delayed or advanced, the subsequent statistics can demonstrate their effectiveness.

SECTION 3 – POLICY EFFECTIVENESS

In order to assess policy effectiveness, the relative spread of the disease after policy decisions were made must be examined. Not only is this a product of how effective the measures would have been if followed absolutely, but also indicative of how well a country's population has adhered to the guidelines and restrictions. This can be due to a number of factors, like government leadership, which includes consistent and accurate messaging and setting an example for the population to follow, as well as underlying societal norms.

Standardizing Data

As previously discussed, the number of reported cases in a country is not a useful tool to determine policy effectiveness, due to the inherent variance and inaccurate portrayal of the true outbreak numbers. Instead, reported deaths from COVID-19 provide a much better methodology. Figure 14 displays these numbers beginning from the pandemic declaration until April 29:

⁵⁷ Tucker Doherty, "What the President Said He Did on the Virus — and What He Actually Did," *Politico*, April 14, 2020. Last accessed May 3, 2020, <https://www.politico.com/news/2020/04/14/what-trump-said-did-coronavirus-186464>.

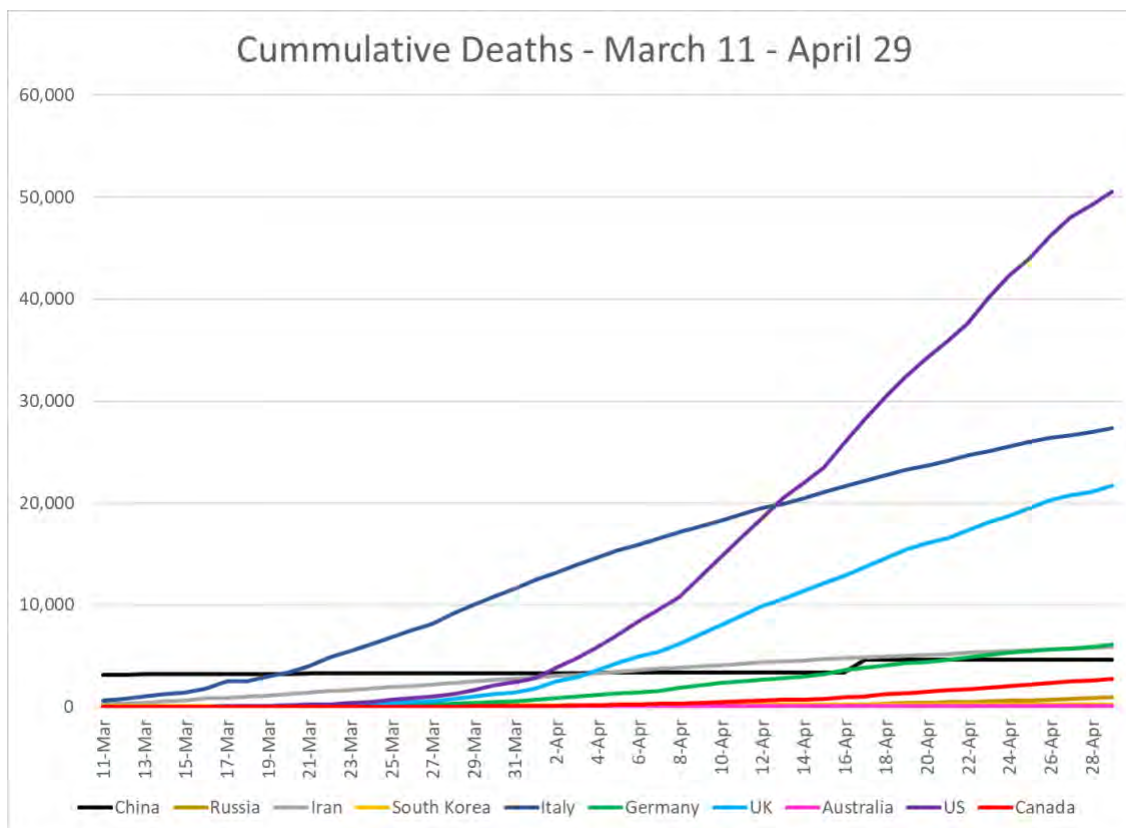


Figure 14: Cumulative Deaths following Pandemic Declaration

Source: Generated from WHO Sitreps #51-100

Although the raw numbers look staggering in some cases, they fail to consider major factors. Whereas the total number of cases is useful in determining the response time of governments,⁵⁸ the total number of deaths is unfair to countries with larger populations when trying to evaluate results objectively. By this metric, countries with larger populations will almost always display higher numbers, even if they have done a much better job at reducing the rate of infection and associated deaths. Instead, the total number of deaths per 100k of the population indicates what percentage of a country has been afflicted.⁵⁹

⁵⁸ The total number of cases are the typical metric reported through the media, thus becoming known by the public, and are used to apply pressure to governments to make subjective policy decisions.

