

**HENRY M. JACKSON SCHOOL
OF INTERNATIONAL STUDIES**

UNIVERSITY *of* WASHINGTON



Ending the COVID-19 Pandemic

Vaccine Diplomacy, Distribution, and Disparities

TASK FORCE

the Donald C. Hellmann Task Force Program

A close-up photograph of a hand wearing a blue nitrile glove holding a small glass vial. The vial has a white label with black text. The background is a bright yellow. The vial is tilted, and a green liquid is being dispensed from its opening.

**Coronavirus
Vaccine
COVID-19**

Injection Only

2021

Ending the COVID-19 Pandemic:

Vaccine Diplomacy, Distribution, and Disparities

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Executive Summary

Elizabeth Hanks and Sierra Schonberg

Beginning in December of 2019, the now infamous novel coronavirus began down its path of mass infection around the globe. Despite early warning signs from scientists and leading disease experts, the severity of this new virus caught the world by surprise. With little regard for national borders, the novel coronavirus, or SARS-CoV-2, has infected over 100 million people, and taken the lives of 2.5 million people.¹ Policies intended to limit the spread of the coronavirus have had variable degrees of success, however, one fact has become starkly clear: if left unchecked, the novel coronavirus will continue to cause high rates of infection and countless deaths around the world.

It is pertinent that actions be taken by all governments to combat the spread of COVID-19. For the past year, lockdowns, mask and social distancing mandates, regular testing requirements, and many more policies have become a new normal all over the world. Meanwhile, countries have been competing in an unprecedented, high-stakes race to produce a vaccine that will effectively immunize people against this new virus. In order for the world to move forward and return to some semblance of life as it was prior to COVID-19, achieving international herd immunity—the adequate level of immunity within a population to prevent the spread of a virus—is paramount.

As the world grapples with widespread illness and immense personal and economic losses, we seek to understand how the vaccine has become such an intensely polarizing concept that further exacerbates global economic and social disparities. Despite many nations working toward the common goal of herd immunity, why do some governments have access to enough vaccine doses to vaccinate their populations several times over, while others remain reliant on WHO distribution programs like COVAX in order to receive vaccine doses at all? How can nations concurrently address the direct public health consequences and the indirect economic impacts of this pandemic, while engaging in successful vaccination campaigns? These are the complex questions that inspired our Task Force, and they are the questions that this report seeks to answer.

¹ As of February 26, 2021 112 million have been infected and 2.5 million have died. “WHO Coronavirus Disease (COVID-19) Dashboard,” accessed February 26, 2021, <https://covid19.who.int/>.

With the unique honor of presenting our findings to Dr. Chhem Kieth Rethy, a Minister Delegate to the Prime Minister of Cambodia, this Task Force offers policy recommendations tailored to Cambodia alongside broader policy recommendations for success in vaccinating populations against COVID-19. In order to make informed policy recommendations, however, we must first establish this report's parameters for successful and unsuccessful examples of COVID-19 policy responses. Within this report, we consider successful cases to be nations that address both the direct and indirect impacts of the pandemic; therefore, sustaining relatively low COVID-19 case numbers while simultaneously addressing the socioeconomic impacts of the pandemic. Unsuccessful cases, on the other hand, will be defined as nations that continued to face high rates of infection and death along with economic turbulence after implementing COVID-19 response policies, or those that addressed one without the other.

Policy Recommendations

This report makes its policy recommendations based on the successes and failures of nations across the globe, with case studies ranging from the United States and New Zealand to Indonesia and Bahrain. On the basis of this global analysis of COVID-19 responses, we recommend the following policies for broad use during the COVID-19 pandemic:

- The global community should work to increase support for the WHO and other prominent international organizations in order to limit future instances of vaccine nationalism.
- Federal governments must focus on fairly and evenly vaccinating the world population, rather than fixating upon the complete vaccination of domestic populations. By prioritizing global herd immunity over regional or national herd immunity, we collectively eliminate the threat of COVID-19.
- Governments should focus on mitigating the inequities that have resulted from national vaccine campaigns by: prioritizing the vaccination of certain demographic groups, such as the elderly, healthcare workers, and other essential workers, and ensuring that vaccine infrastructure adequately supports equal access to vaccines.
- In order to ensure successful vaccine policy reception and adherence, governments should work to generate a relationship founded on trust with their constituents by demonstrating a commitment to fulfill their promises, and by avoiding the use of misinformation to further political agendas.

In addition to these broader policy recommendations, we recommend the following policies for use in Cambodia during and beyond the COVID-19 pandemic:

- Cambodia should seek to obtain vaccines from Russia and China, as both nations are working to distribute vaccines beyond their own borders to develop better relations with developing nations. The Russian vaccine, Sputnik V, has one of the highest efficacy rates in the world, and can supplement vaccine donations from China as China does not currently have the production capacity to donate enough vaccines to generate Cambodian herd immunity.
- Health officials should seek to spread reliable and accurate information about the novel coronavirus to Cambodian citizens, ensuring that this information is accessible to all despite any present language or technological barriers.
- The Cambodian government should work with business owners in the tourism and garment manufacturing sectors to establish safe reopening practices, and work to increase incomes in these industries once again. This can be done by promoting safe domestic tourism, and by utilizing the Regional Comprehensive Economic Partnership to promote trade deals between Cambodian garment manufacturers and regional consumers.
- Health officials should identify and establish emergency sites (such as community buildings) for future use in the case of hospital overflows during and after the COVID-19 pandemic.
- Cambodia should establish an accessible contact tracing system, digitalizing this system where possible in order to ensure efficient case identification.

Introduction: Vaccines, Herd Immunity, and Ending the Pandemic

Holden Tubbs

The COVID-19 Pandemic: One Year Later

Ever since the World Health Organization declared the COVID-19 outbreak a pandemic on March 11, 2020, the world has made astounding progress in developing vaccines. Whereas the typical vaccine development process takes between five and ten years,¹ COVID-19 vaccines have been created at breakneck speeds, with the first clinical trials beginning just three months after the virus emerged. As of March 1, 2021, 71 vaccines are currently undergoing clinical trials, 20 have reached the final stages of testing, and four have been approved by stringent authorities: Pfizer-BioNTech, Oxford-AstraZeneca, Moderna, and Johnson & Johnson.² As countries around the world launch their vaccine rollouts, the results have been promising. In Israel, the country with the highest number of vaccinated people per capita, over 50% of the population has received at least one dose as of late February 2021, and hospitalization rates among vaccinated groups have already begun to decline.³ In addition, the world has seen a significant decline in cases and deaths since their peak in early January 2021,⁴ which has added to feelings that the light at the end of the tunnel is now visible.

Nevertheless, the world faces several obstacles as it marches towards the end of the pandemic. One of the biggest worries is the so-called variants of concern (VOC) that have emerged as the virus continues to spread. These variants are versions of SARS-COV-2 that have developed mutations that make them more transmissible or lethal. The B.1.1.7 (UK) variant, which was first detected in November 2020, has been shown to be around twice as transmissible as the predominant, or “wild-type,” virus. Meanwhile, B.1.351 (South African) and P.1 (Brazilian) variants have been shown to escape the body’s immune response from prior infection and vaccination, and could pose a threat to current vaccination efforts. Another concern is the threat of vaccine nationalism—the hoarding of vaccines by rich countries at the expense of poorer ones, which could prevent low-income countries from achieving widespread vaccination for years to come. Finally, even if countries can secure enough doses for their populations, it

¹ “Vaccine Research & Development,” Johns Hopkins Coronavirus Resource Center, accessed March 2, 2021, <https://coronavirus.jhu.edu/vaccines/timeline>.

² Carl Zimmer, Jonathan Corum, and Sui-lee Wee, “Coronavirus Vaccine Tracker,” The New York Times, June 10, 2020, <https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html>.; “Tracking Covid-19 across the World,” The Economist (The Economist Newspaper, January 21, 2021), <https://www.economist.com/graphic-detail/tracking-coronavirus-across-the-world>.

³ Edouard Mathieu and Hannah Ritchie, “Vaccinations and the Impact of COVID-19 – Our Continuously-Updated Data for Israel,” (Our World in Data, February 8, 2021), <https://ourworldindata.org/vaccination-israel-impact>.; The Economist, “How well will vaccines work?”; Hagai Rossman et al., “Patterns of COVID-19 Pandemic Dynamics Following Deployment of a Broad National Immunization Program” (medRxiv, February 9, 2021), <https://www.medrxiv.org/content/10.1101/2021.02.08.21251325v1>.

⁴ Allison Mccann, Lauren Leatherby, and Josh Holder, “The Pandemic Is Receding in the Worst Hotspots. Will It Last?,” The New York Times, February 22, 2021, <https://www.nytimes.com/interactive/2021/02/22/world/coronavirus-world-turnaround.html>.

is not guaranteed that everyone will agree to receive the vaccine. In many countries, vaccine hesitancy and resistance pose a major threat to public health. Given the possibilities that vaccines offer, the challenges countries face in vaccinating their populations, and the questions that remain about COVID-19, how should we understand the role that vaccines will play in ending the pandemic?

The Dynamics of Herd Immunity

If acquired immunity allows an individual to resist infection from a pathogen, then herd immunity describes the ability of a population to suppress outbreaks by reducing the number of susceptible people. In addition to reducing transmission, herd immunity also functions to protect people who cannot be vaccinated, including immunocompromised people and children.⁵ Herd immunity can be achieved through natural infection (assuming that infection confers lasting immunity), vaccination, or a combination of the two. As the portion of immune individuals increases, the population will eventually reach its herd immunity threshold, that is, “the point at which the proportion of susceptible individuals falls below the threshold needed for transmission.”⁶ In order to calculate the herd immunity threshold for a given population, one must first understand the pathogen’s basic reproductive number, or R_0 , which reflects the average number of secondary cases caused by an infectious individual in a completely susceptible population.⁷ For example, if a pathogen has an R_0 of 3, then any infected individual will on average go on to infect three other people.

Understanding a pathogen’s R_0 is crucial for estimating the herd immunity threshold in a population because the more infectious a pathogen is, the more people must become immune in order to effectively block transmission.⁸ Researchers initially estimated the R_0 of SARS-CoV-2 to be between 2 and 3,⁹ but more recent estimates place it at approximately 5.7,¹⁰ with an even higher R_0 for more infectious variants.¹¹ An R_0 of 5.7 would require 82.5% of a population to become immune, although this is purely theoretical and does not take into account other factors that might lower the herd immunity threshold including differences in age and activity.¹² One caveat is that these calculations assume infection and

⁵ Haley E. Randolph and Luis B. Barreiro, “Herd Immunity: Understanding COVID-19,” *Immunity* 52, no. 5 (May 19, 2020): pp. 737-741, <https://doi.org/https://doi.org/10.1016/j.immuni.2020.04.012>, p. 737.

⁶ *Ibid.*

⁷ *Ibid.*

⁸ *Ibid.*

⁹ Qun Li et al., “Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia,” *The New England Journal of Medicine* 382, no. 13 (March 26, 2020): pp. 1199-1207, <https://doi.org/10.1056/nejmoa2001316>.

¹⁰ Steven Sanche et al., “High Contagiousness and Rapid Spread of Severe Acute Respiratory Syndrome Coronavirus 2,” *Emerging Infectious Diseases* 26, no. 7 (July 2020): pp. 1470-1477, <https://doi.org/https://dx.doi.org/10.3201/eid2607.200282>.

¹¹ Meera Chand et al., “Investigation of Novel SARS-CoV-2 Variant: Variant of Concern 202012/01,” *Public Health England (GOV.UK)*, February 13, 2021, <https://www.gov.uk/government/publications/investigation-of-novel-sars-cov-2-variant-variant-of-concern-20201201>.

¹² Tom Britton, Frank Ball, and Pieter Trapman, “A Mathematical Model Reveals the Influence of Population Heterogeneity on Herd Immunity to SARS-CoV-2,” *Science* 369, no. 6505 (August 14, 2020): pp. 846-849, <https://doi.org/10.1126/science.abc6810>.

vaccination would confer long-lasting immunity, which has yet to be established. Ultimately, there is still much that is unknown about what role vaccines will play in ending the pandemic. However, this uncertainty should not stop us from recognizing that reaching herd immunity through natural infection would not only pose catastrophic costs, but is also potentially impossible given the uncertainty of estimates for how long immunity lasts.

The Dangers of Achieving Herd Immunity through Natural Infection

Although the immunity conferred by natural infection can contribute to a population reaching the herd immunity threshold, it is by no means a reliable strategy on its own. The dangers of natural infection are best reflected by the case of Manaus, a Brazilian city of over two million people that allowed the virus to spread largely unmitigated during the initial outbreak. The first case of COVID-19 was confirmed on March 13, 2020, and infections peaked in early May 2020, with a 4.5-fold increase in excess mortality.¹³ By October, the attack rate (the proportion of susceptible people who became infected) reached 76%, surpassing the estimated 60-67% threshold required to achieve herd immunity. Nevertheless, Manaus saw an abrupt rise in the number of COVID-19 hospital admissions in January 2021.¹⁴ This could be explained by the potential for waning immunity after infection. Although studies have shown that reinfection is unlikely up to five to six months after infection,¹⁵ most of the SARS-CoV-2 infections in Manaus occurred seven to eight months before the resurgence in January. It is therefore possible that reinfections contributed to the recent surge in cases.¹⁶ Moreover, the increase in cases occurred shortly after the earliest detection of the P.1 variant in Manaus and the P.2 variant in other parts of Brazil, both of which have been linked to reinfections and are potentially more transmissible than the wild type virus.¹⁷ Questions still remain about how long immunity lasts after infection and to what extent new variants are able escape the body's immune response.¹⁸ However, the case of Manaus illustrates that relying on natural infection to achieve herd immunity is not a reliable strategy due to the risk of reinfection.

¹³ Lewis F. Buss et al., "Three-Quarters Attack Rate of SARS-CoV-2 in the Brazilian Amazon during a Largely Unmitigated Epidemic," *Science* 371, no. 6526 (January 15, 2021): pp. 288-292, <https://doi.org/10.1126/science.abe9728>.

¹⁴ Ester C Sabino et al., "Resurgence of COVID-19 in Manaus, Brazil, despite High Seroprevalence," *The Lancet* 397, no. 10273 (February 6, 2021): pp. 452-455, [https://doi.org/10.1016/s0140-6736\(21\)00183-5](https://doi.org/10.1016/s0140-6736(21)00183-5); Assessoria de Informática - AINFO, "Painel COVID-19 Amazonas," Fundação de Vigilância em Saúde do Amazonas (Amazonas Governo Do Estado), accessed March 2, 2021, http://www.fvs.am.gov.br/indicadorSalaSituacao_view/60/2.

¹⁵ Jennifer M. Dan et al., "Immunological Memory to SARS-CoV-2 Assessed for up to Eight Months after Infection," *Science* 371, no. 6529 (February 5, 2020), <https://doi.org/10.1101/2020.11.15.383323>.

¹⁶ Sabino et al., p. 453.

¹⁷ *Ibid.*

¹⁸ Kai Kupferschmidt, "New Mutations Raise Specter of 'Immune Escape,'" *Science* 371, no. 6527 (January 22, 2021): pp. 329-330, <https://doi.org/10.1126/science.371.6527.329>.

In addition, even if natural infection does confer long-lasting immunity, this strategy would still cause an unacceptable number of deaths. One model estimates that global deaths would exceed 30 million people,¹⁹ while another claims that one fifth of the global population would be at increased risk for severe disease due to underlying conditions, with risk increasing dramatically with age.²⁰ This would be especially severe in countries with limited healthcare resources, where overwhelmed healthcare systems would not only lead to an increase in COVID-19 deaths, but deaths of all causes.²¹ Finally, even in low-risk groups there is still cause for concern, especially due to the risk of persisting symptoms in adult patients, known as “long COVID,” and multisystem inflammatory syndrome (MIS-C) in children.²²

Obstacles of Vaccine-Driven Herd Immunity

The biggest obstacle to achieving herd immunity through vaccination is that, as with the case of natural infection, it is unclear how long immunity from vaccines lasts and to what extent new viral variants may be able to escape the body’s immune responses. The latter is more of a concern, as recent studies have demonstrated that some vaccines are ineffective at preventing infection by new variants, particularly the B.1.351 (South African) variant. On February 7, 2021, South Africa halted use of the Oxford-AstraZeneca vaccine after researchers discovered that it did not adequately prevent mild or moderate disease caused by this variant.²³ Following trials in South Africa, the Novavax and Johnson & Johnson vaccines have also been shown to be less effective against the B.1.351 variant. While the efficacy rates of these vaccines in the US were 89.3% and 72% respectively, in South Africa, they dropped to just 50% and 57%.²⁴ In addition, the B.1.1.7 (U.K.) variant has been shown to be roughly 50% more infectious than predominant virus variants, which would raise the herd immunity threshold in populations where the variant is circulating, and therefore require a larger portion of the population to be vaccinated or otherwise immune.²⁵ The B.1.1.7 variant may also possess some resistance to vaccines and is likely deadlier than

¹⁹ Randolph and Barreiro, p. 739.

²⁰ Andrew Clark et al., “Global, Regional, and National Estimates of the Population at Increased Risk of Severe COVID-19 Due to Underlying Health Conditions in 2020: a Modelling Study,” *Lancet Global Health* 8, no. 8 (August 1, 2020): pp. e1003-e1017, [https://doi.org/https://doi.org/10.1016/S2214-109X\(20\)30264-3](https://doi.org/https://doi.org/10.1016/S2214-109X(20)30264-3).

²¹ *Ibid.*

²² Devi Sridhar and Deepti Gurdasani, “Herd Immunity by Infection Is Not an Option,” *Science* 371, no. 6526 (2021): pp. 230-231, <https://doi.org/10.1126/science.abf7921>.

²³ Benjamin Mueller, Rebecca Robbins, and Lynsey Chutel, “South Africa Says AstraZeneca's Vaccine Doesn't Work Well against a Variant.” (*The New York Times*, February 7, 2021), <https://www.nytimes.com/2021/02/07/world/south-africa-astrazeneca-vaccine.html>.

²⁴ Katie Thomas, Carl Zimmer, and Sharon Lafraniere, “Novavax’s Vaccine Works Well — Except on Variant First Found in South Africa” (*The New York Times*, January 28, 2021), <https://www.nytimes.com/2021/01/28/health/covid-vaccine-novavax-south-africa.html>.; Carl Zimmer, Noah Weiland, and Sharon Lafraniere, “Johnson & Johnson’s Vaccine Offers Strong Protection but Fuels Concern About Variants” (*The New York Times*, January 29, 2021), <https://www.nytimes.com/2021/01/29/health/covid-vaccine-johnson-and-johnson-variants.html?action=click&module=Spotlight&pg-type=Homepage>.

