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Designing a Factual-Based Strategy to Prepare for the Next COVID Pandemic

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ABSTRACT

The US response to the COVID-19 pandemic was disastrous although parts of it were beneficial. Tons of misinformation, a weak central government, a lack of public support, and inaccurate testing contributed to this disastrous response. For the next COVID pandemic, mistakes cannot happen again as it has killed millions of people and has been almost 2 years since the start of its discovery. Many lives could have been saved if the US had a better response to the pandemic. The US should take in consideration of other countries' actions against the pandemic to better decide its next response. For example, the US should imitate South Korea's robust testing efforts and enforcement of quarantining guidelines, Africa's community health systems, and American Samoa's travel ban. Most importantly, the US needs to learn from its past mistakes. The actions of the next COVID pandemic the US should implement are making sure that the government shouldn't downplay COVID's seriousness, clear effective messaging, better COVID testing, more PPE, travel bans, and stronger enforcement of quarantining guidelines. To ensure that the US has a better response to the next COVID pandemic, these recommendations should be followed and enforced.

COVID-19 Facts

As background information, here is a list of COVID-19 facts:

1. COVID-19 is a respiratory disease that can be easily spread. It spreads through people who are within 6 feet of each other through droplets. It can also be transmitted through bodily fluids (COVID-19 Basics, 2021).
2. The CDC determined that there's a 1 in 10,000 chance of getting COVID from a contaminated surface (COVID-19 Basics, 2021).
3. COVID-19 causes a respiratory tract infection that affects your respiratory system, which includes the nose, lungs, throat, sinuses, and windpipe (Pathak, 2021).
4. The symptoms of COVID are fever, cough, difficulty breathing, fatigue, muscle/body aches, headache, loss of taste or smell, sore throat, congested or runny nose, nausea or vomiting, and diarrhea. The severe symptoms of COVID that require emergency medical care are trouble breathing, staying awake or waking up, persistent chest pain, confusion, and pale/gray/blue skin, lips, and nail beds (Symptoms of Covid-19, 2021).
5. Permanent damage from COVID-19 is possible because it can cause brain injury. 1 in 7 people get brain injury. While COVID doesn't directly attack your brain, it can range from confusion to strokes and seizures. Permanent damage can also be achieved from COVID-caused sepsis. Although you can survive sepsis, it can cause lasting damage and pulmonary scarring (COVID-19 Lung Damage, 2021).

6. Long-COVID is symptoms that can last weeks or months after getting COVID. These symptoms include heart palpitations, fatigue, headaches, loss of smell or taste, dizziness when standing, chest pain, difficulty breathing, fever, muscle/joint pain, depression, and anxiety (Schraer, 2021).
7. To prevent getting sick, one should get vaccinated against COVID-19, wear a proper mask, stay 6 feet away from others, avoid crowds, avoid poorly ventilated spaces, wash your hands, and disinfect surfaces (Prevent Getting Sick, 2021).
8. There are multiple variants of COVID-19 with the most dangerous being the Delta variant so far. The Delta variant is 50% more contagious than the original strain of COVID-19 and has a higher fatality rate (Variants of the Virus, 2021).
9. Some of those who get COVID-19 are asymptomatic, meaning that they are infected but don't exhibit symptoms. Asymptomatic people can also spread COVID-19 (Noi, 2020).

The United States' Response to COVID-19

Although the United States has the most COVID-19 cases and deaths, the US had positive aspects to its response. This is what the United States did well:

Most People Were Willing to Wear Masks

A study was done by the CDC regarding wearing masks, washing hands, and social distancing. The study found that 78% of adults wore a mask in April 2020, but in June 2020, 89% of adults wore a mask (COVID-19 Mitigation Behaviors, 2020). It also found that the majority of adults reported engaging in most of the mitigation behaviors assessed. As of January 2021, 81% of adults still support wearing masks as an effective way of preventing COVID-19 but only 51% of adults actually wear masks (Fearnow, 2021). However, that number is only going to go up because of the newly surging Delta variant cases in the US.