⁵⁹ Department of Economic and Social Affairs, *World Population Prospects...*

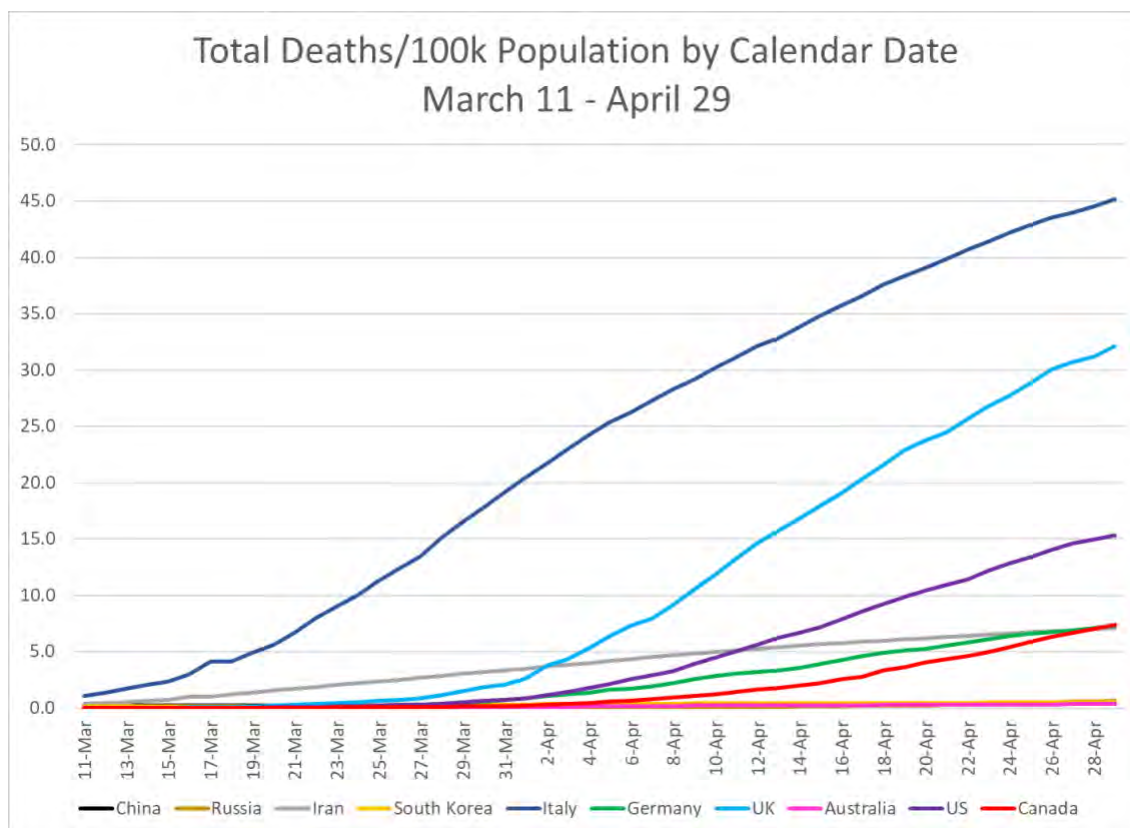


Figure 15: Cumulative Deaths as a Measurement of Population

Source: Generated from WHO Sitreps #51-100

Now that the total cases, total deaths, and deaths/100k have been depicted, deductions begin to form. When comparing Figures 14 and 15, it now becomes evident that the U.S. was not as catastrophically impacted as it originally seemed compared to Italy and the U.K., although they are still among the most devastated countries in the world. In the middle range there is a cluster of Canada, Germany and Iran, while at the low end of the spectrum lies Russia, South Korea, Australia and surprisingly China, where the outbreak began.