²⁵ “SARS-CoV-2 Variants” (Centers for Disease Control and Prevention, January 31, 2021), <https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/variant-surveillance/variant-info.html>.; Alastair Grant and Paul R. Hunter, “Immunisation, Asymptomatic Infection, Herd Immunity and the New Variants of COVID 19,” *MedRxiv*, January 20, 2021, <https://doi.org/10.1101/2021.01.16.21249946>.

the wild-type virus.²⁶ Reflecting on the difficulties in reaching herd immunity, Prof. Shabir Madhi, who led the Oxford-AstraZeneca trial in South Africa said, “These findings recalibrate thinking about how to approach the pandemic virus and shift the focus from the goal of herd immunity against transmission to the protection of all at-risk individuals in population against severe disease.”²⁷

An additional challenge to vaccine driven herd immunity is vaccine nationalism. Vaccine nationalism can be defined as the hoarding of vaccines by wealthy countries which prevents poorer countries from acquiring them. As of mid-January 2021, high income countries have purchased 60% of the world’s vaccine supply, despite only representing 16% of the global population.²⁸ The most egregious example is Canada, which has purchased enough doses to vaccinate five times its population.²⁹ By the same token, “...less than [1%] of vaccine doses globally have been administered in the 32 countries facing severe or very severe humanitarian crises.”³⁰ As a result, many rich countries will be able to vaccinate most of their populations by the end of 2021, while low- and middle-income countries might have to wait as long as 2023.³¹ In order to mitigate such disparities, the WHO, in collaboration with GAVI and the Coalition for Epidemic Preparedness Innovations (CEPI), created COVAX, a vaccine-sharing scheme that enables wealthy countries to pay for poorer countries’ vaccines.³² However, COVAX only plans to deliver enough doses to vaccinate 20% of participating countries’ populations by the end of 2021, which is well below the portion needed to achieve herd immunity.

The consequences of vaccine nationalism are manifold. Aside from the gross inequalities that it has produced, delays in vaccinating certain countries increase the risk of new variants emerging that might reduce the effectiveness of vaccines globally. In the words of Andrea Taylor, assistant director at the Duke Global Health Innovation Center, “this idea that no one is safe until everyone is safe is not just an adage, it is really true.”³³ In addition, vaccine nationalism has an economic dimension: because all

²⁶ Benjamin Mueller and Carl Zimmer, “U.K. Virus Variant Is Probably Deadlier, Scientists Say” (The New York Times, February 13, 2021), <https://www.nytimes.com/2021/02/13/world/europe/covid-uk-variant-deadlier.html>; Carl Zimmer, “A Study Shows the Variant Spreading Rapidly in Britain Might Make Vaccines Less Effective.” (The New York Times, February 1, 2021), <https://www.nytimes.com/2021/02/01/health/covid-variants.html>.

²⁷ Sarah Boseley and Jessica Murray, “Study Shows Oxford Covid Vaccine Has Less Protection against South African Variant,” The Guardian (Guardian News and Media, February 7, 2021), <https://www.theguardian.com/society/2021/feb/07/covid-vaccine-booster-variants-emerge-minister>.

²⁸ Mary Brophy Marcus, “Ensuring Everyone in the World Gets a COVID Vaccine,” Duke Global Health Institute, January 20, 2021, <https://globalhealth.duke.edu/news/ensuring-everyone-world-gets-covid-vaccine>.

²⁹ Ibid.

³⁰ “Secretary-General Calls Vaccine Equity Biggest Moral Test for Global Community, as Security Council Considers Equitable Availability of Doses,” United Nations Meetings Coverage and Press Releases (United Nations, February 17, 2021), <https://www.un.org/press/en/2021/sc14438.doc.htm>.

³¹ Coronavirus Vaccines: Expect Delays (London: The Economist Intelligence Unit, 2021).

³² “What Is COVAX?,” The Economist (The Economist Newspaper, February 24, 2021), <https://www.economist.com/the-economist-explains/2021/02/24/what-is-covax>.

³³ Lynsey Chutel and Marc Santora, “As Virus Variants Spread, ‘No One Is Safe Until Everyone Is Safe’” (The New York Times, January 31, 2021), <https://www.nytimes.com/2021/01/31/world/africa/coronavirus-south-africa-variant.html>.

economies are connected, “no economy will be fully recovered unless the other economies are recovered.”³⁴ Indeed, according to a study from the National Bureau of Economic Research, even if wealthy countries achieve universal vaccination, they are still likely to absorb nearly half of the economic costs of the pandemic in 2021.³⁵ The threat of vaccine nationalism also extends to international peace and security. According to UN Secretary General Guterres, the lack of equitable distribution has the potential to worsen the factors that drive political instability and conflict: “At this critical moment, vaccine equity is the biggest moral test before the global community.”³⁶

The final challenge to vaccine-based herd immunity that will be addressed in this report is that a concerning number of people are hesitant, if not unwilling, to receive a vaccine. These people can be put into two groups: those who have safety concerns about COVID-19 vaccines due to their rapid development, and those who are unwilling to receive vaccines in general due to unsubstantiated beliefs and conspiracy theories. One international survey from October 2020 showed that across 19 countries, 71.5% of respondents indicated they were willing to receive a COVID-19 vaccine if it was proven to be safe and effective.³⁷ However, there is a high degree of heterogeneity between countries. In a more recent 32-country survey from October to December 2020, vaccine willingness was highest in Vietnam (98%), India, and China (both at 91%), and lowest in Serbia (38%), Croatia (41%), and France and Lebanon (both at 44%).³⁸ Even in countries with low overall hesitancy, distrust can arise, especially among marginalized groups, which can create opportunities for the virus to spread.³⁹ Hesitancy, compounded by the fact that no COVID-19 vaccine has yet been approved for children, means that some countries may not be able to reach the herd immunity threshold.

The Importance of Vaccines

Despite these concerning developments, they by no means suggest that vaccination without reaching herd immunity is pointless. On the contrary: vaccines alongside other control measures and treatments will play a crucial role in ending the pandemic. For one thing, all approved COVID-19 vaccines have been

³⁴ Peter S. Goodman, “If Poor Countries Go Unvaccinated, a Study Says, Rich Ones Will Pay” (The New York Times, January 23, 2021), <https://www.nytimes.com/2021/01/23/business/coronavirus-vaccines-global-economy.html?searchResultPosition=3>.

³⁵ Cem Çakmaklı et al., “The Economic Case for Global Vaccinations: An Epidemiological Model with International Production Networks,” National Bureau of Economic Research, January 2021, <https://doi.org/10.3386/w28395>.

³⁶ “Secretary-General Calls Vaccine Equity Biggest Moral Test for Global Community, as Security Council Considers Equitable Availability of Doses,” United Nations Meetings Coverage and Press Releases (United Nations, February 17, 2021), <https://www.un.org/press/en/2021/sc14438.doc.htm>.

³⁷ Jeffrey V. Lazarus et al., “A Global Survey of Potential Acceptance of a COVID-19 Vaccine,” *Nature Medicine* 27 (October 20, 2020): pp. 225-228, <https://doi.org/https://doi.org/10.1038/s41591-020-1124-9>.

³⁸ Olivier J Wouters et al., “Challenges in Ensuring Global Access to COVID-19 Vaccines: Production, Affordability, Allocation, and Deployment,” *The Lancet*, February 12, 2021, [https://doi.org/https://doi.org/10.1016/S0140-6736\(21\)00306-8](https://doi.org/https://doi.org/10.1016/S0140-6736(21)00306-8).

³⁹ “Vaccine Hesitancy Is Putting Progress against Covid-19 at Risk,” *The Economist* (The Economist Newspaper, February 13, 2021), <https://www.economist.com/briefing/2021/02/13/vaccine-hesitancy-is-putting-progress-against-covid-19-at-risk>.

shown to dramatically reduce, if not eliminate, a person's risk of developing severe disease. A study conducted in late February 2021 found that the Pfizer-BioNTech vaccine reduced the likelihood of severe disease by 92% after the second dose.⁴⁰ Another study, which examined the effects of the Johnson & Johnson vaccine in the United States and South Africa, found that the vaccine provides strong protection against severe disease in both countries.⁴¹ Finally, a study by the University of Edinburgh found that the first dose of the Oxford-AstraZeneca vaccine reduces a person's risk of hospitalization by up to 94%.⁴²

In addition to preventing severe disease, approved vaccines are also able to prevent infection, albeit to varying degrees. Vaccines like the Pfizer-BioNTech and Moderna vaccines have efficacy rates around 95%, which means that they reduce a person's chance of developing symptoms by 95% compared to a placebo.⁴³ By contrast, the Johnson & Johnson vaccine has an efficacy rate of between 61% and 72% depending on the country, while the Sinovac vaccine has an efficacy rate of just 50.38%.⁴⁴ High vaccine efficacy in conjunction with high vaccine coverage is an important factor in reaching herd immunity, with one study estimating that an efficacy of at least 70% would be necessary to prevent an epidemic without other control measures.⁴⁵ Nevertheless, lower-efficacy vaccines like those developed by Johnson & Johnson and Sinovac do not need to be stored at ultra-low temperatures, which may make them particularly suitable for developing countries with limited refrigeration systems.⁴⁶

As more research is conducted, ways to better allocate and develop vaccines are likely to emerge. For example, a recent study on Israeli healthcare workers found a substantial reduction in COVID-19 transmission and symptoms following the first dose of the Pfizer-BioNTech vaccine.⁴⁷ Another study found that people who had been previously infected with SARS-CoV-2 only required one dose of mRNA vaccine to reach the same level of immunity as uninfected people who received two doses.⁴⁸ Taken together, these studies suggest that countries with vaccine supply shortages and those with a high

⁴⁰ Noa Dagan et al., "BNT162b2 mRNA Covid-19 Vaccine in a Nationwide Mass Vaccination Setting," *The New England Journal of Medicine*, February 24, 2021, <https://doi.org/10.1056/NEJMoa2101765>.

⁴¹ Carl Zimmer, Noah Weiland, and Sharon Lafraniere, "New Analyses Show Johnson & Johnson's One-Dose Vaccine Works Well.," *The New York Times* (The New York Times, February 24, 2021), <https://www.nytimes.com/2021/02/24/science/johnson-johnson-covid-vaccine.html>.

⁴² "Scottish Vaccine Roll-out Working, Data Suggests," *The University of Edinburgh*, February 22, 1970, <https://www.ed.ac.uk/news/2021/scottish-vaccine-roll-out-working-data-suggests>.

⁴³ Carl Zimmer, "2 Companies Say Their Vaccines Are 95% Effective. What Does That Mean?" (The New York Times, November 20, 2020), <https://www.nytimes.com/2020/11/20/health/covid-vaccine-95-effective.html>.

⁴⁴ Carl Zimmer, Jonathan Corum, and Sui-lee Wee, "Coronavirus Vaccine Tracker," *The New York Times*, June 10, 2020, <https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html>.

⁴⁵ Sarah M. Bartsch et al., "Vaccine Efficacy Needed for a COVID-19 Coronavirus Vaccine to Prevent or Stop an Epidemic as the Sole Intervention," *American Journal of Preventive Medicine* 59, no. 4 (July 15, 2020): pp. 493-503, <https://doi.org/10.1016/j.amepre.2020.06.011>.

⁴⁶ Lynsey Chutel and Marc Santora, "As Virus Variants Spread, 'No One Is Safe Until Everyone Is Safe'" (The New York Times, January 31, 2021), <https://www.nytimes.com/2021/01/31/world/africa/coronavirus-south-africa-variant.html>.

⁴⁷ Sharon Amit et al., "Early Rate Reductions of SARS-CoV-2 Infection and COVID-19 in BNT162b2 Vaccine Recipients," *The Lancet*, February 18, 2021, [https://doi.org/10.1016/s0140-6736\(21\)00448-7](https://doi.org/10.1016/s0140-6736(21)00448-7).

⁴⁸ Florian Krammer et al., "Robust Spike Antibody Responses and Increased Reactogenicity in Seropositive Individuals after a Single Dose of SARS-CoV-2 mRNA Vaccine," *MedRxiv*, February 1, 2021, <https://doi.org/10.1101/2021.01.29.21250653>.

portion of previously infected people may be able to reach herd immunity and reduce deaths more quickly by employing a strategy of prioritizing population coverage with a single dose. Furthermore, scientists are in the process of developing new vaccines to address the emergence of vaccine-resistant variants like B.1.351, which could take the form of booster doses or multivalent vaccines targeted at several variants.⁴⁹ Vaccine developers like Pfizer-BioNTech and Moderna have already begun developing second generation vaccines.⁵⁰ Regulators in the US, UK, and EU have also announced that such vaccines would not need to undergo extensive trials, raising hopes that new vaccines could be quickly developed and distributed.⁵¹ As a result, even if herd immunity and full eradication are not possible, vaccines will help reduce COVID-19 to an endemic disease with mild symptoms, similar to the common cold or the flu.⁵²

Report Purpose and Organization

Given the importance of mass vaccination in ending the COVID-19 pandemic, this Task Force report seeks to analyze and compare the experiences of different countries in order to better understand what makes a successful vaccination campaign. From this analysis, we will provide policy recommendations targeted specifically towards Cambodia. This report comprises five chapters, each of which will analyze a particular issue related to vaccine diplomacy, distribution, and disparities.

In Chapter 1, we will examine the issues of vaccine diplomacy and vaccine nationalism. We will specifically focus on the ways in which wealthy countries have prioritized the vaccination of their respective populations over the needs of middle- and low-income countries and what consequences this might have with regard to geopolitics and global health. This chapter will also discuss the relationship between vaccine developers, nation-states, and multilateral organizations, explain the incentive structures behind vaccine nationalism, and consider how developing countries can navigate vaccine supply shortages. In Chapter 2, we will compare the ways different countries have carried out their vaccine rollouts, taking into consideration demographics, existing infrastructure, and inequities in allocation. This chapter will analyze the reasons for why different countries have prioritized different

⁴⁹ “Coronavirus Vaccine Update With Paul Offit – February 11, 2021,” JN Learning (AMA Ed Hub, February 15, 2021), <https://edhub.ama-assn.org/jn-learning/video-player/18584802>.

⁵⁰ Denise Grady, Apoorva Mandavilli, and Katie Thomas, “As Virus Grows Stealthier, Vaccine Makers Reconsider Battle Plans” (The New York Times, January 25, 2021), <https://www.nytimes.com/2021/01/25/health/coronavirus-moderna-vaccine-variant.html>.

⁵¹ Center for Biologics Evaluation and Research, “Emergency Use Authorization for Vaccines to Prevent COVID-19” (U.S. Food and Drug Administration, February 22, 2021), <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/emergency-use-authorization-vaccines-prevent-covid-19>; “The Jab: Are the Vaccines Effective Enough?,” The Economist Radio Podcasts (The Economist Newspaper, February 22, 2021), <https://www.economist.com/podcasts/2021/02/22/are-the-vaccines-effective-enough>.

⁵² Jennie S Lavine, Ottar N Bjornstad, and Rustom Antia, “Immunological Characteristics Govern the Changing Severity of COVID-19 during the Transition to Endemicity,” *Science* 371, no. 6530 (February 12, 2020): pp. 741-745, <https://doi.org/10.1101/2020.09.03.20187856>.

demographic groups, and will evaluate the success of various strategies to further understand the unique challenges that developing countries face in equitably and effectively distributing vaccines to their populations. Chapter 3 will focus on the relationship between government communication, social trust, and the media in affecting public health policy adherence and vaccine hesitancy.

Finally, Chapters 4 and 5 will focus specifically on the current public health and economic challenges Cambodia faces as a result of the pandemic.⁵³ Although Cambodia has been successful at controlling the spread of COVID-19, future success is not guaranteed, as the current spike in cases demonstrates. With the emergence of new variants in addition to limited public health infrastructure and mounting socio-economic pressures, Cambodia is now in a vulnerable position. Action must be taken to ensure that the country can maintain low mortality and survive economically until herd immunity is reached. Therefore, Chapter 4 will examine the public health measures Cambodia has adopted, evaluate the country's potential to fight future outbreaks, and will draw from the strategies adopted by other countries in order to provide Cambodia with new recommendations. Chapter 5 will then focus on the two major industries in Cambodia that have been impacted by the pandemic: the tourism and garment industries. These industries have suffered as a result of the lockdowns, international travel bans, and supply chain issues caused by the pandemic, leaving many unemployed and impoverished. This chapter will examine what other countries have done to address the economic impacts of the pandemic, and will provide recommendations on how Cambodia can encourage domestic tourism and support its struggling industries.

⁵³ Coronavirus Vaccines: Expect Delays (London: The Economist Intelligence Unit, 2021).

Chapter 1: Vaccine Nationalism and Diplomacy

Esther Lee and Simon Huang

Introduction

Since the first COVID-19 vaccines were developed, large disparities have emerged in terms of access. On the one hand, many wealthy countries have been able to secure enough doses to vaccinate their populations by the end of 2021. Among them, Israel, the United Arab Emirates (UAE), and the United Kingdom (UK) have administered the most doses per capita as of March 3, 2021. On the other hand, many low- and middle-income countries may not be able to achieve mass immunization until as late as 2023.¹ Such disparities are not without precedent. During the 2009 swine flu pandemic, wealthy countries prioritized their own needs above those of developing countries. Australia, the first country to develop a vaccine, restricted exports in order to secure enough doses for its population, while other wealthy countries secured doses through direct agreements with developers.² Meanwhile, over half of the deaths caused by the COVID-19 pandemic have occurred in low-income countries in Africa and Southeast Asia, where access to healthcare is more limited.³ By the time vaccines were made available to developing countries, infections had peaked and immunization was no longer useful.⁴ This practice of a country prioritizing the vaccination of its own population at the expense of other countries, thereby jeopardizing global health, has been termed vaccine nationalism.

The consequences of vaccine nationalism during the COVID-19 pandemic are likely to be far worse than during the swine flu pandemic. For one thing, SARS-CoV-2, the virus that causes COVID-19, is both more infectious and more deadly than the Swine flu. In addition, several new viral variants have emerged that have the potential to reduce the effectiveness of COVID-19 vaccines. If outbreaks are not controlled, more variants could arise that threaten to put vaccinated populations at risk. In the words of UN Secretary-General António Guterres, “If the virus is allowed to spread like wildfire in the global South, it will mutate again and again...This can prolong the pandemic significantly, enabling the virus to come back to plague the global North.”⁵

¹ Coronavirus Vaccines: Expect Delays (London: The Economist Intelligence Unit, 2021).

² Abhishek De, “Vaccine nationalism, and how it impacts the Covid-19 fight.”

³ Kaithlin Schroeder, “Global Challenges in Seasonal Influenza Vaccine Supply, Use, and Policy.” (Stanford University, 2018),16

⁴ “What Is COVAX?,” The Economist (The Economist Newspaper, February 24, 2021), <https://www.economist.com/the-economist-explains/2021/02/24/what-is-covax>.