Fast Development of COVID-19 Vaccines

In less than a year, 2 COVID-19 vaccines, the Pfizer and Moderna vaccines, were created and authorized for emergency use by the FDA. These vaccines were found to have a 95% efficacy rate against COVID-19. In addition, the Johnson & Johnson vaccine was also authorized for emergency use by the FDA although it has a lower efficacy rate. As of August 2nd, 2021, 70% of Americans have gotten the 1st shot of Covid vaccines (Lovelace Jr. & Rattner, 2021).

Combating Misinformation

There is a ton of misinformation that drastically harms people's lives and their actions. Social media, where people can say what they want with anonymity, is a huge way misinformation spreads. However, platforms have taken action in suspending accounts, deleting posts, and also labeling posts as possibly misleading or false. Another example is Donald Trump's claim of using hydroxychloroquine/chloroquine as a treatment against COVID-19. After the CDC did a clinical trial, they found that hydroxychloroquine/chloroquine showed no benefit for decreasing death rates or increasing survival rates (FDA Cautions Use of Hydroxychloroquine, 2020).

Support of Healthcare Frontline Workers

As COVID-19 became more serious in the United States, the support of healthcare frontline workers grew as well. The internet was exploding with tremendous support, with thank you videos, posts, and donations as a few examples. This enormous support of healthcare frontline workers also helped bring communities and groups closer together.

With the number of positive responses to COVID-19, the US also made a ton of errors and mistakes in its response:

Limited Number of Tests and Low Accuracy COVID-19 Testing

Instead of using the WHO's COVID-19 tests, the US decided to create its own. There's no issue with creating your own COVID-19 testing kit but the CDC's test was extremely flawed. NPR found that lab officials knew that the CDC's test had a 33% inaccuracy rate but still decided to release it to the public either way. This meant that people who had COVID-19 tested negative due to the faulty kits which only resulted in COVID-19 spreading undetected (Temple-Raston, 2020). In addition, most of those who wanted to be tested couldn't. This is because, at the early stages of COVID-19, only those who were hospitalized and had severe symptoms could be tested. This left a lot of people who were asymptomatic or showed light symptoms of COVID-19 to be left untested. The result of this can only be spreading COVID-19 even further. Despite these flaws and inaccuracies in testing, it's better to have some tests rather than no tests. For the next pandemic, we will strive to improve accuracy while maintaining speed in development.

Lack of Public Support and Trust for Health Guidelines

There was a large lack of public support for healthcare guidelines, such as quarantining and lockdowns. The benefits of quarantining and lockdowns are obvious and extremely beneficial. However, not many people like the idea of staying home for weeks or months which is understandable. There was also a lack of public trust for health guidelines. At the beginning of the COVID-19 pandemic, Dr. Anthony Fauci, the Director of the NIAID, advised the public to not wear masks because of PPE shortages for doctors and healthcare workers (Jankowicz, 2020). In addition, the CDC and the WHO stated that masks weren't necessary unless a person experiences symptoms. Surgeon General Jerome Adams also took it to Twitter where he stated that masks weren't effective against COVID-19 and told people to stop buying masks. But after new research and circumstances, Dr. Fauci advised wearing masks to help prevent the spreading of COVID-19. Early on, there was a lot of strong support for COVID-19 guidelines. Then, some confusing guidelines created by the lack of knowledge of COVID-19 created a lot of confusion for the public and a lot of questioning of what the real answer was. In addition, misinformation also exacerbated this issue.