A closer look at these outcomes provides more insight. The most significant policy decision that most countries made, which seems to correspond to when world

leaders began taking the outbreak seriously,⁶⁰ is the ordering of various social distancing and lockdown measures (exceptions made for Iran⁶¹ and South Korea⁶²). By using this date for each country as their start point, the number of deaths/100k starts to outline the policy's impact:

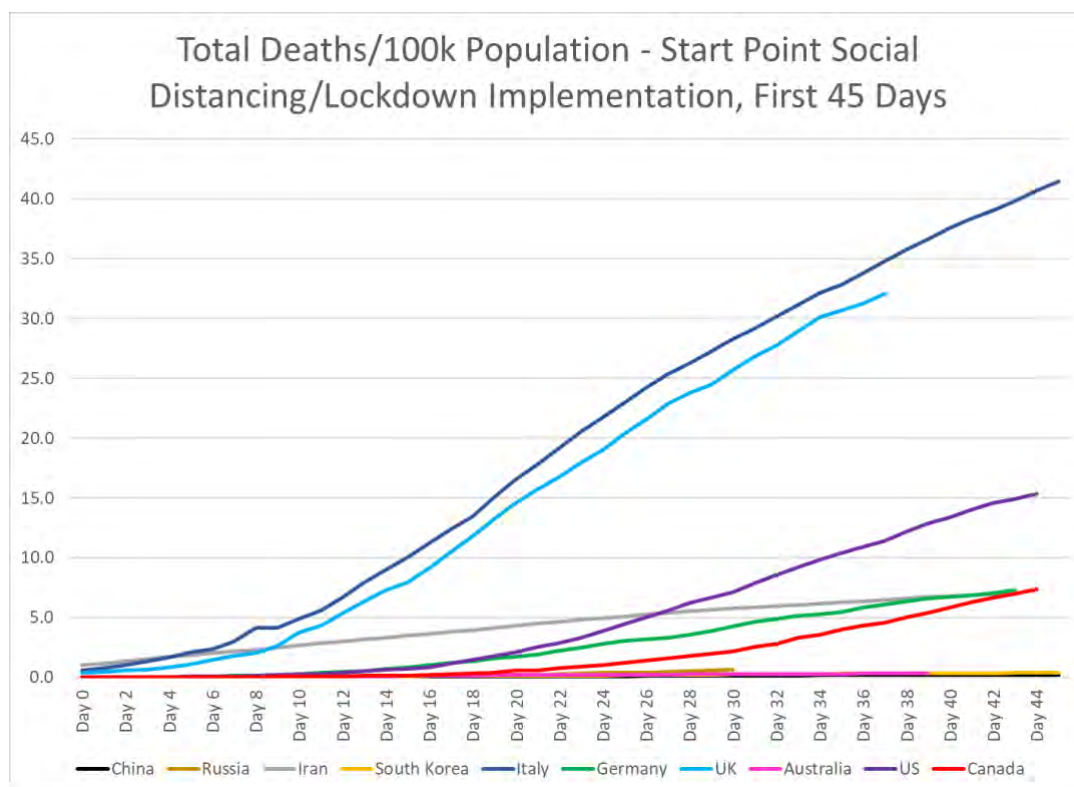


Figure 16: Deaths per 100k Population, Post-Social Distancing/Lockdown⁶³

Source: Generated from WHO Sitreps #3-100

⁶⁰ William Booth, "A chilling scientific paper helped upend U.S. and U.K. coronavirus strategies," *The Washington Post*, March 17, 2020. Last accessed May 1, 2020, https://www.washingtonpost.com/world/europe/a-chilling-scientific-paper-helped-upend-us-and-uk-coronavirus-strategies/2020/03/17/aaa84116-6851-11ea-b199-3a9799c54512_story.html.

⁶¹ Since Iran had an uncoordinated approach without clear guidelines, the internal travel restrictions outlined by the Ayatollah on March 17, 2020 will be used. The Iran Primer, *Coronavirus Strikes Iran...*

⁶² Since South Korea did not officially lockdown the overall population, February 23, 2020 is used as this is when officials initially recommended social distancing. Ministry of Health and Welfare, "(2.23) Briefing on the Pan-Governmental Meeting for COVID-19," *Ministry of Health and Welfare*, February 23, 2020. Last accessed May 5, 2020, https://www.mohw.go.kr/eng/nw/nw0101vw.jsp?PAR_MENU_ID=1007&MENU_ID=100701&page=1&CONT_SEQ=353124.

⁶³ Not all countries have reached 45 days since implementing social distancing/lockdown orders.

Italy has been analyzed and criticized at length,⁶⁴ and rightfully so; the percentage of its population that has been killed by this virus is terrible. The U.K., on the other hand, is not yet considered as large a catastrophe by the public, despite almost mirroring the outcome of their policies. China, Russia and Australia continue to have remarkably low numbers, albeit for likely different reasons that will be discussed. The U.S. and Canada provided synchronized policy responses, yet the death rate in Canada has managed to remain less than half than that of the U.S. In order to gain a better understanding of the relationship between the number of cases and deaths, a look at various mortality factors is required.