⁵ “Secretary-General Calls Vaccine Equity Biggest Moral Test for Global Community, as Security Council Considers Equitable Availability of Doses” <https://www.un.org/press/en/2021/sc14438.doc.htm>

The limited supply of vaccines also has geopolitical implications, expressed through the term “vaccine diplomacy.” While many nations such as the US, Israel, and the UK have secured large quantities of vaccine for use within their borders, emerging powers such as China, India, and Russia have used vaccines as tools to expand their geopolitical influence. In addition, the selective donations and exporting of vaccines by developed countries and emerging powers alike also disrupts the equitable distribution of vaccines: the vaccines first go to countries that are geopolitically more important to the donors rather than to countries that are in more urgent need of vaccines. Although vaccine hoarding and vaccine donations seem like polar opposites, they are equally rooted in national self-interest. Whereas high-income countries show a dire need to reach herd immunity and revitalize their economies, geopolitical influence and national images are of paramount importance to emerging powers. These two different approaches to vaccines closely resemble the model of political realism that emphasizes the prioritization of national interests over international cooperation. The current surge in nationalist vaccine diplomacy and allocation conflicts with the multilateral vision put forward by the United Nations (UN) and the World Health Organization (WHO). Moreover, the equitable and timely distribution of vaccines still seems to be an unattainable goal without adequate international cooperation, even as vaccine developers including Pfizer, Moderna, and AstraZeneca vaccines predict that they will have a combined capacity to produce around 5.3 billion doses of vaccines in 2021.⁶

COVAX for Equitable Vaccine Access

In response to emerging disparities in access to COVID-19 diagnostics, treatments, and vaccines, the WHO, Gavi, and the Coalition for Epidemic Preparedness Innovations (CEPI) established the COVAX program in April 2020.⁷ COVAX ensures equitable access to COVID-19 vaccines as a public good for developing countries, regardless of income level or purchasing power. COVAX plans to provide at least 1.8 billion doses to developing countries by the end of 2021, which will be enough to protect frontline healthcare workers and high risk and vulnerable people.⁸ However, COVAX will initially only be able to vaccinate 20% of participating countries’ populations, which is well below the percentage necessary to reach herd immunity. Nevertheless, it will play a crucial role in reducing hospitalizations and deaths in developing countries. Additionally, COVAX includes the COVID-19 Vaccines Advance Market Commitment (COVAX AMC), a financing instrument, which ensures that 92 low-income countries can

⁶ Asher Mullard. “How COVID vaccines are being divided up around the world.” *Nature*, November 30, 2021. Accessed February 2021. www.nature.com/articles/d41586-020-03370-6

⁷ Seth Berkley “COVAX explained.” GAVI The Vaccine Alliance, September 03, 2020, <https://www.gavi.org/vaccineswork/covax-explained>.

⁸ Ibid.

receive donor-funded vaccines without costly payments.⁹ However, COVAX AMC would not provide donated vaccines and subsidized funds to self-financing and high-income countries.¹⁰ In the fierce vaccine race, COVAX has endeavored to secure a vaccine supply on behalf of low- and middle-income countries that have been priced out of the market and works to ensure safe and effective vaccine procurement in these countries.

Advance Purchase Agreements

Despite the efforts of COVAX to ensure fair vaccine procurement for all nations, wealthy countries have exacerbated vaccine shortages and delays in developing countries through their use of Advance Purchase Agreements (APAs). APAs are bilateral contracts through which governments or international organizations commit to purchasing a fixed number of doses from a developer at a negotiated price.¹¹ The money from APAs, in turn, helps developers fund research and innovation.¹² However, vaccine developers have provided discounts to countries that have invested in R&D outside of their APAs. This has forced different countries to pay different prices for the same vaccines. For instance, the European Union purchased the AstraZeneca vaccine for \$2.15 per dose while South Africa was forced to pay \$5.25.¹³ Because high-income economies have the financial means to fund vaccine R&D, they can dominate excess supply of vaccines and obtain lower prices via APAs, forcing lower-income countries to rely on COVAX.

Examples of Vaccine Nationalism

The United States. While the US has promised to provide equitable vaccine access to low- and middle-income countries, it has still excluded these nations from getting their share of the vaccines, thus leaving vulnerable nations with poor healthcare systems at severe risk. On February 18, 2021, the US funded \$4 billion to COVAX, and promised more contributions to equitable access to vaccines in low- and middle-income countries. Nevertheless, the US has faced heavy criticism about vaccine hoarding and leftover vaccine diplomacy because their nationalistic behaviors have given rise to vaccine shortages, which in turn will prolong the pandemic in developing countries. The US has dominated multi-billion dollar APAs with six pharmaceutical companies: Pizer & BioNTech, Moderna, AstraZeneca,

⁹ "Gavi COVAX AMC." Gavi, the Vaccine Alliance, <http://www.gavi.org/gavi-covax-amc#what>.

¹⁰ Ibid.

¹¹ Alexandra Phelan et al. "Legal agreements: barriers and enablers to global equitable COVID-19 vaccine access." *The Lancet (British Edition)* 396, no. 10254 (2020): 800-02.

¹² Michael Kremer, Adrian Towse and Heidi Williams. "Briefing Note on Advance Purchase Commitments." DFID Health Systems Resource Centre, May 2005. <https://www.who.int/intellectualproperty/submissions/>

¹³ Dyer Owen. "Covid-19: Countries are learning what others paid for vaccines." *BMJ*, January 29, 2021. <https://www.bmj.com/content/372/bmj.n281>.

Novavax, Sanofi-Gsk, and Johnson & Johnson.¹⁴ As a result, the total amount of vaccine doses the US has secured through APAs is enough to inoculate its population twice over. 65.9 million doses have already been delivered, and 44.7 million doses have been administered in the US since February 10, 2021. Nevertheless, despite the relatively high level of vaccination it has already achieved, the US continues to hoard additional vaccine orders under the ethical justification of putting its country and citizens first.¹⁵ However, the US's "me-first" vaccine policy has indirectly led to global vaccine supply shortages and has increased prices in low-income countries. As the US bids up the price of vaccines through APAs, other pharmaceutical companies have increased the average price of vaccines. For example, Moderna raises its potential vaccine from \$25 to \$30 per dose when the US purchases BioNtech and Pfizer vaccines at \$19.50 per dose.¹⁶ As a result, low- and middle-income countries have faced more challenges to access vaccines due to their limited financial resources. Furthermore, when the US consecutively reserves large vaccine orders, developing countries with no priority and weak bargaining power have to wait until the US's orders have been fulfilled. Therefore, developing countries inevitably confront vaccine delays and the risk that coronavirus is perpetuated as endemic in vulnerable nations.¹⁷

On February 19, 2021, the Biden administration announced that it would donate leftover COVID-19 vaccines to COVAX and low-income countries after the country finished its vaccine rollout.¹⁸ However, the number of doses that would be leftover is still tentative.¹⁹ Furthermore, the US's "me-first"²⁰ vaccine approach reflects how high-income countries have driven the world to "the brink of catastrophic moral failure."²¹ Because of wealthy countries' self-interest, developing countries will struggle to access life-saving vaccines.

The European Union. Competition for vaccines has become fierce between the European Union (EU) and the UK. On January 22, 2021, vaccine disputes arose when AstraZeneca announced shortfalls and delays of vaccines to the EU due to manufacturing problems. The EU took issue with the fact that AstraZeneca continuously supplied vaccines to the UK. In response, European Commission required that additional paperwork be completed in order for COVID-19 vaccines produced within the bloc to be

¹⁴ Niall McCarthy "Infographic: How Many Covid-19 Vaccine Doses Has The U.S. Secured?" Statista Infographics, December 01, 2020. <https://www.statista.com/chart/23660/umber-of-doses-of-covid-19-vaccines-secured-by-the-us/>.

¹⁵ Belluz, Julia "Rich countries are hoarding Covid-19 vaccines." Vox. January 29, 2021.

<https://www.vox.com/2021/1/29/22253908/rich-countries-hoarding-covid-19-vaccines>.

¹⁶ Marco Hafner et al, "COVID-19 and the cost of vaccine nationalism." RAND Corporation, 2020. https://www.rand.org/pubs/research_reports/RRA769-1.html.

¹⁷ Geoffrey York, "Poor Countries Fear 'vaccine Hoarding' by Wealthy Countries."

¹⁸ "Biden To Announce \$4 Billion For Global COVID-19 Vaccine Effort." NPR, February 18, 2021.

<http://www.npr.org/2021/02/18/969145224/biden-to-announce-4-billion-for-global-covid-19-vaccine-effort>.

¹⁹ World Health Organization, "WHO Director-General's opening remarks at 148th session of the Executive Board"

²⁰ Washington Post editorial post, "Opinion | Rich countries' 'me first' vaccine hoarding is leaving behind low-income nations."

²¹ Ibid.

exported abroad.²² As a result of this export barrier, AstraZeneca sharply cut its supply volume to other countries. This reflects how high-income countries have jeopardized global cooperation and solidarity in order to fulfill their national interest. By attempting to ensure vaccines reached the EU before other places in the world, the EU ultimately stopped the flow of AstraZeneca vaccines to other nations.

Israel. Israel has emerged as the leader of the global vaccine race with the highest rate of vaccination. Israel has inoculated 82.4 doses per 100 people as of February 19, 2021.²³ Compared to the world average, 2.63 doses per 100 people, Israel has vaccination rates 30 times above the average. Despite achieving such high levels of inoculation, Israel has faced criticism for excluding Palestinians from its campaign, while continuing to donate vaccines to other countries. For example, the Czech Republic and Honduras received 5,000 doses from the Israeli government as a result of them moving their embassies to Jerusalem. Under the Oslo Accords in the 1990s, Israel has a moral obligation to ensure access to vaccines and health services to Palestinians.²⁴ Even though the Israeli government has administered over 3.3 million people with at least the first doses, they only transferred 5,000 doses to Palestine to cover frontline health workers on January 31, 2021.²⁵ The portions of vaccines Palestinians have initially received was not enough to cover all essential workers, but Israel has not announced additional vaccine donations to Palestine yet.

Consequences of Vaccine Nationalism

As figure 1.1 shows, most low-and middle-income countries have not been able to secure a single dose of the vaccines. As the Chair of the UN Executive Board points out, at least 49 high-income countries have already provided 39 million doses of the vaccine, while Guinea, one of the poorest countries in Africa, has provided just 25 doses.²⁶ Vaccine hoarding by the developed world delays access to vaccines

²² Benjamin Mueller and Matina Stevis-Gridneff, "E.U. and U.K. Fighting Over Scarce Vaccines." *The New York Times*, February 22, 2021. <http://www.nytimes.com/2021/01/27/world/europe/eu-uk-covid-vaccine.html>.

²³ Max Roser, et al, "Statistics and Research Coronavirus (COVID-19) Vaccinations." *Our World in Data*, <https://ourworldindata.org/covid-vaccinations>.

²⁴ Adam Rasgon, "Israel's Vaccine Success Unleashes a Debate on Palestinian Inequities." *The New York Times*, February 4, 2021.

²⁵ *Ibid.*

²⁶ *Ibid.*

and leaves vulnerable regions at risk.

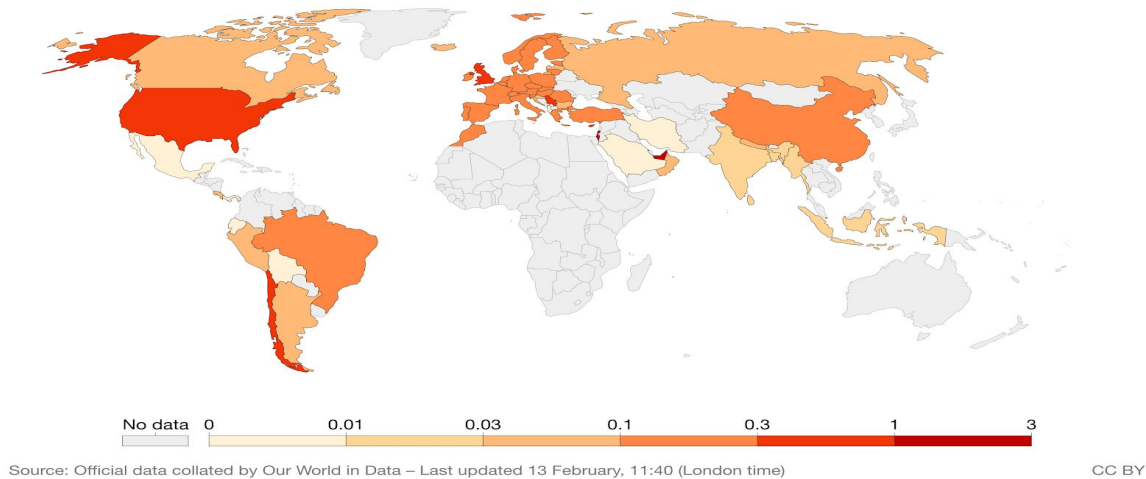


Figure 1.1 Daily New Vaccination Doses Administered per 100 People

Africa. A Lack of human and physical resources to prevent infection has left many countries in Africa unable to contain outbreaks of COVID-19. Vaccine hoarding by high-income countries has thus made Africa even more vulnerable to the effects of the pandemic. Tharcisse Mpunga, Rwanda’s state minister for primary healthcare points out that Africa has struggled to secure sufficient vaccines due to APAs between wealthy countries and vaccine developers.²⁷ As a result, countries in Africa have faced a severe spike in mortality: Deaths from COVID-19 have increased by 40% in January 2021. Moreover, due to limited healthcare resources, the COVID-19 case fatality rate has risen to 3.7%, which is above the global average.²⁸ Despite the urgent situation in Africa, large parts of Africa, especially sub-Saharan African countries, are unlikely to achieve mass immunization until 2023 or 2024 due to high-income countries’ vaccine nationalism.²⁹

Southeast Asia. Southeast Asian countries, whose economies are heavily dependent on international tourism, have faced increases in financial instability, unemployment, and food shortage,³⁰ due to the collapse in tourism that was brought on by the pandemic. 11 million people have fallen into extreme

²⁷ James Tasamba, “COVID-19: Africa fears vaccine shortage, urges equity.” Anadolu Ajans, January 31, 2021. <https://www.aa.com.tr/en/africa/covid-19-africa-fears-vaccine-shortage-urges-equity/2128751>.

²⁸ “Rising mortality as Africa marks one year of COVID-19.” World Health Organization, February 11, 2021. <http://whotogo-whoafrocmaster.newsweaver.com/JournalEnglishNewsletter/cgvqefh8w8fy48iiujdam4?lang=en&a=6&p=58732838&t=31103673>.

²⁹ Saeed Shah, Gabriele Steinhauser, and Feliz Solomon, “Vaccine Delays in Developing Nations Risk Prolonging Pandemic.” The Wall Street Journal, February 17, 2021. <http://www.wsj.com/articles/faltering-covid-19-vaccine-drive-in-developing-world-risks-prolonging-pandemic-11613557801>.

³⁰ Sebastian Strangio, “Southeast Asian Economies Face Generational Downturn from COVID-19.” The Diplomat, September 29, 2020. <https://thediplomat.com/2020/09/southeast-asian-economies-face-generational-downturn-from-covid-19/>.

poverty in the Asia-pacific region.³¹ Thailand has lost nearly \$8.3 billion a month in income as a result of its slow vaccine rollout.³² The Philippines has reported that nearly 59 million Filipinos have experienced food shortages and insecurity since the pandemic began.³³ Indonesia has faced rising poverty due to the job losses caused by lockdowns.³⁴ As these examples show, many countries in Southeast Asian are suffering from rising poverty and food insecurity. However, vaccine supplies continue to be delayed by high-income countries' vaccine hoarding.

Vaccine Diplomacy and its Implications for Cambodia

Overview for developing countries. The COVID-19 Pandemic has significantly altered the dynamics of geopolitics. On the one hand, it has created a new power imbalance between countries that have the technological capacity to develop and produce a vaccine and those that do not. On the other hand, the world has witnessed the detachment between the wealthy countries and the rest of the world as well as fractures in EU solidarity. Because many developed countries have prioritized addressing outbreaks within their borders, developing countries have struggled to find sources of leadership and aid. By contrast, emerging powers such as Russia and China have adopted very distinct vaccine rollout strategies compared to those of many wealthy countries. This has, in a sense, allowed them to become countervailing forces to vaccine nationalism. For example, China has openly announced that its vaccine will be provided to the world's developing nations as a global public good.³⁵ Although the specific price and cost of Chinese vaccines exported besides donations have not been disclosed, China has fulfilled its promises by donating vaccines to over a dozen countries in addition to providing a \$1 billion loan to Latin American countries to purchase vaccines.³⁶ Russia has made similar efforts and has donated vaccines to several African countries and Palestine.³⁷

The Underlying Logic of Emerging Powers' Vaccine Diplomacy

When emerging powers such as India, China, and Russia donate and export vaccines, they have chosen to prioritize expanding their geopolitical influence abroad at the expense of more quickly reaching herd

³¹ Jessie Yeung, "The coronavirus pandemic could push 11 million people in Asia into poverty, World Bank warns." CNN, March 31, 2020. <http://www.cnn.com/2020/03/31/business/coronavirus-world-bank-asia-intl-hnk/index.html>.

³² Randy Thanthong-Knight, "Thailand Losing \$8.3 Billion as Vaccine Delayed, Lawmaker Says." Bloomberg, February 17, 2021. <http://www.bloomberg.com/news/articles/2021-02-17/thailand-losing-8-3-billion-as-vaccine-delayed-lawmaker-says>.

³³ CNN Philippines Staff, "59M Filipinos experienced 'food insecurity,' highest in Southeast Asia - UN report."

³⁴ David Hutt, "Pandemic pushes SE Asia back into poverty." Asia Times, October 13, 2020. <https://asiatimes.com/2020/10/pandemic-pushes-se-asia-back-into-poverty/>.

³⁵ Staff, "Xi says China ready to boost global COVID-19 vaccine cooperation," Reuters, NOVEMBER 21, 2020, Accessed February, 2021. www.reuters.com/article/g20-saudi-china-xi-idINKBN2810L3.

³⁶ Juan Pablo Spinetto and Samy Adghirni, "China Gives \$1 Billion Loan for Latin America Vaccine Access," Bloomberg, July 23, 2020, Accessed February, 2021. www.bloomberg.com/news/articles/2020-07-23/china-to-give-1-billion-loan-for-latin-america-vaccine-access.

³⁷ Staff, "Palestine receives 1st shipment of Russia's coronavirus vaccine," Xinhua, February 4, 2021, Accessed February, 2021. http://www.xinhuanet.com/english/2021-02/04/c_139721912.htm.

immunity. Such trade-offs are especially relevant to India and China for reasons that will be discussed later in this chapter, and to a lesser extent Russia. Although these emerging powers have exported and donated vaccines to several low- and middle-income countries, it is important to realize that while some countries have received vaccine donations, many others have not. The selective process of vaccine donations by emerging powers is geopolitically significant, and serves as a means to advance these powers' global agendas. Although it differs from the policies of vaccine nationalism adopted by many wealthy countries, the vaccine diplomacy of emerging powers, nonetheless, comes from a similarly self-interested motive.

China. As the site of the first identified cases of COVID-19, China has faced scrutiny over its initial handling of the outbreak. A poll from the Pew Research Center indicated that unfavorable views toward China have reached a historic high in advanced economies since the beginning of the pandemic.³⁸ This has placed China in a disadvantageous position in advancing its global agenda including the Belt and Road Initiative (BRI), which aims to re-establish a Eurasian world order created centuries ago by the Silk Road.³⁹ Favorable public opinion is key to China's global ambitions, especially that of democratic countries. As a result, China has an intense need to restore its global image, which partially explains its willingness to donate large quantities of vaccine to developing countries.

India. The majority of India's vaccine donations have gone to India's neighboring countries, including Nepal and Bangladesh. This is geopolitically significant because India's most immediate geopolitical threats come from China and Pakistan, which are close allies.⁴⁰ With constant bloody territorial disputes combined with an increasing Chinese military and economic presence in the Indian Ocean, India finds itself in a geopolitical squeeze. This tense geopolitical situation is known to geopolitical scholars as the "String of Pearls".⁴¹ India's neighborhood vaccine diplomacy can be seen as efforts to counter China's potential hostile influence in South Asia, and as a gesture of goodwill and power.