Failure of the Government

There were aspects of the government's actions that were extremely harmful. Donald Trump and other elected officials downplayed the seriousness of COVID-19. When the CDC advised people to wear masks, Pres. Trump didn't follow the CDC's recommendation and decided to not wear a mask. This decision sent a message to the public that COVID-19 wasn't a genuine threat. In addition, Trump was slow to take action against the pandemic, didn't encourage wearing masks, failed to social distance, and was misleading (Peters, 2020). He was quoted many times saying that the US has COVID-19 under control, that COVID-19 was like the flu, and that COVID-19 was the "Chinese virus" - all unfounded statements. However, after it became clear that the pandemic was a real threat, he shifted the blame from his own failures. His scapegoat was the Chinese government whom he claimed had lied about the early outbreak in Wuhan. Trump also politicized COVID-19 which created an even larger issue for the US. He stated that COVID-19 was the Democrats' "new hoax" at a rally in South Carolina.

As of July 6th, 2021, Democrats are more vaccinated than Republicans, showing that Trump's words and the politicization of COVID-19 did have an effect (Kates, Tolbert, and Orgera). The US also failed to implement strong restrictions in place for quarantining and isolating. Other countries that implemented strong restrictions, such as staying in a government-approved hotel for a certain amount of time and city-wide quarantines, succeeded in controlling outbreaks. The US, however, did not have these strictly regulated restrictions which resulted in a significant lack of adherence to the proper policies.

Other Countries' Responses to COVID-19

To better understand what the United States needs to do for the next COVID pandemic, the United States should imitate beneficial aspects of what other countries did:

South Korea's Robust Testing and Strong Enforcement of Quarantining Guidelines

Since the start of the pandemic, South Korea has only recently hit 1,500 cases per day. South Korea was able to flatten the pandemic curve without closing businesses and issuing stay-home orders. South Korea did this by enforcing robust testing, strict isolation, and they learned from their past mistakes (Frieden, 2021). The MERS outbreak in 2015 resulted in significant reforms to the country's public health system. As a result, South Korea built innovative and high-capacity testing centers across the country. In addition, it tested early and aggressively, administering twice as many tests per capita, more than any other country (Kim, 2021). This robust testing requirement allowed the South Korean government to determine who needs to isolate/quarantine rapidly, which helped prevent the spread of COVID-19 as early as possible. South Korea also hired hundreds of epidemiological intelligence officers who did contact tracing not limited to but including credit card transactions and CCTV footage. It also had a mandatory quarantine for visitors to the country which required isolation in a government-approved hotel.

African Countries Had Good Community Health Systems and Repeated What Works

Although some may be surprised, African countries did well initially against the COVID-19 pandemic. One way they did this was by repurposing teams who vaccinated villagers against polio to educate communities about the pandemic (Soy, 2020). With skepticism revolving around the COVID-19 vaccines, there is a lot of mistrust particularly around those who aren't medical professionals. What African countries did is that they created good community health systems that helped educate communities about the new pandemic. While the hospital infrastructures in Africa are less developed compared to other parts of the world, Africa's strength is in its community health systems. Relating to fewer Republicans getting vaccinated compared to Democrats, Republicans are more likely to trust their community, doctors, and employers over the government to provide information on COVID-19 vaccines (Kates, Tolbert, and Orgera). This can be extremely helpful in increasing the vaccination rate of the US. African countries such as Nigeria repurposed.

American Samoa Enforced Travel Bans and Learned from Their Mistakes

Although American Samoa is technically a territory of the US, it only has 4 COVID-19 cases and 0 deaths. They prevented this by halting all passenger flights (Frieden, 2021). If COVID-19 were to spread in American Samoa's 55,000 population, it would run rampant and be extremely harmful to them. As a result of these travel bans, American Samoa hasn't had widespread closures, social distancing, and testing. Similar actions back in

1918 also resulted in no deaths during the 1918 influenza pandemic. Also, in 2019, American Samoa had a measles outbreak that had health authorities on high alert. Because American Samoa implemented travel bans and learned from its past mistakes, it was able to prevent a COVID-19 outbreak.