Mortality Factors

By dividing the number of reported deaths by the number of reported cases, the mortality rate within each country can be determined:

⁶⁴ Gary P. Pisano, Raffaella Sadun, and Michele Zanini, "Lessons from Italy's Response to Coronavirus," *Harvard Business Review*, March 27, 2020. Last accessed May 5, 2020, <https://hbr.org/2020/03/lessons-from-italys-response-to-coronavirus>.

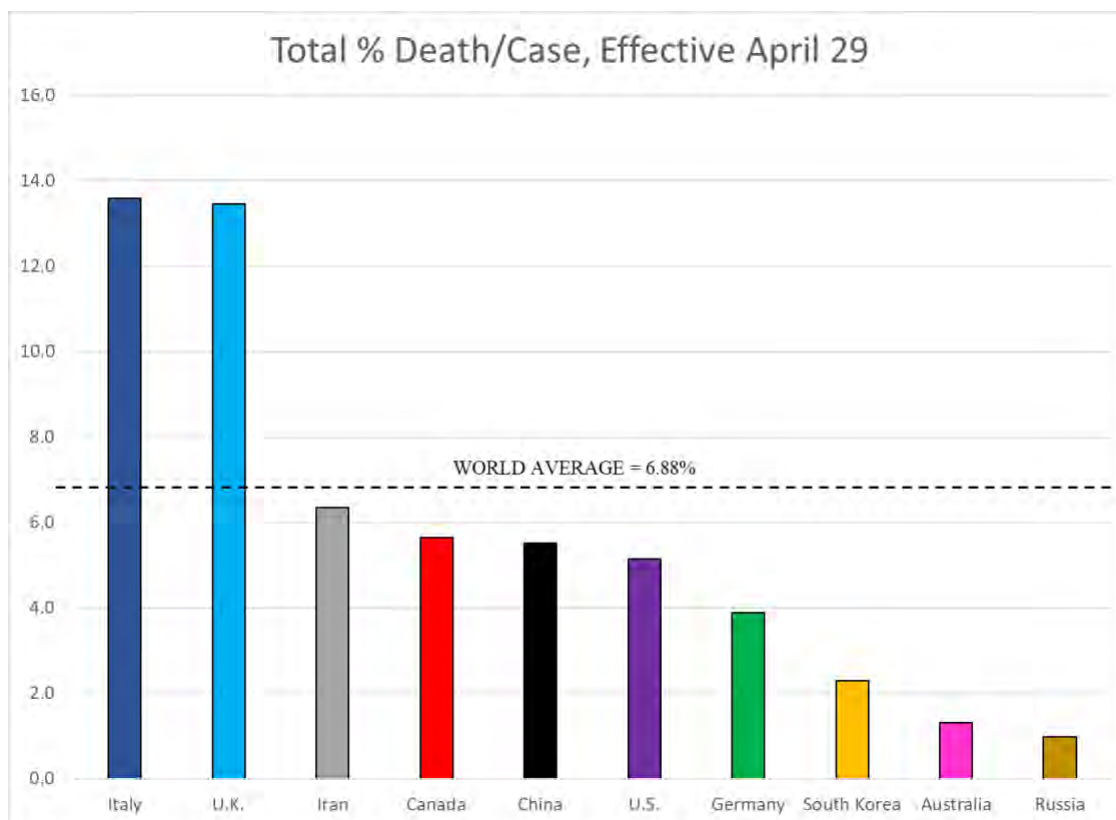


Figure 17: Mortality Rates as of April 29, 2020

Source: Generated from WHO Sitrep #100

The mortality rates in Italy and the U.K. are significantly higher than the world average, and must be examined further to understand the disparity between case load and deaths. Iran, Canada, China, the U.S. and Germany have moderate relative rates, and South Korea, Australia and Russia have the lowest mortality rates in this study. Clearly this degree of variation must be influenced by other considerations.

A disproportionate death to case ratio can be the result of many factors: the number of reported cases may actually be significantly lower than the true level of infection, particularly if testing has been insufficient; the country's demographics may

have higher proportions of vulnerable populations;⁶⁵ and the quality and availability of healthcare can result in a disproportionate death rate.⁶⁶ These metrics are outlined in Table 2:⁶⁷

Table 2: Mortality Factors by Country

Country	% Death/Case	Test/1M pop	% of Pop 65+ years old	Life expectancy
Italy	13.58	29,071	23.3	84.01
UK	13.45	9,867	18.7	81.77
Iran	6.35	5,147	6.6	77.33
Canada	5.64	18,746	18.1	82.96
China	5.50	N/A	12	77.47
US	5.13	16,527	16.6	79.11
Germany	3.88	24,738	21.7	81.88
South Korea	2.29	11,735	15.8	83.5
Australia	1.31	20,277	16.2	83.94
Russia	0.98	20,690	15.5	72.99