Russia. In terms of vaccine donations, Russia has not been as active as China and India. Among countries that received Russia's aid, Palestine has been a main focus. In the past decade, Russia has been increasing its geopolitical presence in the Middle East and has formed an increasingly close relationship

³⁸ Laura Silver et al, "Unfavorable Views of China Reach Historic Highs in Many Countries," Pew Research Center, OCTOBER 6, 2020, Accessed February, 2021. www.pewresearch.org/global/2020/10/06/unfavorable-views-of-china-reach-historic-highs-in-many-countries/

³⁹ Nadège Rolland, "China's 'Belt and Road Initiative': Underwhelming or Game-Changer?" *The Washington Quarterly* 40, no. 1 (2017): 127-42.

⁴⁰ Joanna Slater, "India is giving away millions of coronavirus vaccine doses as a tool of diplomacy," *The Washington Post*, Jan 21, 2021, Accessed February, 2021. www.washingtonpost.com/world/asia_pacific/india-vaccine-diplomacy/2021/01/21/0d5f0494-5b49-11eb-a849-6f9423a75ffd_story.html.

⁴¹ Carla P Freeman, "China's 'regionalism Foreign Policy' and China-India Relations in South Asia," *Contemporary Politics* 24, no. 1 (2018): 81-97; David Brewster, "Silk Roads and Strings of Pearls: The Strategic Geography of China's New Pathways in the Indian Ocean," *Geopolitics* 22, no. 2 (2017): 269-91.

with Palestine.⁴² In the past year, Russia has voiced its opposition to Israel's actions and policies toward Palestine multiple times. Russia has also condemned the US's involvement in the region and the "deal of the century," which gave Israel the US's approval to annex East Jerusalem.⁴³ The Polish Institute of Foreign Affairs argues that Russia's current Middle East strategy is to build a network of influence among regional actors, with Palestine serving as an important nexus of this network.⁴⁴ Russia's vaccine donation and medical aid toward Palestine can be interpreted from a geopolitical context as a sign of friendship toward the Palestinian people and government aiming to increase bilateral cooperation. It can also be interpreted as a message to its geopolitical competitors in the region, including NATO and Israel, that it is committed to a continuous presence in the region.

As emerging powers that have the capacity to produce vaccines, China, India, and Russia are using their vaccines as geopolitical tools to advance their geopolitical interests. From a utilitarian perspective, vaccine diplomacy does indeed benefit many developing countries. However, relying on bilateral donations is not a sustainable strategy for achieving global vaccine equity. As discussed earlier, some countries are likely to be prioritized based on their geopolitical importance to emerging powers, while other countries on the geopolitical periphery of these emerging powers might be ignored.

As discussed earlier in this chapter, the two approaches to global vaccine distribution—the vaccine nationalism of wealthy countries and the vaccine diplomacy of emerging powers—are not sustainable ways of achieving equitable vaccine distribution. For a better approach that mitigates the negative impact and inefficiencies of national self-interests, we recommend that COVAX and the WHO be further empowered—that is—to give the WHO full power over global vaccine production and distribution during a global pandemic. The COVID-19 pandemic demonstrates the level of interconnectedness of all countries in the world. No country is completely immune to the economic, political, and social issues that are facing other countries. The current inadequate global distribution of vaccines is a problem of nationalism, and requires a global approach. The production process of vaccines should not be regulated by individual countries, but instead the WHO. The power to decide where vaccines are allocated should not be granted to individual countries but should instead be given to international institutions like the WHO.

⁴² Michał Wojnarowicz, "Palestine in Russia's Foreign Policy," The Polish Institute of Foreign Affairs, May 4, 2020, Accessed February, 2021. https://pism.pl/publications/Palestine_in_Russias_Foreign_Policy.

⁴³ Omar Shaban, "The Future of the Palestinian Cause in the Shadow of the 'Deal of the Century,'" *Palestine-Israel Journal of Politics, Economics & Culture* 23, no. 2/3 (July 2018): 78–86.

⁴⁴ Michał Wojnarowicz, "Palestine in Russia's Foreign Policy," The Polish Institute of Foreign Affairs, May 4, 2020, Accessed February, 2021. https://pism.pl/publications/Palestine_in_Russias_Foreign_Policy.

Post-Pandemic Global Soft Power

As world powers, the US, China, and EU have a prominent ability to shape international dynamics. In terms of containing the COVID-19 pandemic domestically, the US has failed: with around 29 million cases of COVID-19 and with over half a million deaths, the US has the most cumulative cases and deaths in the world. As a result, the US has lost its ability to lead by example in the fight against the pandemic.⁴⁵ As for vaccines, the Trump Administration delivered the promise of “America First”-- vaccine nationalism became key elements of US vaccine policy. This has further negatively impacted the US’s rhetorical power and leadership role.

While many argue that China’s vaccine diplomacy is a geopolitical triumph, it has not been able to help return China’s global image to its pre-pandemic state. According to Former Australian Prime Minister Kevin Rudd, China’s Draconian containment measures and initial mismanagement have significantly damaged China’s image and soft power, which its vaccine diplomacy efforts have been unsuccessful at recovering.⁴⁶

The pandemic has also revealed fractures in EU and European solidarity. Distrust has emerged as countries attempt to secure domestic supplies of vaccines while blocking exports. For instance, in response to a lack of support from the EU, the Italian government and public have expressed that Europe has “Abandoned [Italy] to its fate”.⁴⁷ Serbian President Vucic has expressed similar sentiments claiming that European unity is a fairy tale.⁴⁸ Due to the vaccine nationalism in many EU countries mentioned above, a fractured and inwardly focused EU has diminished its power to lead globally. As Prime Minister Kevin Rudd points out, the post-COVID world is moving in a direction of anarchy, while tensions between geopolitical blocs are increasing.⁴⁹ The decline of both Chinese and US soft power in conjunction with fractures in European solidarity has created ambiguity with regard to global leadership. Among China, US, and the EU, none is likely to exit the pandemic with greater influence.

China-US relations: Cooperation or Tragedy?

⁴⁵ Kevin Rudd, “The Coming Post-COVID Anarchy,” *Foreign Affairs*, May 6, 2020,” Accessed February, 2021. <https://www.foreignaffairs.com/articles/united-states/2020-05-06/coming-post-covid-anarchy>

⁴⁶ *Ibid.*

⁴⁷ Franca Loewer and Michele Mioni, “European Solidarity” in the Covid-crisis : Italy and the discursive dimension of the European public space,” *Politique européenne*, October 30, 2020, Accessed February, 2021. <http://politique-europeenne.eu/european-solidarity-in-the-covid-crisis-italy-and-the-discursive-dimension-of-the-european-public-space/>

⁴⁸ Majda Ruge and Janka Oertel, “Serbia’s coronavirus diplomacy unmasked,” *European Council on Foreign Relations*, March 26, 2020, Accessed February, 2021. https://ecfr.eu/article/commentary_serbias_coronavirus_diplomacy_unmasked/

⁴⁹ Kevin Rudd, “The Coming Post-COVID Anarchy,” *Foreign Affairs*, May 6, 2020,” Accessed February, 2021. <https://www.foreignaffairs.com/articles/united-states/2020-05-06/coming-post-covid-anarchy>

Recently, US Secretary of State Blinken claimed the China-US relationship is the most important relationship in the world.⁵⁰ However, this relationship has deteriorated in recent years, especially since the pandemic began. The US-China interaction during the pandemic has been characterized by finger-pointing and a lack of productivity. During the period of highest tension, the US under the Trump Administration withdrew from the WHO claiming the organization was “China-centric.” In addition to conflict at a national level, media disinformation has deepened the distrust among the people of the two countries. Today, one can hardly find anything positive about the US on Chinese media. On the other hand, while 61% of scholars believe that China has done a good job fighting the virus, only 31% of the American public think so.⁵¹ Both in the US and China, the media have distorted facts and scientific understanding to serve nationalist and ideological agendas, which is exactly what the world needs to avoid.

Currently, scholars are calling for a ceasefire between the world’s largest powerhouses.⁵² The cooperation between the two is not only mutually beneficial, but also extremely important for the rest of the world: efficient data and technology sharing can significantly accelerate vaccine development and improve public health policy-making for the global community. As great powers, the actions and policies of the US and China have a far reaching impact on the rest of the world. As stakeholders in this important relationship, developing countries, including Cambodia, should actively advocate and promote cooperation between the US and China, and speak out about the fact that actions of great powers not only affect people within the borders of these countries, but also have a far-reaching impact on the rest of the world.

Existing Problems in Production and Distribution of Vaccines and Implications for Cambodia

In January 2021, GAVI announced that the COVAX program had secured 2 billion doses of vaccine that would be distributed to participating countries by the end of the year.⁵³ Despite COVAX’s ambition plan, many developing countries, including Cambodia, have begun to seek vaccines independently due to concerns about the speed of COVAX’s delivery and potential risks to COVAX’s existing vaccine supply

⁵⁰ Ken Moriyasu, “US-China relationship ‘most important in the world’: Blinken,” Nikkei, January 28, 2021, Accessed February, 2021. asia.nikkei.com/Politics/US-China-relationship-most-important-in-the-world-Blinken

⁵¹ Jacob Poushter and Moira Fagan, “Foreign policy experts in the U.S. have much different views about threats to the country than the general public,” Pew Research Center, October 23, 2020, Accessed February 2021. www.pewresearch.org/fact-tank/2020/10/23/foreign-policy-experts-in-the-u-s-have-much-different-views-about-threats-to-the-country-than-the-general-public/

⁵² Godwell Nhamo et al, “COVID-19 Vaccines and Treatments Nationalism: Challenges for Low-income Countries and the Attainment of the SDGs,” *Global Public Health* 16, no. 3 (2021): 319-39.

⁵³ “COVAX announces new agreement, plans for first deliveries,” Gavi. www.gavi.org/news/media-room/covax-announces-new-agreement-plans-first-deliveries

chains.⁵⁴ Cambodian Prime Minister Hun Sen previously claimed that Cambodia will only obtain vaccines through the COVAX program. However, Hun Sen recently announced that Cambodia can no longer wait and accepted one million doses of the Sinopharm vaccine donated by China.⁵⁵ China received its first shipment 324,000 doses of the Oxford-AstraZeneca (Covishield) vaccine through the COVAX program on March 2, 2021.⁵⁶ However, the combined doses from China and COVAX are still not enough for the country to reach herd immunity. Additional sources of vaccines that Cambodia could look to include Russia and India. US and European Vaccines such Pfizer and AstraZeneca are not possible sources since almost all the capacities are pre-ordered by wealthy countries through APAs. Because wealthy countries have tended to face high numbers of cases and deaths, they are desperate to recover from the costly pandemic, and have focused on prioritizing the vaccination of their own populations. This has created an opportunity for countries such as Russia, China, and India to use their vaccines to improve their relationships with developing countries. Nevertheless, the global supply of vaccines is tight. Emerging powers will be forced to make a significant trade off between achieving herd immunity as soon as possible, and exporting some of their supply in exchange for influence and monetary gain.

Cambodia's Options for Obtaining Vaccines

Russia. Russia plans to produce 1 billion doses of its Sputnik V vaccine in 2021, which is enough to cover all of its 144 million citizens with over 700 million doses left over.⁵⁷ The existing orders are at around 200 million doses, which means Russia has at least 500 million doses available to order.⁵⁸ Recent studies published on the Lancet suggest the Sputnik-V has a 92% efficacy, one of the highest in the world⁵⁹.

India. India's Covaxin vaccine is expected to have a lower capacity at 700 million in 2021,⁶⁰ which is not enough to cover the entire Indian population, and can partially explain India's recent order of 100 million doses of Russia's Sputnik V. The significance of India's relationship with Cambodia is likely not

⁵⁴ Adler Katya. "Covid: Why is EU's vaccine rollout so slow?" BBC, January 29, 2021, Accessed February, 2021. <https://www.bbc.com/news/world-europe-55844268>

⁵⁵ Shaun Turton, "Cambodia accepts 1m doses of China's Sinopharm vaccine," Nikkei, January 16, 2021, Accessed February 2021. asia.nikkei.com/Spotlight/Coronavirus/Cambodia-accepts-1m-doses-of-China-s-Sinopharm-vaccine

⁵⁶ Sopheng Cheang, "First COVAX Vaccines Arrive in Cambodia from India," AP News (the Associated Press, March 2, 2021), <https://apnews.com/article/beijing-immunizations-coronavirus-vaccine-india-coronavirus-pandemic-c17ea1fb341d4075057e4f07dc97e43a>.

⁵⁷ Holly Ellyatt, "Russia plans to produce 1 billion doses of its 'cheaper' Covid vaccine," CNBC, November 24, 2020, Accessed February, 2021. www.cnbc.com/2020/11/24/russia-to-charge-less-for-covid-vaccine-and-to-produce-1-billion-doses.html; Staff, "Population, total - Russian Federation," World Bank, 2019. <https://data.worldbank.org/country/russian-federation>.

⁵⁸ Statista Research Department, "Number of doses of the COVID-19 vaccine Sputnik V ordered from Russia or agreed to be produced abroad as of March 1, 2021, by country." Statista, March 1, 2021, Accessed March 2021. www.statista.com/statistics/1123927/sputnik-v-exports-from-russia-by-country/

⁵⁹ Ian Jones and Polly Roy, "Sputnik V COVID-19 Vaccine Candidate Appears Safe and Effective," *The Lancet (British Edition)* 397, no. 10275 (2021): 642-43.

⁶⁰ Staff, "India's Bharat Biotech aims to make 700 mln doses of COVID-19 vaccine in 2021," Reuters, January 4, 2021, Accessed February, 2021. <https://www.reuters.com/article/health-coronavirus-india-vaccine-idUSL4N2JF2VGw>. [npr.org/sections/goatsandsoda/2020/11/11/933942711/why-poorer-countries-arent-likely-to-get-the-pfizer-vaccine-any-time-soon](https://www.npr.org/sections/goatsandsoda/2020/11/11/933942711/why-poorer-countries-arent-likely-to-get-the-pfizer-vaccine-any-time-soon)

enough to support India's export of vaccines to Cambodia in large amounts, especially given the severity of the pandemic in India. The possibility of Cambodia actually getting substantial vaccine support from India is low.

China. As one of the closest allies of Cambodia, China is most likely to support Cambodia, which is reflected in the 1 million doses that China has already donated. However, the combined capacity of both Sinovac and Sinopharm will not be sufficient to vaccinate the entire population in China. Despite China's success at containing the virus, the occasional small-scale outbreak is still costly, and China would likely want to completely end the pandemic as soon as possible. Relying on China to obtain the entirety of the 30 million doses needed to cover the entire population is risky, but Cambodia should still order as many doses that it can from China. China has tremendous economic interest in Cambodia, so a quicker recovery in Cambodia is within China's interest. Compared to India or Russia, which do not hold a high economic and political stake in Cambodia, Cambodia is likely to get better deals with China (such as cheaper prices and more adequate logistical support) due to China's interest in Cambodia's recovery.

General Policy Recommendations:

Assign Responsibility for Global Vaccine Distribution to International Organizations.

In order to avoid vaccine hoarding caused by vaccine nationalism, it is necessary for impartial international institutions to take on the responsibility of vaccine distribution around the globe.

Vaccine Policy Recommendations for Cambodia:

1. *Initiate Contact with Russia.*

In order to allocate enough vaccines for the Cambodian population to reach herd immunity, Cambodia will need to source vaccines beyond those donated by China.

2. *Order Vaccines from China.*

Since China has already proven to be a reliable source for vaccine allocation, Cambodia should attempt to source as many vaccines as it can from China.

3. *Await Action from COVAX.*

Wait for further actions from COVAX to see whether the 2 billion target is achievable.

Conclusion

Although the vaccine diplomacy of emerging powers like Russia, China, and India is helpful to some low- and middle-income countries, it is not a sustainable effective way to resolve the issue of inequitable distribution of vaccines. Furthermore, vaccine diplomacy has created additional inequities among low-

and middle-income countries according to the geopolitical agenda of emerging powers. COVID-19 is a global pandemic that impacts all countries in the world. Therefore, a global solution is necessary to resolve a global crisis. As international, impartial institutions, the WHO and GAVI are in the most adequate position to solve the global health crises. The rights to develop and distribute vaccines should be in the hands of the WHO and not individual countries in the context of a global pandemic. In doing so, a more equitable and efficient distribution of vaccines can be better ensured.

Chapter 2: Equitable Vaccine Distribution

Racheal Cho and Shada Sha'At, with Sierra Schonberg

Introduction

The first COVID-19 vaccine to receive emergency approval by the World Health Organization (WHO) began distribution in December 2020¹, marking the beginning of a clear path toward reaching herd immunity. As discussed in Chapter 1, vaccine nationalism has affected the speed at which vaccines are produced and delivered, which has escalated geopolitical tensions and detracted from fair vaccine distribution in recent months. The unfair distribution of vaccines described in Chapter 1 is not limited to the international stage. Within countries, governments have the power to prioritize certain demographics for first vaccine doses and the responsibility to do so justly. This chapter investigates the vaccination policies of countries with relatively high rates of vaccination—specifically Israel, the United Arab Emirates (UAE), the United Kingdom (UK), and the United States (US)—to further explore the concept of equitable vaccine distribution. By exploring the changes in case numbers, hospitalization rates, and deaths since vaccination rollouts began, this chapter analyzes the benefits and drawbacks of various COVID-19 vaccine distribution strategies. The goal of this chapter is to suggest efficient and equitable distribution policies depending on a country's infrastructure and demographics. Three main components influence distribution strategies: demographic prioritization, infrastructure that enables vaccination, and the recognition of disadvantaged groups in society that are more susceptible to deprivation of access to vaccines. The status of different countries' vaccine rollouts is changing rapidly, so this chapter only considers information up to February 26, 2021 for analysis. All vaccines are considered similar in their effectiveness for immunization against COVID-19 for the purpose of this chapter, aside from the analysis of vaccine cold chain requirements, as its focus is on distribution rather than the efficacy of different COVID-19 vaccines.

¹ "WHO Issues Its First Emergency Use Validation for a COVID-19 Vaccine and Emphasizes Need for Equitable Global Access," World Health Organization (World Health Organization), accessed March 5, 2021, <https://www.who.int/news/item/31-12-2020-who-issues-its-first-emergency-use-validation-for-a-covid-19-vaccine-and-emphasizes-need-for-equitable-global-access>.

Prioritization

Due to limited vaccine availability, governments must decide upon certain demographic groups to vaccinate before others. This decision-making process begins with the selection of the agenda most valued by the country. For some nations, the primary agenda is lowering case numbers and death rates. For others, it is the revitalization of the economy and the restoration of a pre-pandemic society. Although these agendas are expected to occur together in the long term, it is difficult to achieve both cases in the short term. In the short term, meaning during the span of the COVID-19 pandemic, one is often achieved at the expense of the other. For example, to lower case numbers, lockdowns or restricted mobility may be necessary to maintain low COVID-19 case numbers and deaths, thus limiting the revival of the economy in many sectors. The order of vaccination within a country varies depending on the foremost goal the government wishes to achieve, and there is no clear line as of right now dictating the best strategies in allocation of COVID-19 vaccines.

Due to the lack of any perfect blanket solution for the COVID-19 pandemic, it is essential to develop distribution plans that are regionally specific.² Generalizing vaccination policies based solely on other countries' successes will not adequately address the needs of a nation, due to each nation's unique demographic makeup. With this in mind, this chapter will analyze two independent methods of vaccine distribution prioritization: the vaccination of particular age demographics and the vaccination of those in certain occupations, primarily healthcare and essential workers.