The United States should also consider what not to do:

China Hid Crucial Information

The first COVID-19 case was believed to be detected on November 17th, 2019 according to Chinese government data (Buckley, Kirkpatrick, Qin, et al., 2020). On December 30th, 2019, hospitals in Wuhan came across a mysterious disease that was similar to pneumonia. The hospitals should have alerted China's CDC about it but failed to. It took weeks later before the Chinese government announced its emergence. In addition, China also tried to censor any whistleblowers, doctors, and journalists trying to warn the rest of the world about the seriousness of COVID-19. One well-known whistleblower was Dr. Li Wenliang (Hero Who Told the Truth, 2020). He took it to social media to warn his colleagues about COVID-19 but was soon arrested several days later for spreading false information. Ai Fen, the director of emergency at Wuhan Central hospital, was reprimanded by authorities for alerting others about COVID-19 after she witnessed its dangerousness. Li Zehua, Fang Bin, Chen Qiushi, and other whistleblowers spoke out about COVID-19 but were soon punished for doing so as well. Recently, the WHO has tried to perform a deeper investigation into COVID-19's origins but China rejected its plan to do so. This only increases suspicion of the lab leak theory, which is that COVID-19 was created in a lab.

India Lifted All Restrictions at Once

India's response to the pandemic was relatively well at first. Modi, the prime minister of India, banned all travel and shut down most of the country in March 2020 (Salo, 2021). This was extremely effective for India, but when Modi declared victory and removed nearly all COVID-19 restrictions, India was suffering because of it. After lifting most restrictions, Modi held large political campaigns and avoided wearing a mask (Naqvi & Pollard, 2021). India then had a massive surge in COVID-19 cases in April and May 2021 that resulted in not enough PPE, vaccines, testing kits, ventilators, and other medical equipment. In the future, restrictions should gradually be lifted to ensure that there won't be another outbreak.

Actions for the Next COVID Pandemic

Knowing that the next coronavirus will be different, this is what we should do for the next pandemic:

Role of the Government

The US government needs to treat the next coronavirus pandemic differently for a more effective response. We need elected officials to spread correct information and to treat the next coronavirus pandemic with its proper seriousness. Elected officials such as Donald Trump and Marjorie Taylor Greene aren't treating COVID-19 seriously which sends a bad message to their supporters. The government officials shouldn't be downplaying the disease and ignoring the CDC's recommendation. In addition, the next coronavirus shouldn't be politicized. Its politicization had negative effects and resulted in more people undermining the seriousness of COVID-19 and questioning the COVID-19 vaccines. Politicizing the next coronavirus will only result in the same harmful effects.

Clear and Effective Messaging

To enhance public support for public health recommendations, clear, consistent, and concise information must be disseminated to the public. To do this, I propose creating community health systems all over America to spread correct information about the coronavirus and the COVID-19 vaccines, similar to what happened in Africa. The Kaiser Family Foundation (KFF) found that people are more likely to listen to their community, doctors, and employers compared to the government. Since some mistrust came from Dr. Fauci's confusing message about the necessity of masks at the beginning of the COVID-19 pandemic, we need to make sure the information shared with the public is accurate. Using this pandemic as a learning experience, we can better prepare ourselves for the next one. Although the next coronavirus pandemic will inevitably be different from the current one, there will likely be similarities that will aid our efforts in communicating information more clearly and effectively. One strategy to achieve this is monitoring social media and 1) taking down false or misleading posts and 2) including fact checks on related posts. Another idea is to mail or email people with a pamphlet or fact sheet. However, the effectiveness of this strategy will rely on community health systems to properly educate communities about the pandemic. People were skeptical about the COVID-19 mRNA vaccines due to their novelty. However, the data shows that these vaccines are very effective at reducing infection and symptom severity. Due to the efficiency of this new vaccine technology, it will likely be used for future vaccine development.