Source: Generated from WHO Sitrep #100

Italy has conducted the highest number of total tests to date, so it is likely that their mortality rate is more reflective of the true outbreak than those with less testing completed.⁶⁸ It does, however, also have the largest population percentage of persons above the age of 65, which is likely a major reason for their result. The U.K. also has an aging population, which may explain their high rate. However, a much larger red flag is

⁶⁵ Based on early studies effective April 14, 2020, 72.3% of COVID-19 deaths have been persons 65+ years of age. Worldometer, “Age, Sex, Existing Conditions of COVID-19 Cases and Deaths,” *Worldometer*, last updated April 16, 2020, <https://www.worldometers.info/coronavirus/coronavirus-age-sex-demographics/>.

⁶⁶ This is approximated by using life expectancy. Department of Economic and Social Affairs, *World Population Prospects...*

⁶⁷ *Ibid.*

⁶⁸ Whereas the timing of testing matters when considering government action taken and looking at the reason total cases and deaths increased through lack of containment, the timing does not matter in measuring total mortality rates as it is not a factor of time.

that they have only completed about one-third the number of tests as Italy, so the high death rate could indicate a true level of infection much higher than reported. In fact, if the world average mortality rate is applied, their case load would almost double.

At the other end of the scale, Australia's low death rate is somewhat perplexing, as their testing levels are high and they have comparable levels of elderly populations to other western nations. The major difference is the magnitude of the overall outbreak, which is by far the lowest. A possible explanation is that based on low levels of infection spread out over a gradual increase, the health system was not overwhelmed and critical medical resources remained available.⁶⁹

The number of deaths may also be intentionally under-reported for a variety of reasons, not the least of which is the desired global perception. Keeping this in mind, the authoritarian countries all have counter-intuitive results. Iran has done by far the least amount of testing of any nation studied, and has the third lowest life expectancy. Yet they still report a mortality rate below the world average, possibly due to a relatively small number of vulnerable seniors. Although plausible, health experts and government officials have questioned the low number of deaths repeatedly.⁷⁰ China, on the other hand, has not even released their testing numbers. Additionally, they have only reported two new deaths over the last 17 days,⁷¹ despite being the epicentre of the outbreak and

⁶⁹ Joel Negin, Shitji Kapur, and Nancy Baxter, "Canada and Australia: A Tale of Two COVID-19 Responses," *The Globe and Mail*, April 18, 2020. Last accessed May 5, 2020, <https://www.theglobeandmail.com/opinion/article-canada-and-australia-a-tale-of-two-covid-19-responses/>.

⁷⁰ These challenges peaked in mid-March when images were released that claimed mass burial pits were being dug and hospital morgues were overflowing. Ivana Kottasova and Paul P. Murphy, "Satellite Images Show Iran Building Burial Pits for Coronavirus Victims," *CNN*, March 13, 2020. Last accessed May 5, 2020, <https://www.cnn.com/2020/03/13/middleeast/iran-coronavirus-mass-graves-intl/index.html>.

⁷¹ This does not count the increase in deaths reported on 17 April, which was the result of an internal review of historic cases since the beginning of the outbreak. The World Health Organization, *Sitreps 84-100...*

having the world's largest population. In Russia, the studied country with the lowest overall life expectancy, the mortality rate is also the lowest. This has been questioned repeatedly, as past behaviour suggests that the numbers reported externally are not accurate.⁷² Figure 18 compares the evolution of mortality rates over time between authoritarian and democratic countries:

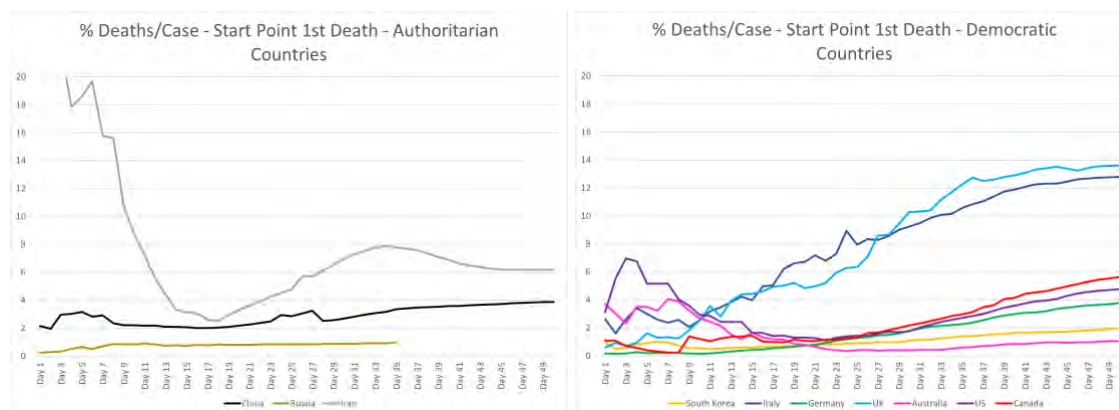


Figure 18: Comparison of Authoritarian and Democratic Country Mortality Rates

Source: Generated from WHO Sitreps #1-100

While a similar pattern with a distinct upward trend is observed in all the democratic nations, the trends in the authoritarian nations level off much more drastically, and seem somewhat unnatural in comparison.

Growth Rate

Previous data still presents a combination of the timing of the policy along with the effectiveness, as the start point for each country is at different levels of infection. In order to present only the impact of policy, the % growth of new daily deaths/100k after policy application is shown, which ignores cumulative statistics. Additionally, it takes an

⁷² John Varga, "Why Putin May Be Hiding the Real Figures of Coronavirus Deaths in Russia," *The Express*, May 1, 2020. Last accessed May 5, 2020, <https://www.express.co.uk/news/world/1276322/vladimir-putin-news-russia-coronavirus-kremlin-moscow-doctors-alliance-vasilyeva-covid-19>.

estimated 20 days on average for someone to die after contracting the disease,⁷³ therefore a 20-day buffer is required to assess only those that have died due to an infection contracted after social distancing was implemented:

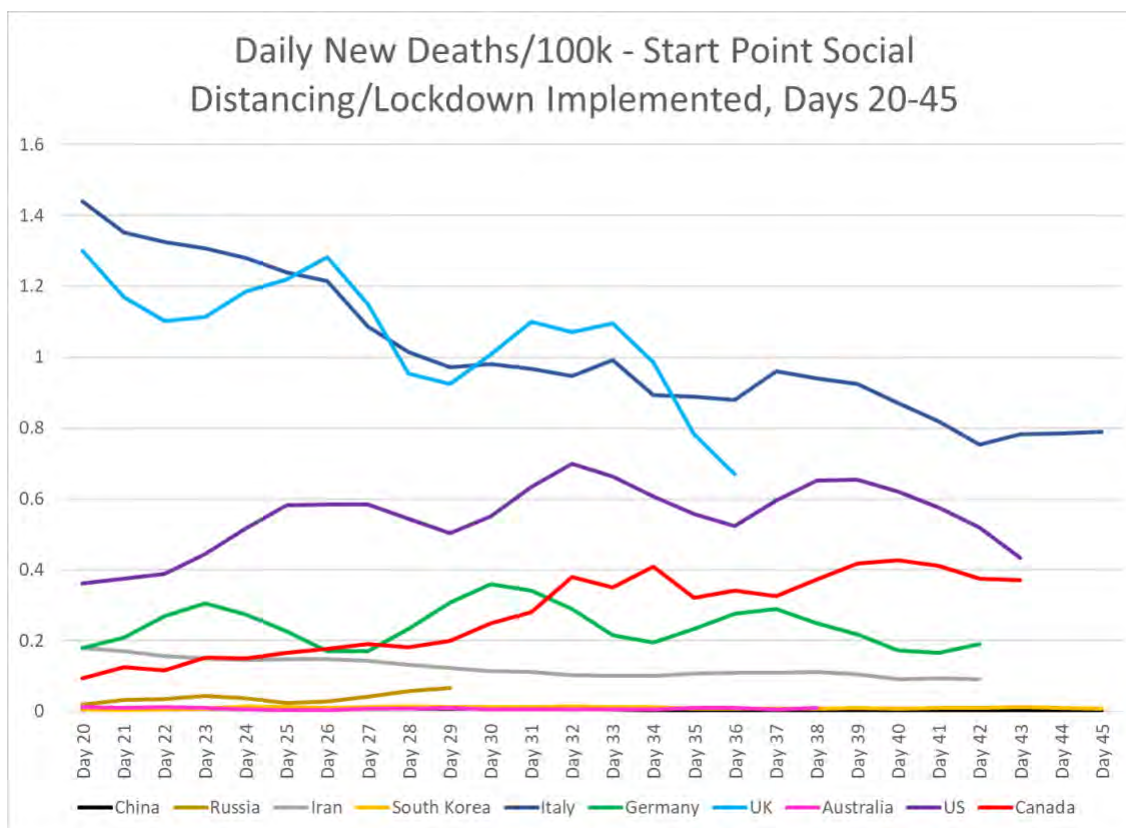


Figure 18: Effect of Social Distancing/Lockdowns on Daily Deaths/100k⁷⁴

Source: Generated from WHO Sitreps #3-100

Despite the high number of deaths in Italy and the U.K., a steady downward trend indicates fewer daily deaths, meaning that their policies produced a major effect. This is not surprising, as countries with uncontrolled infection rates at the time of policy implementation would naturally trend downward with control measures, and despite