The Prioritization of Age Demographics

Because COVID-19 tends to cause more severe health complications in senior citizens than other age groups, this demographic accounts for a large segment of COVID-19 related deaths.³ Underlying diseases that exacerbate the symptoms of the virus are most frequently found in older populations, and as a result, case-fatality ratios (CFRs) increase with the age of patients.⁴ Due to the fact that many senior citizen homes and assisted living centers have been hotspots of COVID-19 contagion, along with the

²Wang, Wei, Wu, Qianhui, Yang, Juan, Dong, Kaige, Chen, Xinghui, Bai, Xufang, Chen, Xinhua, et al. 2020. "Global, Regional, and National Estimates of Target Population Sizes for Covid-19 Vaccination: Descriptive Study." *BMJ* 371. England: BMJ Publishing Group Ltd: m4704–m4704. doi:10.1136/bmj.m4704.

³Ryosuke Omori, Ryota Matsuyama, and Yukihiro Nakata, "The Age Distribution of Mortality from Novel Coronavirus Disease (COVID-19) Suggests No Large Difference of Susceptibility by Age," *Nature News* (Nature Publishing Group, October 6, 2020), <https://www.nature.com/articles/s41598-020-73777-8#citeas>.

⁴World Health Organization, "Case Fatality Ratio by Age and Sex of COVID-19," accessed March 2, 2021, <https://www.who.int/data/maternal-newborn-child-adolescent-ageing/static-visualizations/Case-fatality-ratio-by-age-sex>.

increased proportion of deaths in this age group, countries like the United Kingdom (UK) and Israel have prioritized the vaccination of older populations and their caregivers.⁵

The United Kingdom. The vaccination policy of the UK, which was first implemented on December 20, 2020, is a vaccination design that targets older citizens. The Joint Committee of Vaccination and Immunization (JCVI) set the direct prevention of mortality and support of both the National Health System (NHS) and social care system as the primary agendas for the UK’s first vaccination phase.⁶ The JCVI estimated that the groups identified to receive vaccinations in Phase 1 (Figure 2.1) represent 99% of all preventable mortality from the coronavirus. By vaccinating vulnerable groups whose mortality is largely preventable, countless lives will be saved.

Order of Vaccine Priority Groups in the UK

1. Care home residents and their caregivers.
2. Members of the general populous aged 80+ and frontline health and social care workers.
3. Members of the general populous aged 75+.
4. Members of the general populous aged 70+ and clinically vulnerable individuals.
5. Members of the general populous aged 65+ and individuals at higher risk of serious disease and mortality.
6. All members of the general populous aged 16 to 64 with health conditions that place them at higher risk of serious disease and mortality.
7. Subsequent priority groupings descend by 5 year intervals beginning with members of the general populous aged 60+.

Figure 2.1. Vaccine Priority Groups of the United Kingdom.⁷

Since beginning their vaccination campaign, the UK has experienced a rapid reduction in coronavirus related deaths. Once COVID-19 vaccines have been administered to 50% of the adult population, COVID-19 deaths are expected to be reduced by 95% and hospital admissions by 80%.⁸ Significant reductions in hospitalization are expected to occur by late March and April of 2021, as long as

⁵ World Health Organization, “Preventing and Managing COVID-19 across Long-Term Care Services: Policy Brief, 24 July 2020,” (World Health Organization, July 24, 2020), https://www.who.int/publications/i/item/WHO-2019-nCoV-Policy_Brief-Long-term_Care-2020.1.

⁶ “Joint Committee on Vaccination and Immunisation: Advice on Priority Groups for COVID-19 Vaccination, 30 December 2020,” GOV.UK (Department of Health & Social Care, December 30, 2020), <https://www.gov.uk/government/publications/priority-groups-for-coronavirus-covid-19-vaccination-advice-from-the-jcvi-30-december-2020/joint-committee-on-vaccination-and-immunisation-advice-on-priority-groups-for-covid-19-vaccination-30-december-2020>.

⁷ Ibid.

⁸ T. M. Cook and J. V. Roberts, “Impact of Vaccination by Priority Group on UK Deaths, Hospital Admissions and Intensive Care Admissions from COVID-19,” Association of Anaesthetists (John Wiley & Sons, Ltd, February 11, 2021), <https://associationofanaesthetists-publications.onlinelibrary.wiley.com/doi/10.1111/anae.15442#anae15442-bib-0001>.

vaccination rates continue as projected.⁹ Since January 27, 2021, the UK's mortality from COVID-19 has been decreasing. Between January 27, 2021 and February 13, 2021, coronavirus related deaths were reduced by 64%, from 1,725 deaths to only 621.¹⁰ The number of new confirmed cases has also been declining, from 68,192 cases as of January 10, 2021 to 8,588 cases as of February 26, 2021.¹¹ This overall reduction of coronavirus related deaths and case numbers could be directly correlated with the increase in vaccinations.

As a result of this reduction of COVID-19 cases, the UK has seen a decrease in hospital admissions. This drop in hospitalizations not only helps to alleviate some of the burden on healthcare workers, but also frees up space within hospitals for those who need non-COVID-19 related treatments. Due to the rollout of vaccines, hospitals are no longer at maximum capacity as they had been before.

The overall success of the UK's vaccination strategy is evident by the clear decreases in coronavirus death rates and hospitalizations. By prioritizing vaccinations for senior citizens, the UK has been able to dampen the rapid spread of COVID-19, especially through senior living communities, thus slowing the rate of avoidable deaths.

Israel. The Israeli vaccination campaign, known as Operation "Hozrim LeHayim," or "returning to living," has also dedicated its first phase of vaccinations to senior citizens. The campaign began vaccinating citizens aged 60 and older on December 20, 2020. Since then, about 70% of Israeli seniors were vaccinated against the novel coronavirus by January 7, 2021, less than three weeks after the vaccination campaign began.¹² After achieving this goal, members insured by the Health Maintenance Organization (HMO) aged 55 and older began to receive vaccinations on January 12.¹³ Shortly thereafter, on January 19, HMO members aged 40 and older were eligible for vaccination.¹⁴ Beginning on February 4, all members of the public aged 16 and older were encouraged to schedule their vaccinations.¹⁵ As other countries continue to struggle with delayed and disjointed vaccine rollouts, Israel's vaccine distribution plan serves as a prime example of an effective and thorough vaccine rollout strategy.

⁹ Ibid.

¹⁰ "Coronavirus (COVID-19) Cases - Statistics and Research," Our World in Data, accessed March 2, 2021, <https://ourworldindata.org/covid-cases?country=IND~USA~GBR~CAN~DEU~FRA>.

¹¹ Ibid.

¹² "About 65% of 60 Year Olds or Older Vaccinated," Ministry of Health, January 7, 2021, <https://www.gov.il/en/departments/news/07012021-01>.

¹³ "Starting Tuesday (12.1.21), Insured HMO Members 55 Years Old or Older will be Vaccinated," Ministry of Health, January 11, 2021, <https://www.gov.il/en/departments/news/11012021-01>.

¹⁴ "Ministry of Health Director General Ordered to Vaccinate 40 Year Olds and Older," Ministry of Health, January 19, 2021, <https://www.gov.il/en/departments/news/19012021-02>

¹⁵ "Operation "Hozrim LeHayim" Expands," Ministry of Health, February 3, 2021, <https://www.gov.il/en/departments/news/03022021-01>

Not only was Israel's vaccination campaign efficient and thorough, the vaccine had near immediate benefits to population immunity against COVID-19. Israel's largest health service organization, the Clalit Health Fund, studied a vaccinated group of 200,000 people aged 60 and older alongside a group of 200,000 unvaccinated people to test the impact of vaccinations on positive test results within Israel.¹⁶ At the time of this study, younger age groups were largely unvaccinated, and the vaccinated group itself had only been administered one of two doses of the Pfizer-BioNTech vaccine. Despite this, the rates of positive coronavirus tests among the vaccinated group began to decrease on the 13th day of the study. On the 14th day, the percentage of positive cases fell by a third.¹⁷ Considering the various factors that could have hindered the effectiveness of vaccinations—such as the fact that only one dose of the vaccine had been administered and that much of the population still remained completely unvaccinated—the success of Israel's vaccination program at limiting the spread of COVID-19 is telling. This success proves the effectiveness of vaccinating senior citizens prior to other age demographics.

The case of Israel also highlights the importance of policies that accompany vaccine rollouts, which target unvaccinated age groups. Despite its rapid vaccination process, Israel's reduction of confirmed cases or deaths has not been as continuous or substantial as the UK's. Instead, Israel experienced its second highest peak of confirmed cases on February 7, 2021.¹⁸ This puzzling event can be explained by the phenomenon of "COVID fatigue," a fatigue experienced by citizens who have been in a mandated lockdown for an extended time period that results in decreased adherence to coronavirus safety regulations.¹⁹ While prioritized groups of older people were getting vaccinated, younger Israelis spread the virus as they grew tired of staying at home: approximately 44% of cases between February 4th and 5th were among citizens younger than 19, while 6.2% were among those aged 60 and older.²⁰ The implementation of supplemental policies, such as masking and social distancing, for those who will be vaccinated in later phases are necessary to maintain low case numbers.

¹⁶ "How Fast Can Vaccination against Covid-19 Make a Difference?," *The Economist*, January 23, 2021, <https://www.economist.com/science-and-technology/2021/01/23/how-fast-can-vaccination-against-covid-19-make-a-difference>.

¹⁷ Gali Weinreb, "Major Israel Study Finds Pfizer Vaccine Cuts Infection Rate," *Globes*, January 14, 2021, <https://en.globes.co.il/en/article-major-research-in-israel-finds-pfizer-vaccine-cuts-infection-rate-1001357016>.

¹⁸ Edouard Mathieu and Hannah Ritchie, "Vaccinations and the Impact of COVID-19 – Our Continuously-Updated Data for Israel," (*Our World in Data*, February 8, 2021), <https://ourworldindata.org/vaccination-israel-impact>.

¹⁹ Arti Ekawati, "Indonesia's COVID Vaccination Campaign Prioritizes Workers," *DW.COM*, January 22, 2021, <https://www.dw.com/en/indonesias-covid-vaccination-campaign-prioritizes-workers/a-56316852>.

²⁰ Noga Tarnopolsky, "Israel Is the World's Most Vaccinated Country. Why Are Cases Rising?," *Intelligencer* (February 7, 2021), <https://nymag.com/intelligencer/2021/02/why-are-cases-rising-in-israel-the-most-vaccinated-country.html>.

Indonesia. Regions with demographic compositions different from the previous case studies may opt for vaccination programs that prioritize by factors other than age. Southeast Asia, for example, has a significant population of young people who must be vaccinated in order to contain transmission, as shown in Figure 2.2. There, healthy adults make up the majority of the economy's labor force and are the primary source of financial support for families. The mobility of this young, working demographic is crucial to the recovery of Southeast Asian countries from the economic shocks caused by the pandemic. However, the mobility of this demographic has the very real potential to exacerbate the spread of COVID-19. Healthy adults could recover from the symptoms of COVID-19 without even noticing the infection, yet spread the virus as asymptomatic carriers. As a result, countries like Indonesia prioritized younger age groups for vaccination.

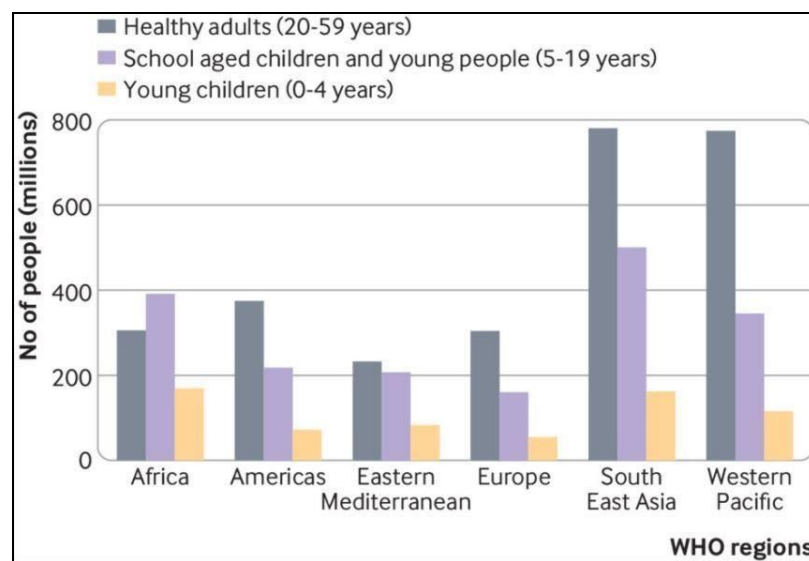


Figure 2.2. Regional estimates of people who need to be vaccinated to contain transmission.²¹

The Ministry of Health in Indonesia began its vaccination campaign on January 13, 2021, with the first phase targeting medical personnel and public service providers. By February 8, 2021, 55.5% of healthcare workers had received the first dose of the COVID-19 vaccine, and 11.7% had received the second dose.²² Unlike the UK's vaccination rollout plan, the next target demographic of Indonesia's vaccination plan were healthy Indonesians aged 18 to 59 years old, in other words, the age group that

²¹ Wang, Wei, et al., "Global, Regional, and National Estimates of Target Population Sizes for Covid-19 Vaccination: Descriptive Study." *BMJ* 371 (2020): M4704. <https://www.bmj.com.offcampus.lib.washington.edu/content/371/bmj.m4704>

²² "Coronavirus Disease 2019 (COVID-19) Situation Report - 42," World Health Organization Indonesia, February 10, 2021, https://cdn.who.int/media/docs/default-source/searo/indonesia/covid19/external-situation-report-42_10-february-2021.pdf?sfvrsn=2468e445_5.

makes up the majority of the working demographic.²³ Indonesia prioritized the workforce demographic over the elderly, expecting the vaccinated group to play a vital role in revamping the economy.

Since hitting the country's highest weekly case number of 14,518 on January 30, 2021, weekly case numbers more than halved, to 6,765, by February 14. Additionally, the seven-day average of confirmed cases has remained below 10,000 since February 11.²⁴ While these numbers show a significant decline in positive cases, the decline in mortality has been less significant. The seven-day average of deaths has only decreased by 76 within the first 26 days of February. While the vaccination program prioritizing younger age groups drastically decreased infections throughout Indonesia, a significant reduction in mortality has not been witnessed in the same period. It is possible that this lack of correlation between infection and death rates is due to the fact that COVID-related mortality is highest in elderly populations, and this group has yet to receive the vaccine in Indonesia.

Despite Indonesia prioritizing the vaccination of its younger population to target economic recovery, this is a long-term goal that requires many months before gauging success. Although it is early to assess the economic success of the vaccination policy of Indonesia, countries with similar demographics can view their prioritization policy as an example. Indonesia's strategy shows that lowering the infection rates of the workforce demographic has the potential to support economic revival.

The Prioritization of Occupations

An alternative to age-based prioritization for vaccinations is that of occupation, in which vaccines are first distributed to whichever industry a country deems most essential to its overall recovery. The COVID-19 pandemic has negatively impacted vital sectors of society, especially healthcare systems. Healthcare workers have been playing a prominent role in the testing and treating of coronavirus cases, and although they wear personal protective equipment, there is still a high risk of contagion. The safety and efficiency of essential healthcare workers is significant to the management of the pandemic. In particular, the necessity for registered nurses (RNs) has been highlighted during the pandemic. Across 172 countries, for every 1.0 increase in RNs per 1,000 individuals in a country, there has been a decrease in COVID-19 mortality of -1.98 per 1 million individuals.²⁵

²³ "Vaccination for COVID-19 Is Taken in Stages," Ministry of Health Republic of Indonesia, February 24, 2021, <https://www.kemkes.go.id/article/view/20112400002/vaccination-for-covid-19-is-taken-in-stages.html>.

²⁴ Max Roser et al., "Indonesia: Coronavirus Pandemic Country Profile," Our World in Data, May 26, 2020, <https://ourworldindata.org/coronavirus/country/indonesia?country=~IDN>.

²⁵ William V. Padula and Patricia Davidson, "Countries with High Registered Nurse (RN) Concentrations Observe Reduced Mortality Rates of Coronavirus Disease 2019 (COVID-19)," SSRN, April 9, 2020, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3566190.

United States. The chronic nurse understaffing in the United States has become especially apparent during the pandemic. With a direct negative correlation between RN availability and COVID-related mortality, nurses are essential. However, the pressure of increased necessity for RNs has resulted in chronic understaffing, and subsequently, substantial burnout among RNs.²⁶ In order to increase the availability of RNs, as well as other medical personnel, this group needs to be protected from COVID-19 infection. Therefore, the US has given priority to healthcare workers.

In the US, one of the three goals of the Center for Disease Control and Prevention (CDC) is the recommendation of vaccine distribution for preserving the operation of society.²⁷ In other words, the US seeks to resume essential aspects of society that have been unavoidably halted during the pandemic. Therefore, healthcare workers are first prioritized. After healthcare workers, essential workers who are indispensable to the functioning of society—occupations such as police officers, fire fighters, and teachers—and require protection from the public spread of the virus are prioritized. The following recommendation (Figure 2.3) is the guideline that is recommended to each state in the US by the federal government, although the speed of vaccination programs varies depending on the state. As of February 22, 2021, there are four states in Phase 1a, 43 states in Phase 1b, and 4 states in Phase 1c.²⁸ The order of each phase varies by state, depending on local needs.

Order of Vaccine Priority Groups by CDC Recommendations in the US

1. Healthcare personnel and residents of long-term care facilities.
2. Frontline essential workers (fire fighters, police officers, corrections officers, and workers in food and agriculture, the US Postal Service, manufacturing, grocery stores, public transit, and educational).
3. People aged 75+ who are at high risk of hospitalization, illness, and death from COVID-19.
4. People aged 65-74 years who are at high risk of hospitalization, illness, and death from COVID-19.
5. People aged 16-64 years with underlying medical conditions that increase the risk of serious, life-threatening complications from COVID-19.
6. Other essential workers (transportation and logistics, food service, housing construction and finance, information technology, communications, energy, law, media, public safety, and public health).

²⁶Karen B Lasater et al., "Chronic Hospital Nurse Understaffing Meets COVID-19: an Observational Study," *BMJ Quality & Safety* (BMJ Publishing Group Ltd, August 13, 2020), <https://qualitysafety.bmj.com/content/early/2020/08/13/bmjqs-2020-011512>.

²⁷ "CDC's COVID-19 Vaccine Rollout Recommendations," Centers for Disease Control and Prevention, February 19, 2021, <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations.html>.

²⁸ "State COVID-19 Vaccine Priority Populations," KFF, February 22, 2021, <https://www.kff.org/other/state-indicator/state-covid-19-vaccine-priority-populations/?currentTimeframe=0&sortModel=%7B%22colId%22%3A%22Location%22%2C%22sort%22%3A%22asc%22%7D>.

Figure 2.3. CDC Recommendation for Vaccine Distribution.²⁹

In the US, with most states vaccinating in Phase 1b, daily reported cases in the first week of February 2021 decreased to 117,900 on average, dropping nearly 50% from early January (Figure 2.4). This downward trend is expected to continue, as the mean effective reproduction rate (R)—which is based on analysis of deaths, case reporting, and hospitalizations—was less than 1.0 every state of the US on January 28.³⁰ This indicates that with all variables remaining the same, transmission should decline as vaccinations increase.