Better COVID Testing

One large flaw in the testing protocols used during the current COVID-19 pandemic was that only those who were symptomatic were asked to take a test. Those who were asymptomatic or had light symptoms were discouraged from undergoing testing due to inadequate numbers of tests. The US needs to imitate South Korea's robust testing efforts. Because South Korea was able to test so aggressively early in the pandemic, they managed to significantly reduce COVID-19 transmission. This testing strategy allowed South Korea to keep businesses open and avoid widespread lockdowns. Many business owners rely on their business income to survive. Therefore, keeping businesses open and robust testing should be a priority to mitigate COVID-19 spreading. These actions prevent the US economy from taking a heavy hit and will help protect people's health. To prepare for the next coronavirus pandemic, we would need to see if the current testing kit used by the US, Lucira's COVID-19 All-In-One Test Kit, would be effective against the future coronavirus. If not, then other testing kits should be tested against the next coronavirus to see if any are effective. If no current COVID-19 tests are accurate enough for the next coronavirus, then a new test will need to be created. We also need to ensure that everyone who wants to get tested can get tested to help limit the spread of the next coronavirus. It is also important to develop tests that can recognize variants.

More Equipment

A large issue especially in more populated areas was a lack of hospital beds, PPE, and ventilators. For example, hospitals in Los Angeles and India had an insufficient supply of oxygen and ventilators. More equipment should be produced and made available ahead of time to avoid this problem in future pandemics. The lack of PPE and equipment created disparities between hospitals that could afford them and those that couldn't, resulting in disparities in care. A greater supply of equipment, limitations on the number of products purchasable, and repeated assurance from public health authorities will help control panic buying from healthcare organizations. The best way for more equipment to be made available is to scale up production when needed. Shorter transit, more common materials, the management of resources, and improved supply lines will help scale up the production of equipment. Stocking up on unneeded equipment will only result in a waste of money and resources.

In addition, more hospitals should be built and more hospital beds should be placed in preparation for the next pandemic.

Vaccines

The efficacy of the current COVID-19 vaccines should be examined for the next coronavirus. If the current vaccines can produce immunity against the next coronavirus, then this will reduce the need for extensive novel vaccine development which will help to mitigate viral transmission early. However, it is still imperative to invest resources in research to identify viruses that could potentially lead to a pandemic. Other potential drugs or treatments, such as HIV drugs, should be considered but will need to be rigorously tested first. The process of vaccine development should be more transparent and explained for the general public to understand. This transparency can help to eradicate suspicion of the vaccines.

Travel Bans and Stronger Reinforcement of Quarantining Guidelines

The US needs to implement strict travel bans that will prevent people from areas of significant transmission from entering the country. American Samoa strictly implemented these travel bans and has had only 4 cases since the start of the pandemic. They stopped all flights to and from American Samoa. Although this will cause economic harm to airline companies, stopping the spread early will allow a return to normalcy much more quickly. Note that lockdowns should be used as a final option given low public support for these measures. Stronger reinforcement of quarantining guidelines similar to what the South Korean government did will also help contain COVID-19. The US government should require those coming into the country to quarantine for 2 weeks in a government-approved hotel or living area, and this can be enforced through strict monitoring. Additionally, epidemiological intelligence officers need to be better trained on methods for improved contact tracing, such as tracking credit card transactions.

Learning from Mistakes

An important consideration in planning a pandemic response is to learn both from previous pandemic responses in the country as well as comparing that response to those of other countries. For example, African countries knew that their community health systems were effective in vaccinating villagers against polio so they also decided to utilize those systems to fight COVID-19. American Samoa prevented people from entering the country, similar to its actions in the 1918 influenza pandemic. American Samoa also had a measles outbreak in 2019 so they knew what actions they had to take to protect its citizens. South Korea learned from its MERS outbreak in 2015 which resulted in many reforms to its public health system, such as improved hospital infection control. The only way for the United States to do well against the next coronavirus pandemic is if the US learns from its mistakes. Otherwise, history will end up repeating itself.

Conclusion

To ensure that the United States responds better to the next COVID pandemic, the US needs to follow the recommendations listed above and make sure that its disastrous response against the COVID-19 pandemic doesn't happen again. Many countries' success against the COVID-19 pandemic has been from learning from their past mistakes and using what worked in the past. If the United States also learns from its past mistakes, then success against the next COVID pandemic is inevitable.

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