⁷³ Centres for Disease Control and Prevention, “Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease (COVID-19),” *Centres for Disease Control and Prevention*, last updated April 6, 2020, <https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html>.

⁷⁴ Data presented as 3-day rolling averages to reduce daily fluctuations and clarify trends.

reductions they remain at higher rates than other countries. In North America, rates continued to rise as social distancing was initially taken less seriously than major lockdowns elsewhere, and have now finally started providing a significant reduction. Again, Iran shows an unnatural pattern of extreme consistency day-to-day, which is unlike any other country studied.

Finally, the rate of “daily death increase” can be measured. In addition to eliminating cumulative statistics, this also ignores the fact that a larger overall infected population percentage will produce more new cases and deaths/100k.⁷⁵ The overall trend upwards or downwards indicates how quickly a country is reducing their rate of infection:

⁷⁵ By assessing growth rate as a function between daily new deaths/100k and the total number of deaths/100k at the time, the scale of infection no longer impacts the data.

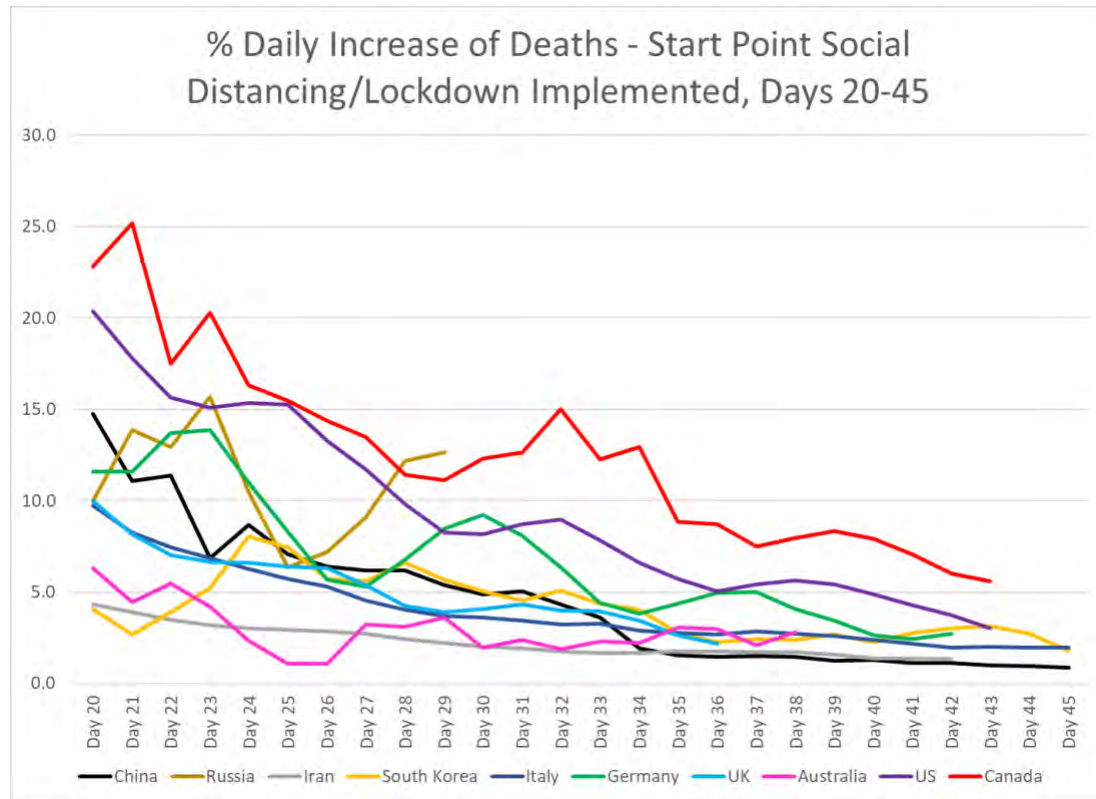


Figure 19: Effect of Social Distancing/Lockdowns on Death Growth Rate

Source: Generated from WHO Sitreps #1-100

This further amplifies the lack of effectiveness of the measures taken in the U.S. and Canada. While other countries have instituted nation-wide lockdowns, the decentralized nature of North American systems has given the majority of decision-making to the state/provincial level,⁷⁶ and the degree to which regional social distancing restrictions are being enforced varies greatly. The spread of infection is being reduced, but at a far slower rate.