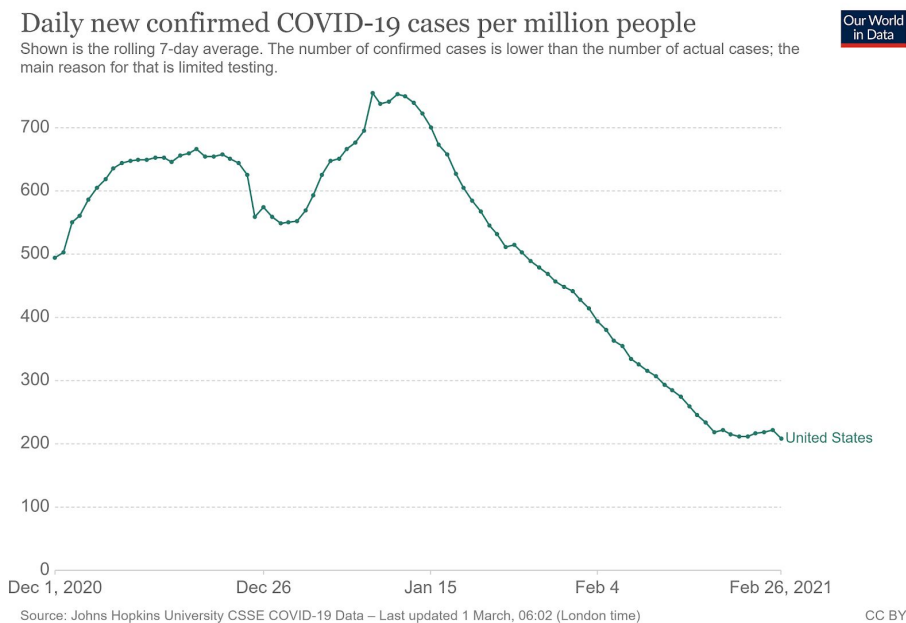


Figure 2.4. Daily New Confirmed COVID-19 Cases per Million People in the United States from December 1, 2020 to February 26, 2021.³¹

Based on the above case studies, vaccine distribution prioritization is a necessary step in ensuring the most impact from vaccine induced immunity can be in effect the longest. By carefully selecting groups to vaccinate first, countries can lower death rates and case numbers more effectively than by vaccinating without prioritization. Demographic makeups and COVID spreading behaviors vary from society to society, though, so vaccine distribution strategies must be tailored to the populations and demographic makeups of every country individually. Having a prioritization plan is only the first step in vaccination

²⁹ “CDC’s COVID-19 Vaccine Rollout Recommendations,” Centers for Disease Control and Prevention, February 19, 2021, <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations.html>.

³⁰ “COVID-19 Results Briefing The United States of America,” Institute for Health Metrics and Evaluation, February 12, 2021.

³¹ “Coronavirus (COVID-19) Vaccinations - Statistics and Research,” Our World in Data, accessed March 5, 2021, <https://ourworldindata.org/covid-vaccinations>.

and reaching herd immunity, the next is ensuring that proper infrastructure is established to equitably enact the plans.

Vaccine Infrastructure

Once a country has secured ample vaccines and developed a prioritization plan, it is necessary to ensure that there is adequate infrastructure in place to help mitigate any inequalities or disadvantages that certain groups may face. In terms of vaccine accessibility, there is a great divide between rural and urban populations, wealthy and poor regions, and minority groups. Part of the reason for this divergence in vaccine accessibility is an uneven distribution of vaccine infrastructure. For example, storage units for receiving and storing vaccines, a critical element required by the COVAX program in order to receive vaccines, are often located only in well established hospitals or medical facilities. If a region does not have the infrastructure in place to receive necessary vaccines, or if they are unable to provide ample refrigeration for vaccines that require cold storage, then vaccines cannot be distributed to that region, and if they are it is not without the risk of vaccine waste through expiration. This section will address how current levels and distributions of vaccine infrastructure impact which vaccine can most effectively be distributed within a region, and how this furthers the negative impacts of the COVID-19 pandemic on particular populations.

Supply Chain Requirements: Variations Between Vaccines

Among the different vaccines available to the public at this time, there are wide variations in transportation and storage requirements. One of the most variable of these factors is the necessity of storing vaccines at specific temperatures, which limits which types of coronavirus vaccines that certain countries can receive. Initially, researchers expressed that the Pfizer-BioNTech vaccine was best stored in undiluted vials in ultra-low temperature freezers between -80 and -60 degrees Celsius.³² Recent research, however, has revealed that this vaccine can be safely stored and transported for up to two weeks at a standard freezer temperature, which is more in line with the requirements of the Moderna and AstraZeneca vaccines.³³ This will ultimately reduce costs at vaccination sites, making either of these vaccines now a reasonable option for countries that do not have the budget to invest in special refrigeration infrastructure.

³² Pranav Baskar, "What Is A Cold Chain? And Why Do So Many Vaccines Need It?," NPR (NPR, February 24, 2021), <https://www.npr.org/sections/goatsandsoda/2021/02/24/965835993/what-is-a-cold-chain-and-why-do-so-many-vaccines-need-it>.

³³ Ibid.

On the other hand, the more recently approved Johnson & Johnson vaccine is able to use the same cold chain technologies that it currently uses for the transportation of treatments for cancer and other medications, and unlike the current medically approved alternatives, it only requires a single dose.³⁴ The fact that the Johnson & Johnson vaccine can be stored for up to three months at temperatures between 2 and 8 degrees Celsius means that it can be distributed to remote locations, even those without basic refrigeration systems or connection to power grids, making COVID-19 vaccine distribution much more efficient and equal.³⁵ The accessibility of new forms of coronavirus vaccines marks a revolutionary development for developing regions, as they will not need to pour already limited resources into additional infrastructure.

India. When initial research showed that the Pfizer-BioNTech vaccine would require ultra-cold storage units, developing countries like India were forced to scramble to create vaccines that did not require ultra-cold storage. This resulted in India's own production and manufacturing of Covishield and Covaxin, which are allegedly stable at the same temperatures as the Johnson & Johnson vaccine, despite some doubt on the efficacy of these.³⁶ India began its vaccine rollout in the city of Pune, which has a population of almost 3.6 million. In order to efficiently vaccinate such a large group, India has involved 20 different government ministries, ranging from defense and education to railways and civil aviation. This is a strategy adapted from both India's massive general election infrastructure—which is the largest in the world—and its existing universal immunization program, which annually administers vaccines to over 50 million infants and pregnant women.³⁷ According to a joint study by the government of India and the United Nations' Children's Fund (Unicef) in 2018, India succeeded in expanding its cold storage capacities and management of vaccines, which will likely improve the rate of inoculation needed to help India reach herd immunity against COVID-19.³⁸ With the capacity to utilize existing infrastructure, as well as the developments of easily transportable vaccines, India is relatively well prepared to handle millions of doses of vaccine, despite its massive geographical spread.

³⁴ "Johnson & Johnson," February 27, 2021, <https://www.jnj.com/johnson-johnson-covid-19-vaccine-authorized-by-u-s-fda-for-emergency-use-first-single-shot-vaccine-in-fight-against-global-pandemic>.

³⁵ Pranav Baskar, "What Is A Cold Chain? And Why Do So Many Vaccines Need It?," NPR (NPR, February 24, 2021), <https://www.npr.org/sections/goatsandsoda/2021/02/24/965835993/what-is-a-cold-chain-and-why-do-so-many-vaccines-need-it>.

³⁶ Emily Schmall and Karan Deep Singh, "A Mix of Pride and Doubts as Modi Launches India's Covid-19 Vaccine Drive," The New York Times (The New York Times, January 15, 2021), <https://www.nytimes.com/2021/01/15/world/asia/coronavirus-india-vaccine.html>.

³⁷ Drew Jordan and Sameen Amin, "India's Elections Last 39 Days. Here's Why.," The New York Times (The New York Times, April 20, 2019), <https://www.nytimes.com/video/world/asia/100000006449815/india-election-2019.html>.

³⁸ Emily Schmall and Karan Deep Singh, "A Mix of Pride and Doubts as Modi Launches India's Covid-19 Vaccine Drive," The New York Times (The New York Times, January 15, 2021), <https://www.nytimes.com/2021/01/15/world/asia/coronavirus-india-vaccine.html>.

Indonesia. Indonesia has not been as fortunate as India when it comes to existing vaccine infrastructure. First of all, Indonesia is composed of thousands of islands that stretch across nearly the length of the continental US, making transportation challenging at best. Despite a spending spree on infrastructure since Widodo took office in 2014, Indonesia still ranks 54th in the World Bank's 2018 Logistics Performance Index, scoring behind other SE Asian countries.³⁹ Transportation and basic infrastructure is extremely limited in most regions of Indonesia. Despite being forced to store vaccines in the best vaccines storage infrastructure available in the capital city of Jakarta, even Jakarta's present vaccine storage facilities will struggle to sustain the 2 to 8 degree Celsius environment required to store the CoronaVac, or Sinovac, vaccine that Indonesia has received from China.⁴⁰ So, instead of storing the vaccine at local health checkpoints, the Indonesian public health system must send its COVID-19 vaccines from Jakarta to its over 10,000 health facilities around the country.⁴¹ Indonesia is seeking to vaccinate two thirds of its population of 270 million, meaning they will need at least 427 million shots.⁴² Since a tremendous number of vaccines must be sent from the central point of Jakarta, Indonesia is facing severe limitations to reaching domestic herd immunity, which they intend to accomplish in just 15 months. Communities that lack basic refrigeration units or power grids will not have the luxury of options when it comes to vaccines: they will only be able to utilize those that remain stable at room temperature, which is currently the Johnson & Johnson option. If these communities have to wait for vaccine nationalism to play out, on top of current transportation challenges due to remote locations, then it is unlikely that herd immunity will be achieved in the near future.

In order to allow for a more equitable distribution of vaccines throughout Indonesia, the government has partnered with Unilever Indonesia, a company with worldwide cold chain infrastructure, to help store vaccines. Cold chain infrastructure has become Indonesia's biggest disruptor to vaccine distribution, as some vaccine shipments to rural islands got stuck, and some were even returned to provincial authorities.⁴³ Indonesia ran into the same issue last year, but for vaccines for polio and rubella. To combat this issue, Unilever will step in to provide Indonesia with 200 ice cream refrigerators in order to store some of the additional vaccines they have ordered.⁴⁴ While this will be an innovative

³⁹ "Indonesia's Colossal Task: Vaccinating 181m People in 15 Months." *Nikkei Asian Review*, 2021, Nikkei Asian Review, 2021-02-12.

⁴⁰ Associated Press, "Indonesia Starts Mass Coronavirus Vaccinations over Vast Territory," PBS (Public Broadcasting Service, January 13, 2021), <https://www.pbs.org/newshour/world/indonesia-starts-mass-coronavirus-vaccinations-over-vast-territory>.

⁴¹ "Indonesia's Colossal Task: Vaccinating 181m People in 15 Months." *Nikkei Asian Review*, 2021, Nikkei Asian Review, 2021-02-12.

⁴² Associated Press, "Indonesia Starts Mass Coronavirus Vaccinations over Vast Territory," PBS (Public Broadcasting Service, January 13, 2021), <https://www.pbs.org/newshour/world/indonesia-starts-mass-coronavirus-vaccinations-over-vast-territory>.

⁴³ "Indonesia's Colossal Task: Vaccinating 181m People in 15 Months." *Nikkei Asian Review*, 2021, Nikkei Asian Review, 2021-02-12

⁴⁴ Ibid.

solution to Indonesia's cold storage shortage, it will only result in temporary relief. Other infrastructure issues include reliable electricity and the need for a database to track vaccine organization in real time.⁴⁵

An alternate solution to Indonesia's cold storage shortage is to source the Johnson & Johnson vaccine, which would largely solve the issue of refrigeration. As previously noted, Pfizer-BioNTech has recently been approved for warmer temperatures in the short-term, and new developments could make it more similar to the Johnson & Johnson option. However, in the interest of the global race to vaccinate, it is unlikely that Indonesia will demonstrate preference on which vaccine receives. In order to prevent vaccine waste, countries like Indonesia should consider their current infrastructure and capacities when placing vaccine orders.

Mitigating Inequalities

While effective vaccine infrastructure allows the vaccine to reach more distribution centers, it is then crucial to acknowledge specific inequalities and strive to avoid further exacerbating social and economic discrepancies. Certain groups, including people of color, have been more vulnerable to the adverse health and economic impacts of the pandemic; socio-economic differences are among the factors that have played a large role in the unequal burden of the pandemic. Vaccination policies that take existing inequities in access to healthcare into account during the pandemic are crucial. Factors like economic class, ethnicity, religion, and geographic location play significant roles in the accessibility of fair and equitable medical treatment, and must be considered when planning the distribution of vaccines. In order to reach global herd immunity, all people must have access to vaccines regardless of these factors. The following case studies will examine different methods of vaccine distribution implemented by countries around the world that have sought to close the gap of vaccine accessibility.

United Kingdom. The UK has attempted to mitigate vaccine accessibility inequalities by recognizing the factors that lead to the increased vulnerability of Black, Asian and minority ethnic (BAME) groups to COVID-19, as these groups tend to have higher infection risk and further complications from COVID-19 when compared to White ethnic groups.⁴⁶ The UK's Joint Committee of Vaccination and Immunization (JCVI) argues that equal vaccine coverage for BAME groups is crucial, and urges health agencies to

⁴⁵ Ibid.

⁴⁶ "Joint Committee on Vaccination and Immunisation: Advice on Priority Groups for COVID-19 Vaccination, 30 December 2020," GOV.UK (Department of Health & Social Care, December 30, 2020), <https://www.gov.uk/government/publications/priority-groups-for-coronavirus-covid-19-vaccination-advice-from-the-jcvi-30-december-2020/joint-committee-on-vaccination-and-immunisation-advice-on-priority-groups-for-covid-19-vaccination-30-december-2020>.

address health inequalities at the implementation phase.⁴⁷ Moreover, JCVI encourages the monitoring and evaluation of vaccine programs by using indicators that track progress specifically in underserved population demographics.⁴⁸ As of January 13, 2021, out of those over the age of 80 and not residing in care homes, Black people were half (20.5%) as likely as White people (42.5%) to have been vaccinated.⁴⁹ The vaccination rate for the combined BAME groups in this age group was 71.5% compared to 85.6% in the White ethnic group, a disparity of 14.1%.⁵⁰ Despite clear guidance from federal institutions to address disparities in vaccine access for BAME groups, these inequalities persist.

Ultimately, the reason for this is simple: calling for the identification of reasons for disparities in vaccine accessibility is not sufficient action to alleviate these disparities. Though the JCVI called for inequalities to be addressed as well as identified, the challenge to this might be direct racism. Some BAME UK communities have reported an increase in the number of stigma and discrimination experiences they encountered since the onset of the pandemic, as they were viewed as being “more likely to be infected with the disease.”⁵¹ Therefore, to avoid judgement and racist based misinformation, it is essential that vaccine rollouts avoid any reinforcement of negative stereotypes or further increase in experiences of stigma.⁵² In order to reach herd immunity, the UK should adhere to the JCVI’s recommendations to focus on populations with the highest risk of severe COVID cases, as these groups are the most likely to benefit from the vaccine. Additionally, complete transparency should be promoted while prioritization decisions are being made.⁵³

The United States. Like the UK, the US is home to many minority groups that have been disproportionately affected by COVID-19. To combat healthcare disparities, the US has employed its

⁴⁷ Ibid.

⁴⁸ Ines Campos-Matos and Sema Mandal, “Annex A: COVID-19 Vaccine and Health Inequalities: Considerations for Prioritisation and Implementation,” GOV.UK (Department of Health & Social Care, November 5, 2020), <https://www.gov.uk/government/publications/priority-groups-for-coronavirus-covid-19-vaccination-advice-from-the-jcvi-30-december-2020/annex-a-covid-19-vaccine-and-health-inequalities-considerations-for-prioritisation-and-implementation>.

⁴⁹ Brian MacKenna et al., “Trends, Regional Variation, and Clinical Characteristics of COVID-19 Vaccine Recipients: a Retrospective Cohort Study in 23.4 Million Patients Using OpenSAFELY.,” *Trends, Regional Variation, and Clinical Characteristics of COVID-19 Vaccine Recipients: a Retrospective Cohort Study in 23.4 Million Patients Using OpenSAFELY.*, July 27, 2021, <https://doi.org/https://doi.org/10.1101/2021.01.25.21250356>.

⁵⁰ Ibid.

⁵¹ Ines Campos-Matos and Sema Mandal, “Annex A: COVID-19 Vaccine and Health Inequalities: Considerations for Prioritisation and Implementation,” GOV.UK (Department of Health & Social Care, November 5, 2020), <https://www.gov.uk/government/publications/priority-groups-for-coronavirus-covid-19-vaccination-advice-from-the-jcvi-30-december-2020/annex-a-covid-19-vaccine-and-health-inequalities-considerations-for-prioritisation-and-implementation>.

⁵² Ibid.

⁵³ Ibid.

Advisory Committee on Immunization Practice, which is similar to the UK’s JCVI. One of the most drastic racial disparities in the US is health insurance, as seen in Figure 2.5.⁵⁴

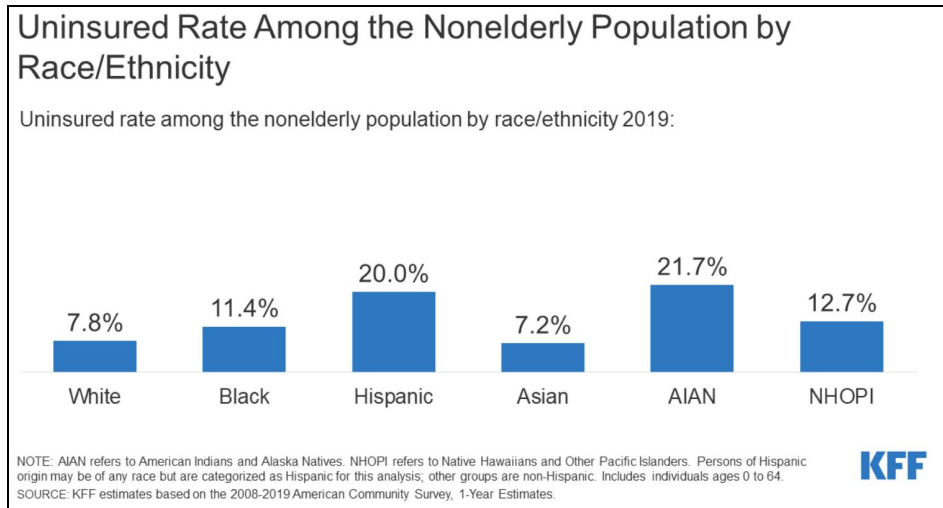


Figure 2.5. Uninsured Rate Among the Nonelderly Population by Race and Ethnicity.⁵⁵

Hispanic and indigenous populations in the US are disproportionately uninsured, which means that their access to necessary healthcare, especially COVID-19 treatments, is limited and can lead to higher mortality. The vaccination rate of these demographic groups has remained low due to a combination of factors, including a well founded distrust in the historically biased medical systems and a lack of access to vaccines. A 2020 study found that Black adults are less likely than other groups to say they would receive a COVID vaccines, even if it was free and deemed safe by experts.⁵⁶ The reasons behind this are connected to distrust in healthcare systems, which stems from the medical system’s “historic abuse and mistreatment of people of color....as well as ongoing experiences with racism and discrimination in health care today.”⁵⁷ Based on Figure 2.6, only 12% of Black adults are very confident that coronavirus

⁵⁴Samantha Artiga and Jennifer Kates, “Addressing Racial Equity in Vaccine Distribution,” KFF, December 3, 2020, <https://www.kff.org/racial-equity-and-health-policy/issue-brief/addressing-racial-equity-vaccine-distribution/>.

⁵⁵ Ibid.

⁵⁶ Ibid.

⁵⁷ Ibid.

vaccine development is taking the needs of Black people into account.

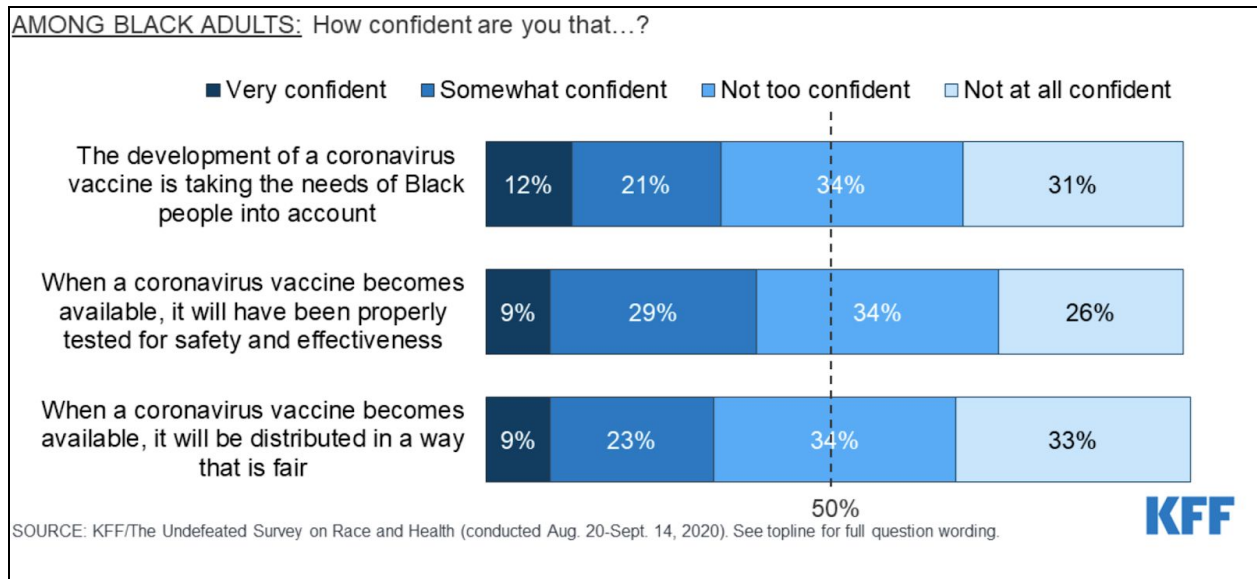


Figure 2.6. Confidence regarding coronavirus vaccine among Black adults.⁵⁸

According to the same study, seven out of ten Black adults believe race-based discrimination in healthcare happens very or somewhat often. Additionally, Black adults were more likely than White adults to report negative experiences with health care providers, including feeling that a provider did not believe they were telling the truth, being refused a test or treatment they thought they needed, and being refused pain medication.⁵⁹

A major factor in addressing inequalities in vaccine distribution is accessibility. In California, Governor Newsom stated that Black and Latino populations should be among the first to be inoculated, since hospitalization and death from COVID is two to four times higher among these minorities.⁶⁰ To address accessibility to pandemic resources for minority groups, the mayor of Long Beach launched a mobile testing program in which healthcare workers, who speak the language of the group they are administering to, visit difficult-to-reach neighborhoods. This mobile program aims to conduct about 300 tests per day, and can likely be used for vaccinating as well.⁶¹

⁵⁸ Ibid.

⁵⁹ Ibid.

⁶⁰ Alicia Victoria Lozano, "Racial Disparities Create Obstacles for Covid-19 Vaccine Rollout," NBCNews.com (NBCUniversal News Group, December 4, 2020),

<https://www.nbcnews.com/news/us-news/racial-disparities-create-obstacles-covid-19-vaccine-rollout-n1249627>.

⁶¹ Ibid.

Many essential workers also fall into minority demographics, which intensifies their level of risk to COVID-19. Because of this, the CDC's Advisory Committee on Immunization Practices (ACIP) recommends the prioritization of essential workers, as this would work to decrease the racial gap in medical attention. For example, minority groups constitute a large percentage of COVID-19 cases and deaths out of the healthcare workers and nursing home workers.⁶² It is also important to note that each state has a different plan to distribute the vaccine and who to prioritize; some states have been planning on exclusively prioritizing minority groups, while others have been approaching it with the focus of equity. Thus far, Texas and Washington D.C. have struggled to do so. In Texas, White people account for 51% of the vaccinations, while Black people only make up 7.6% of the vaccinations.⁶³ Discriminations such as these have increased illness and death rates drastically in minority populations. In Washington D.C., 28% of the city's doses have been given to White people, with just 15% going to Black residents.⁶⁴ Due to the limited economic resources and opportunities that many in minority groups face, there is a higher likelihood of these populations contracting the virus while exposed in a high-risk job. In order to reach herd immunity, blatant racism in existing healthcare accessibility should not be ignored.

Vaccine Distribution Recommendations for Cambodia

In regards to prioritization, infrastructure, and equal vaccine distributions, countries have attempted various methods to help vaccinate their populations. Some countries may have succeeded more than others due to their effective prioritization or existing infrastructures, but others are taking a more careful approach to avoid exacerbating present injustices. In light of that, this chapter includes the following recommendations for Cambodia on how to best address vaccine distribution strategies within its border.

1. *Prioritization*

Cambodia began its distribution on February 10, 2021 with the following six groups of prioritization (Figure 2.7).⁶⁵ These groups account for 23% of the entire population, which is the approximate portion of the population that COVAX will cover.

⁶² Samantha Artiga and Jennifer Kates, "Addressing Racial Equity in Vaccine Distribution," KFF, December 3, 2020, <https://www.kff.org/racial-equity-and-health-policy/issue-brief/addressing-racial-equity-vaccine-distribution/>.

⁶³ Jessie Hellmann and Marty Johnson, "Communities of Color Getting Left behind in Vaccine Rollout," The Hill (The Hill, January 30, 2021), <https://thehill.com/policy/healthcare/536576-communities-of-color-being-left-behind-in-vaccine-rollout>.

⁶⁴ Ibid.

⁶⁵ "Press Release of the Ministry of Health on the Implementation of the COVID-19 Vaccination Campaign in Cambodia." Open Development Cambodia (ODC), February 10, 2021. <https://opendevlopmentcambodia.net/announcements/press-release-of-the-ministry-of-health-on-the-implementation-of-the-covid-19-vaccination-campaign-in-cambodia/>.

Current Order of Vaccine Priority Groups in Cambodia

1. Frontline healthcare workers who regularly interact with COVID-19 patients.
2. Civil servants and members of the armed forces (to assist in implementing the vaccination campaign).
3. Local community leaders and volunteers.
4. Citizens aged 65 or older with underlying health conditions.
5. Citizens aged 18 to 64, and those aged 65 and older in good health.
6. Nonessential occupational sectors (including factory workers).

Figure 2.7. Prioritized Groups for Vaccine Distribution in Cambodia⁶⁶

Based on this chapter’s analysis on case studies of prioritization, it is determined that Cambodia should consider restructuring its plan to have more immediate emphasis on addressing minority groups. Unlike other countries with larger senior citizen demographics, Cambodia can afford to keep this group—which only makes up about 4.7% of the population—at its current rank of Level 4 and 5.⁶⁷ Cambodia should consider making the vaccination of their working class age group a higher priority, as Indonesia did.

2. *Infrastructure*

Cambodia currently faces many challenges in infrastructure, especially due to a lack of vaccine storage space, as well as having many rural villages and road systems that cannot be accessed in year-round all-weather conditions. To reach herd immunity, additional infrastructure is necessary to help facilitate the distribution of vaccines within their border. Specific focus and funding should go to the construction of storage warehouses, such as the \$6 million 6,300 square meter warehouse currently being built in Phnom Penh. These warehouses should be strategically located close to high density population centers, as well as in close proximity to air and sea transportation centers.⁶⁸ Having additional storage facilities,

⁶⁶ Mom Kunthea, “Priority Groups for Jobs Determined,” Priority groups for jobs determined | Phnom Penh Post (Phnom Penh Cambodia, January 25, 2021), <https://www.phnompenhpost.com/national/priority-groups-jobs-determined>.

⁶⁷ H. Plecher, “Cambodia - Age Structure 2019,” Statista, November 11, 2020, <https://www.statista.com/statistics/438634/age-structure-in-cambodia/>.

⁶⁸ Zuellig Pharma Pharma, “Zuellig Pharma Expands Cold Storage Warehouse Capacity across Key Markets in Asia in Preparation for COVID-19 Vaccine,” Zuellig Pharma expands cold storage warehouse capacity across key markets in Asia in preparation for COVID-19 vaccine - PR Newswire APAC, November 20, 2020, <https://en.prnasia.com/releases/apac/zuellig-pharma-expands-cold-storage-warehouse-capacity-across-key-markets-in-asia-in-preparation-for-covid-19-vaccine-299658.shtml>.

especially those with ample refrigeration, will increase Cambodia's capacity to accept whichever vaccine it is offered, regardless of cold chain requirements.

3. *Promoting Equal Vaccine Distribution in Cambodia*

In order to guarantee a vaccination program that equally addresses all populations in Cambodia, the government must ensure that the processes of gathering knowledge about the vaccine and pandemic itself are accessible for everyone. Cambodia should eliminate all obstacles in this process by providing translation services for language barriers, as well as information in various mediums for those who do not have internet access and technology. For the population that does have mobile devices, an application like India's CoWin should be developed to allow the government to visually track its real-time progress. Additionally, regional and local government must take the 5-10% of Chinese-Khmers, Khmer Islam or Chams, the Khmer Loeu, and Vietnamese into consideration to ensure that all minorities have access to the vaccine.⁶⁹

Conclusion

The prospect of one day returning to normalcy, or at least coming closer to what normal life was like before the pandemic began, is tantalizing. However, in pursuit of this outcome, nationalist vaccine policies have limited the potential of this becoming a reality in the near future. The potential of achieving herd immunity is not equally likely in the developed and the developing world due to the hoarding of vaccines by developed nations. Developing policies that work for the common good are ultimately more effective than nationalist policies, and will bring about global herd immunity at a faster rate. In order to effectively vaccinate enough of a population to achieve herd immunity, though, nations must carefully develop prioritization plans that specifically address the agenda they first seek to serve. New vaccine developments should be closely monitored in regions that do not have adequate cold chain infrastructure for vaccine storage, and developing nations must prepare for the long haul by directing funds into increased infrastructure. Adhering to a vaccination campaign that addresses social and economic injustices can be accomplished by acknowledging injustices, but also by understanding governments' use of communication and trust within populations.

⁶⁹ TourismCambodia.com, "Khmer People - About Cambodia: Tourism Cambodia," Tourism of Cambodia, accessed March 5, 2021, <https://www.tourismcambodia.com/about-cambodia/khmer-people.htm>.

Chapter 3: Trust and Communication During the Pandemic

Isabelle Metzcus

Introduction

Despite differences in policies implemented around the world to combat the COVID-19 pandemic, communication remains a predominant factor in successful policy implementation and reception. Effective communication ultimately relies on trust. Countries where citizens trust the word of their government, and where the government has used effective communication to fortify this trust, have had stronger policy adherence. Given the powerful impacts of false information and vaccine hesitancy, increasing public confidence and hope in fighting the spread of COVID-19 has become a necessity. As the pandemic rages on, the global community has turned to vaccination and cultivating herd immunity for ending the spread of COVID-19. Communication is crucial in garnering support for the vaccine, maintaining vigilance in supplemental practices, and reaching herd immunity. Supplemental practices such as mask-wearing, lockdowns, social distancing, and other methods of slowing the spread are necessary, especially in countries that are facing vaccination delays and new variants. This chapter seeks to explain how strong communication and trust-building efforts in conjunction with vaccine vaccination can help the world end the pandemic. First, a distinction is made between various sources of trust and their impact on citizen acceptance of government recommendations. This is followed by an analysis of the impacts of politics on pandemic policy reception. The latter half of the chapter addresses the spread of misinformation during the pandemic followed by a discussion of how skillful use of rhetoric can increase public trust and adherence to public health measures during the COVID-19 pandemic. Factors such as horizontal and vertical trust, the politicization of the virus, the spread of false information, and overall communication strategies can be influential in determining degrees of success in combating the spread of COVID-19 and achieving widespread vaccination.

Trust

Behind the success or failure of various forms of communication lies trust, which can take two main forms: horizontal and vertical. Horizontal trust refers to interpersonal trust and relationships such as those among family units and communities. Vertical trust, in contrast, refers to inter-hierarchical trust, in this case the trust of citizens in their government and leaders. Differences in the manifestation of trust within countries reveal opportunities for policy successes as well as potential hurdles to overcome.

Research indicates higher levels of vertical trust often coincide with greater COVID-19 policy adherence.¹ Trust in governments, communities, and fellow citizens, and vaccines themselves will play a significant role in determining whether or not countries will reach herd immunity. By increasing making an effort to increase citizens' trust, governments increase the likelihood that citizens will adhere to supplemental policies and garner increased trust in vaccines.

Vertical trust

The implications of differences in governmental trust can be seen through the varying degrees of success at containing COVID-19 across the African continent. In this chapter, the case studies of Ghana, Malawi, Senegal, and Nigeria will be compared in order to demonstrate the ways varying levels of trust correlate with successful mitigation of the COVID-19 virus. As of late 2020, many of these nations have experienced new surges in cases. However, as of February 23, 2021, the WHO reported a decline in cases of about 20% from the previous week.² Despite ongoing outbreaks, these case studies can still serve to demonstrate methods for success or failure as well as the importance of maintaining vigilant practices as the pandemic continues.

Countries with a history of strong trust between citizens and their government overall tend to be more effective in slowing the onslaught of the COVID-19 pandemic. Ghana, for instance, is a fairly progressive nation that “consistently ranks in the top three countries in Africa for freedom of speech and press freedom, with strong broadcast media.”³ Ghana has also fostered a strong sense of trust. According to Afrobarometer’s 2016-2018 surveys, 84% of citizens perceived their state institutions as legitimate while 70% of citizens expressed trust in their President, Nana Akufo-Addo.⁴ In terms of policy successes, there was an early acceptance of guidelines by the public and a quick lockdown.

What is truly impressive about Ghana’s response is its swift mobilization of healthcare professionals and scientists as well as widespread testing capacity. By June 2020, just three months after the pandemic began, Ghana was leading in COVID-19 tests administered per million people within Africa, which was a significantly fast response even when compared with a majority of developed nations.⁵ Despite weak

¹ Katrin Schmelz, “Enforcement May Crowd out Voluntary Support for COVID-19 Policies, Especially Where Trust in Government Is Weak and in a Liberal Society,” *Proceedings of the National Academy of Sciences* 118, no. 1 (2020): pp. 1-8, <https://doi.org/10.1073/pnas.2016385118>.

² The WHO Emergency Response Team, “COVID-19 Weekly Epidemiological Update” (The World Health Organization, February 23, 2021), <https://www.who.int/publications/m/item/weekly-epidemiological-update---23-february-2021>.

³ “The World Bank in Ghana,” The World Bank (The World Bank), accessed February 12, 2021, <https://www.worldbank.org/en/country/ghana/overview>.

⁴ E Gyimah-Boadi, “Foresight Africa 2021” (The Brookings Institute, January 2021), <https://www.brookings.edu/essay/good-governance-building-trust-between-people-and-their-leaders/>.

⁵ Afriyie et al., “COVID-19 Pandemic in Resource-Poor Countries: Challenges, Experiences and Opportunities in Ghana,” *The Journal of Infection in Developing Countries* 14 (08), 838-43. <https://doi.org/10.3855/jidc.12909>.

healthcare systems, the COVID-19 strategies implemented in Ghana attracted the attention of the WHO, which began studying its pool testing program.⁶ While at an initial disadvantage in terms of health infrastructure, Ghana was still able to limit death rates and prevent hospitals from being overwhelmed. Many of the self-tracing measures that the government adopted required trust from the citizens that the government's health policies have their best interests in mind. By the same token, the government must trust that citizens will test themselves. In short, mutual trust between the citizens and the government of Ghana allowed for greater mitigation of the spread of the virus.

Another remarkable success story can be seen in the actions taken by Senegal. Before the pandemic, 73% of Senegal's citizens expressed trust in Senegal's president.⁷ Overall, the government's pandemic strategies were successful, especially before restrictions were lifted. Senegal's response, given its status as a developing country, attracted global attention for its ability to efficiently update cases and information as well as the government's effort to increase transparency.⁸ Government transparency keeps citizens informed and demonstrates trust in citizens' ability to use the information to the best of their ability. The government took a firm stance on keeping its citizens abreast of developments, no matter how few or many cases were reported. According to Senegal's director of the Health Emergency Operation Center, Dr. Abdoulaye Bouso, "If we have six people who died, we say it. If we have one person, we say it."⁹ Transparency about public health data can make the public trust the word of their government and may be more responsive to health recommendations. When citizens believe that their government can be trusted to provide for them, there is a greater inclination to respect recommendations.¹⁰ Despite having relatively weak health infrastructure, Senegal demonstrated a successful response in mitigating the spread of COVID-19 due in part to its willingness to foster trust with its citizens. Looking ahead, countries that will be able to capitalize on their citizens' trust may have an advantage in increasing support for vaccination. As an alternative, the pandemic can offer an opportunity for governments to demonstrate that they can care for their citizens, increasing vertical trust as a result.

⁶Hagan Sibiri, David Prah, and Sanusi Mumuni Zankawah, "Containing the Impact of COVID-19: Review of Ghana's Response Approach," Health Policy and Technology, November 4, 2020, <https://doi.org/10.1016/j.hlpt.2020.10.015>.

⁷E Gyimah-Boadi, "Foresight Africa 2021" (The Brookings Institute, January 2021), <https://www.brookings.edu/essay/good-governance-building-trust-between-people-and-their-leaders/>.

⁸Ben Leo and Catherine Winn, "Localized Communication Plans Help Senegal Control COVID-19," Brookings (The Brookings Institution, November 10, 2020), <https://www.brookings.edu/blog/africa-in-focus/2020/11/10/localized-communication-plans-help-senegal-control-covid-19/>.

⁹Deirdre Shesgreen, "Senegal's Quiet COVID Success: Test Results in 24 Hours, Temperature Checks at Every Store, No Fights over Masks," USA Today (Gannett Satellite Information Network, September 6, 2020), <https://www.usatoday.com/story/news/world/2020/09/06/covid-19-why-senegal-outpacing-us-tackling-pandemic/565969600>

¹⁰ Ben Leo and Catherine Winn, "Localized Communication Plans Help Senegal Control COVID-19," Brookings (The Brookings Institution, November 10, 2020), <https://www.brookings.edu/blog/africa-in-focus/2020/11/10/localized-communication-plans-help-senegal-control-covid-19/>.