⁷⁶ Les Perreux, Marieke Walsh, and Laura Stone, "Provinces, Ottawa Offer a Patchwork of Responses to Coronavirus Outbreak," *The Globe and Mail*, March 16, 2020. Last accessed May 5, 2020, <https://www.theglobeandmail.com/canada/article-ottawa-provinces-display-a-muddled-inconsistent-coronavirus-response/>.

Final Assessment

The authoritarian regimes of China, Iran and Russia took vastly different approaches, and although they seem less impacted by the virus overall, numerous indicators in the data suggest that reported levels are significantly lower than actual outbreak metrics. This is consistent with their historical actions, as transparency has often been forfeited in order to portray a false sense of strength on the world stage. It is very likely that by the end of this pandemic, these inaccuracies will have been exposed.

South Korea seems to have fared the best of all nations evaluated, as they took the novel approach of immediate testing, case tracing and strictly enforced quarantines of infected and possibly infected individuals. Without ever having applied mass lockdowns, the rate of infection was quickly reduced and brought back under control.

In Australia, all indications are that they got extremely lucky. Their reaction was relatively late in most regards compared to other nations despite being proximate to major outbreaks, an infected cruise ship was allowed to disembark without contact tracing or quarantine measures,⁷⁷ and schools have still not been officially closed. Instead, they had one significant advantage, as they do not share a land border with any other country. Through early travel restrictions and mandatory self-isolation, the outbreak essentially never got started before the global public recognized the threat and curbed behaviours accordingly.

A late start in Italy, the U.K. and the U.S., coupled with low initial testing, had major repercussions. This is a reflection of their political leaders, who downplayed the

⁷⁷ Hilary Whiteman, “Australian Police Seize Black Box from Cruise Ship Linked to Coronavirus Outbreak,” *CNN*, April 9, 2020. Last accessed May 5, 2020, <https://www.cnn.com/2020/04/09/australia/australia-ruby-princess-cruise-coronavirus-intl-hnk/index.html>.

threat even as cases and deaths began to rise in their countries.⁷⁸ By the time that they took the virus seriously and acted accordingly, the degree of saturation could not easily be remedied. Once policy was in place, the spread in Italy and the U.K. was reduced significantly, as nation-wide lockdowns and social responsibility took hold. Meanwhile in the U.S., social unrest and a wide disparity of social distancing measures has not reduced the spread as effectively.

Germany and Canada have managed to keep their rates fairly low, but for significantly different reasons. Although their leaders have taken the matter seriously and delivered consistent messaging, a stark difference exists. Germany was slower to react to the pandemic and had higher official statistics than Canada when measures were put in place, leading to a quicker initial spread, but they have reduced the rate of infection more dramatically than Canada since implementing policy. Since very similar steps were taken, it is reasonable to assume that it is not the nature of the policy, but rather the degree to which the population is embracing these measures as the primary difference. In Canada, although socialist in nature, it is still significantly swayed on both the political stage and within the public by the U.S. It is very likely that this has influenced how portions of the population perceive the limitations on their civil liberties, thus reducing the effectiveness of government measures. Given that Canada and Germany have nearly identical infection rates at the time of this writing⁷⁹, yet Canada's growth rate remains significantly higher, it is probable that it will experience a worse outcome if nothing changes.

⁷⁸ Booth, *A Chilling Scientific Paper...*

⁷⁹ See Figure 15.

CONCLUSION

Many different variables play a part in how a country both responds to, and is affected by, a global pandemic such as COVID-19. Through objective statistics and reasonable deductions of causation, overall responses can be assessed. Although impossible to prove definitively, this provides a mechanism to draw individual conclusions as per above.

Two overall deductions can be made across the spectrum of countries studied. The first is that although authoritarian countries seem to be less impacted by the virus, numerous indications have been observed that suggest their outbreaks are much worse than reported, which will possibly surface in the months and years ahead. The second is that it was much more significant to act early rather than have firmly enforced policies, as evidenced by the corresponding death rates.

As the world continues to battle this epidemic, it has become painstakingly obvious that the policies implemented by nations have directly impacted its spread. The strengths and weaknesses of specific governments have been highlighted, and have greatly influenced their citizens' level of suffering. Now, with no end to the outbreak in sight, the question that remains is how policies will evolve as new hardships are encountered.

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