In contrast, nations such as Malawi and Nigeria, with perceived institutional legitimacy ratings of 53% and 45% respectively, fared comparatively worse in responding to the pandemic. Until he was replaced in June 2020, former Malawian president Peter Mutharika had a trust rating of only 36%.¹¹ Malawi in particular faced challenges in enforcing policy adherence and faced strong policy resistance. Some of the pushback on public health measures culminated in successful court cases against the government. Trust proved to be a substantial concern in terms of COVID-19 testing in Malawi. Low perceived legitimacy of public facilities and greater trust in outside institutions prevented many Malawian citizens from getting tested, and when they did get tested citizens preferred to go to international health organizations rather than public clinics.¹² When citizens feel their needs cannot adequately be met by the government, they demonstrate resistance to safety measures and tests, unless they can find an alternative. In this instance, a lack of faith in the government led to lower levels of testing which in turn allowed the virus to spread undetected. .

However, low faith in governments can lead to more than just resistance to safety measures. In Nigeria, the government had to address “widespread flouting of public health guidelines and the looting of government warehouses storing COVID-19 relief supplies.”¹³ The Nigerian public felt that its needs were not met by the government and that supplies were not distributed fairly. By seizing the goods they perceived as rightfully belonging to them, looters expressed their lack of trust in the government’s claims that the storage was reserved for a second wave of COVID-19.¹⁴ In the case of Nigeria, citizens’ trust in their government deteriorated when they felt that they were being needlessly denied access to vital supplies, which resulted in violence and looting. This case exemplifies how a lack of trust between citizens and their government can push citizens to go directly against what their government recommends, which is particularly dangerous during a global pandemic.

The correlation between citizens’ trust in government and a government’s success in pandemic mitigation is pronounced. While the underlying reasons behind variations in trust may differ, they still contribute similarly to pandemic setbacks. Corruption and general instability can contribute to low levels

¹¹ E Gyimah-Boadi, “Foresight Africa 2021” (The Brookings Institute, January 2021), <https://www.brookings.edu/essay/good-governance-building-trust-between-people-and-their-leaders/>.

¹² Karen E. Ferree et al., “Stigma, Trust, and Procedural Integrity: Covid-19 Testing in Malawi,” *World Development* 141 (January 12, 2021): p. 105351, <https://doi.org/10.1016/j.worlddev.2020.105351>.

¹³ E Gyimah-Boadi, “Foresight Africa 2021” (The Brookings Institute, January 2021), <https://www.brookings.edu/essay/good-governance-building-trust-between-people-and-their-leaders/>.

¹⁴ Percy Dabang and Angela Ukomadu, “In Nigeria, Looters Target Government Warehouses Stocked with COVID-19 Relief,” *Reuters* (Thomson Reuters, November 9, 2020), <https://www.reuters.com/article/us-health-coronavirus-nigeria-food/in-nigeria-looters-target-government-warehouses-stocked-with-covid-19-relief-idUSKBN27POVT>.

of trust and impede a country's ability to control the spread of the virus. Therefore, governments can increase public trust by fulfilling their promises and prioritizing their citizens' well-being over political gain.

Horizontal trust

A lack of confidence in the government can often be supplemented by other sources of trust. Informal leaders such as non-elected officials and prominent community members can be viewed as horizontal leadership, given their close proximity to their communities. In times of crisis, it is advantageous for governments to turn their attention and support to trusted community leaders. In Africa, 63% percent of respondents expressed trust in non-elected leaders such as religious leaders.¹⁵ While religious leaders do perform a leadership role, they are closer intertwined with members of their communities and are often active community members themselves. Meanwhile, political leadership is top-down and hierarchical instead of egalitarian. The trust in peripheral leadership can be utilized to the benefit of the government. This is demonstrated by the case of South Africa, where elected leaders have held consultations with informal leaders to help increase support for COVID-19 policies and recommendations.¹⁶ The government has publicly supported the efforts of religious leaders who canceled events such as pilgrimages and religious gatherings on holidays and has worked with religious leaders to help spread information to their communities.¹⁷ The South African government recognized the importance of local and religious leaders to their citizens and used this to their advantage.

Horizontal trust also affects medical care during the pandemic and determines where and when individuals seek care. Often, healthcare information is spread by word of mouth and social circles, with people often prioritizing tradition and local advice over information from health officials or governments. This comes into play in rural communities and those with less access to healthcare opportunities. For example, in Cambodia:

“...families will seldom lose trust in indigenous healers, bonesetters and even biomedically untrained village health providers in case of treatment failure, as these providers co-operate with and respond to their clientele within a framework of local illness perceptions..., while treatment from a biomedical practitioner or institution is depersonalized, making the doctor ‘replaceable.’”¹⁸

¹⁵ E Gyimah-Boadi, “Foresight Africa 2021” (The Brookings Institute, January 2021), <https://www.brookings.edu/essay/good-governance-building-trust-between-people-and-their-leaders/>.

¹⁶ Ibid.

¹⁷ Judd Devermont and Topaz Mukulu, “South Africa's Bold Response to the Covid-19 Pandemic,” South Africa's Bold Response to the Covid-19 Pandemic | Center for Strategic and International Studies, February 24, 2021, <https://www.csis.org/analysis/south-africas-bold-response-covid-19-pandemic>.

¹⁸ Charlotte Gryseels et al., “When ‘Substandard’ Is the Standard, Who Decides What Is Appropriate? Exploring Healthcare Provision in Cambodia,” *Critical Public Health* 29, no. 4 (April 2019): pp. 460-472, <https://doi.org/10.1080/09581596.2019.1591614>.

This is a common sentiment expressed in community-based societies and areas where one's local community takes precedent. When so much is uncertain during a global pandemic, it can feel comfortable or reliable to turn to traditional healthcare. These dynamics must be understood and implemented to increase policy support. Encouraging local trusted medical personnel and healers to assist in vaccination campaigns will put individuals at ease. Governments should work with trusted local sources and medical personnel to spread positive information and empower individuals to make educated choices during the pandemic.

Leading by Example

Leading by example can also be a powerful tool in encouraging broader support from populations and can bring increased approachability to proposed measures. Using prominent figures, respected community leaders, or celebrities to model compliance with government recommendations can encourage broader compliance by appealing to existing trusting relationships.¹⁹ For figures in the public eye, actions such as openly receiving the COVID-19 vaccines can dispel concerns about their safety. Because decisions such as vaccination are viewed by some as high risk, it can be helpful for the public to see what trusted leaders do first. In societies that prioritize the needs of the community, local NGOs, community organizations, religious leaders, and other informal figureheads are more impactful in swaying opinions than government officials who may feel distant. Tailoring tactics based on community values will prove important in mitigating further impacts of the pandemic.

Understanding the ways health information is spread by non-healthcare affiliated individuals can provide insight into ways to distribute COVID-19 related instructions. Many health behaviors are spread based on what is understood as a norm within the community, and are often amplified by digital technologies.²⁰ Normative behaviors that rely on self-monitoring are key areas where public health and horizontal trust cross paths. Behaviors such as hand washing, disinfecting surfaces, and wearing masks are challenging for governments to monitor, and are influenced by horizontal trust and community standards for regulation.²¹

Community standards have significant impacts on the adherence and acceptance of government policy measures. Individuals tend to react negatively when their fellow community members go against the actions of the majority, and as a result, there is a tendency to make decisions that align with the status

¹⁹Jay J. Bavel et al., "Using Social and Behavioural Science to Support COVID-19 Pandemic Response," *Nature Human Behaviour* 4, no. 5 (2020): pp. 460-471, <https://doi.org/10.1038/s41562-020-0884-z>.

²⁰Al-Hasan, Yim, and Khuntia, "Citizens' Adherence to COVID-19"

²¹Niklas Harring, Sverker C. Jagers, and Åsa Löfgren, "COVID-19: Large-Scale Collective Action, Government Intervention, and the Importance of Trust," *World Development* 138 (February 2021): p. 105236, <https://doi.org/10.1016/j.worlddev.2020.105236>.

quo.²² The opposite is true when a majority is not adhering to policy recommendations. Individuals are often driven by a fear of going against community norms, as it could result in ostracism and anger from other community members. This fear is not without reason: often individuals who perceive community members as not following guidelines are “willing to accept personal costs in order to punish the deceivers... and demand stricter regulation, even from governments they do not trust.”²³ When it becomes apparent that fellow community members are not complying with regulations, stricter regulations can be welcomed even if at a greater personal inconvenience. Horizontal relationships are sometimes prioritized by citizens over vertical leadership. However, when interpersonal trust has been violated, vertical powers can be called upon to reestablish order and implement relevant policies.

As a result of interpersonal trust, individuals are more likely to follow policies if it is evident that others are also adhering. Statements such as “the overwhelming majority of people in your community believe that everyone should stay home” are an effective way to implement this concept.²⁴ Appealing to this kind of social trust in public health campaigns can further incentivize those who are hesitant to change their ways. One actor alone will not change the course of the pandemic, and if citizens believe that no one else will follow safety recommendations, they have little reason to follow regulations themselves. Highlighting the perspective of those who are complying can make citizens feel a gentle societal push to adhere to policies. This will be important when vaccines are more widely available. Building on community values can be an effective strategy for providing a gentle suggestion to those who are hesitant to follow procedures.

Trust in Vaccines

Vaccines are the current source of hope for many as the pandemic surges on, but for others, vaccines are a source of fear. In 2019, the WHO named vaccine hesitancy a major threat to global health, as it has become an increasingly prevalent global phenomenon.²⁵ According to a WHO global poll in early 2020, “73% of countries have witnessed reduction in demand for immunisation.”²⁶ This trend poses a major obstacle to fighting the COVID-19 pandemic. Common reasons for vaccine hesitancy include difficulties

²²Jay J. Bavel et al., “Using Social and Behavioural Science to Support COVID-19 Pandemic Response,” *Nature Human Behaviour* 4, no. 5 (2020): pp. 460-471, <https://doi.org/10.1038/s41562-020-0884-z>.

²³Niklas Harring, Sverker C. Jagers, and Åsa Löfgren, “COVID-19: Large-Scale Collective Action, Government Intervention, and the Importance of Trust,” *World Development* 138 (February 2021): p. 105236, <https://doi.org/10.1016/j.worlddev.2020.105236>.

²⁴Jay J. Bavel et al., “Using Social and Behavioural Science to Support COVID-19 Pandemic Response,” *Nature Human Behaviour* 4, no. 5 (2020): pp. 460-471, <https://doi.org/10.1038/s41562-020-0884-z>.

²⁵“Ten Threats to Global Health in 2019,” World Health Organization (World Health Organization, March 21, 2019), <https://www.who.int/vietnam/news/feature-stories/detail/ten-threats-to-global-health-in-2019>.

²⁶Sunil Bhopal and Maryke Nielsen, “Vaccine Hesitancy in Low- and Middle-Income Countries: Potential Implications for the COVID-19 Response,” *Archives of Disease in Childhood* 106, no. 2 (October 2020): pp. 113-114, <https://doi.org/10.1136/archdischild-2020-318988>.

in accessing vaccines, complacency, and overall uncertainty..²⁷ Understanding the reasons why people may be concerned about vaccination allows for an empathetic response that does not bring shame upon the individual in question. Constant, thorough, and detailed vaccine information that addresses said hesitations is necessary for educating populations and building confidence in COVID-19 vaccines.

Varying levels of horizontal trust additionally impact what types of vaccine messaging communities will be the most responsive to. Recognizing that a multitude of those who oppose vaccines have higher levels of distrust in authority figures can provide insight into how to best communicate with hesitant individuals. Any strong messaging that comes from established authority “is likely to provoke psychological resistance” that results in the further “entrenchment of...existing ‘anti-establishment’ or ‘anti-authority’ beliefs.”²⁸ This distrust may be valid, and responding with harsh crackdowns could result in stronger pushback in democratic contexts. Instead, turning to local, or horizontal, sources of trust to assuage aggressive feelings towards vaccines is very effective. Turning to a more horizontal approach may aid in increasing support for vaccination. For example, focusing on the positive impact vaccination can have on one’s community can appeal a person’s sense of altruism, which can be especially effective in areas where community is emphasized.²⁹ Addressing the direct causes of mistrust and using them to inform vaccine messaging can be an effective means to build trust in vaccines.

Seeing how peers and other respected horizontal organizations are responding to the pandemic can affect the degree of trust citizens have in the effectiveness and safety of vaccines. In fact, “health workers...remain the most trusted advisor and influencer of vaccination decisions, and they must be supported to provide trusted, credible information on vaccines.”³⁰ Campaigns to boost the messages of local healthcare personnel could make the difference between herd immunity and a continued pandemic. It is also worthwhile to turn to community-based groups, who have more clout and visibility in communities than singular actors. A global survey on acceptance of a COVID-19 vaccine found:

“A careful balance is required between educating the public about the necessity for universal vaccine coverage and avoiding any suggestion of coercion. Respected community-based groups

²⁷“Ten Threats to Global Health in 2019,” World Health Organization (World Health Organization, March 21, 2019), <https://www.who.int/vietnam/news/feature-stories/detail/ten-threats-to-global-health-in-2019>.

²⁸Jamie Murphy et al., “Psychological Characteristics Associated with COVID-19 Vaccine Hesitancy and Resistance in Ireland and the United Kingdom,” *Nature Communications* 12, no. 1 (April 2021), <https://doi.org/10.1038/s41467-020-20226-9>.

²⁹Wen-Ying Sylvia Chou and Alexandra Budenz, “Considering Emotion in COVID-19 Vaccine Communication: Addressing Vaccine Hesitancy and Fostering Vaccine Confidence,” *Health Communication* 35, no. 14 (2020): pp. 1718-1722, <https://doi.org/10.1080/10410236.2020.1838096>.

³⁰“Ten Threats to Global Health in 2019,” World Health Organization (World Health Organization, March 21, 2019), <https://www.who.int/vietnam/news/feature-stories/detail/ten-threats-to-global-health-in-2019>.

and non-governmental organizations, such as the Red Cross, which is considered to be impartial, are essential to help build trust in a future COVID-19 vaccine.”³¹

However, Forcing compliance can result in negative and reactive stances and further pushback on government proposals. Recall the case of Nigeria, where a lack of trust in the government led to violent responses and pushback against potentially life-saving recommendations. In these instances, coercive actions by the government would only exacerbate existing tensions. Instead, playing off of various sources of trust in a community can create more effective vaccination campaigns and encourage larger populations to receive the COVID-19 vaccine. Efforts should be made to meet people where they are and tailor messages through appropriate trusted sources.

Politicization of the Pandemic

A major mistake many nations have made in their pandemic responses is politicizing the virus. Among the most prominent offenders is the United States, where the government has downplayed the severity of the pandemic and has undermined the authority of the media and international organizations. The pandemic has been utilized to inflame existing tensions and promote political ideologies. This increased politicization undermines trust in both the government as well as the media, which can have dire consequences given that the media is a crucial source of pandemic-related facts. Information about the pandemic varies widely depending on one’s political party, a phenomenon that quickly transformed simple safety measures such as mask-wearing into strong political statements. Political polarization is particularly alarming when it comes to vaccination, since vaccines are among the best methods to contain the spread of the virus. Polarization and conflicting messages across party lines have a noticeable effect on policy adherence. Given the stigma surrounding various policies, adherence and acceptance of policies has increasingly become a political statement and has undermined trust in the government.

As political parties become further entrenched in their views, increasing widespread participation in helpful behaviors to combat the virus becomes more difficult. Within the US, a divide has arisen between the major parties based on how they evaluate the legitimacy and severity of the pandemic. For example, “analyses using GPS data from smartphones found that areas with more Republicans exhibited less social distancing than those with more Democrats.”³² The US will likely continue to struggle with these political divisions going forward, and it is one of the US’s biggest weaknesses in terms of

³¹Jeffrey V. Lazarus et al., “A Global Survey of Potential Acceptance of a COVID-19 Vaccine,” *Nature Medicine*, 2020, <https://doi.org/10.1038/s41591-020-1124-9>.

³²P. Sol Hart, Sedona Chinn, and Stuart Soroka, “Politicization and Polarization in COVID-19 News Coverage,” *Science Communication*, October 2020, 679–97. <https://doi.org/10.1177/1075547020950735>.

combating the pandemic. Researchers Rothgerber et al. proposed a series of criteria to change people's minds and ultimately bring about behavioral change during the pandemic:

“ (1) people must be exposed to information that helps them understand the importance of changing their behavior and perceive danger in not changing their behavior (knowledge); (2) they must trust that information and find it credible (perceived media accuracy); which would then lead them to (3) perceive a collective health risk posed by the condition that demands behavioral change (perceived health risk); (4) ultimately leading them to engage in behavioral change”³³

To successfully change a person's perception of COVID-19, that person must first recognize the threat it poses to their well-being. When governments present the pandemic as mild and simple to defeat, it undermines the ability of citizens to take care of themselves. Messaging that presents the coronavirus as benign leads to citizens ignoring public safety recommendations, as they see coronavirus restrictions as more disruptive than the virus itself. Clear and unified government messaging can spark change and allow individuals to reevaluate their actions. Other countries should heed the US' handling of the pandemic as a warning of how the politicization of the pandemic can damage progress.

Idolization of Leaders

While vertical trust can be a positive factor for encouraging compliance to safety regulations during the pandemic, it is not always utilized in a helpful manner. Leaders can exploit their power to push independent agendas instead of acting to end the pandemic. The use of citizens' trust to undermine progress in stopping the spread of COVID-19 is a key factor contributing to the failures of the United States, despite its advanced public health infrastructure.

The blind idolization of leaders poses a unique challenge to reducing the spread of COVID-19. The idolization of leaders refers to the process whereby followers view a leader as incapable of wrongdoing and take the leader's words as the whole truth. This becomes an issue when the messages proposed by the idolized leaders contradict medical personnel and the scientific community. For example, former President Trump described COVID-19 as a minor concern and promoted illegitimate cures.³⁴ Leaders directly challenging the scientific community as Former President Trump did can cause ideological splits between political parties based on leaders' beliefs and can further entrench followers in their views. A Monmouth University poll reported that

³³Hank Rothgerber et al., “Politicizing the COVID-19 Pandemic: Ideological Differences in Adherence to Social Distancing,” PsyArXiv, April 22. doi:10.31234/osf.io/k23cv.

³⁴Marc Hetherington and Jonathan M. Ladd, “Destroying Trust in the Media, Science, and Government Has Left America Vulnerable to Disaster,” Brookings (The Brookings Institute, May 4, 2020), <https://www.brookings.edu/blog/fixgov/2020/05/01/destroying-trust-in-the-media-science-and-government-has-left-america-vulnerable-to-disaster/>.

“less than 25% of Republicans were “very concerned” about someone in their family becoming seriously ill from coronavirus, compared to almost 60% of Democrats. Over 80% of Republicans said they were somewhat or very confident that the impact of coronavirus would be “limited,” compared to approximately 30% of Democrats.”³⁵

The spread of blatant misinformation by prominent political figures gives traction to this false information that would otherwise easily be discredited. Often misinformation and disinformation campaigns are designed to appeal to one’s emotions and can be quite effective in influencing opinions.

The United States is not an isolated case. President Jair Bolsonaro of Brazil has also come under fire from the international community for his treatment of the COVID-19 pandemic. There is notable conflict and divisions within Brazil’s government, resulting in a confusing and disjointed pandemic plan. While lower levels of leadership like mayors and governors have pleaded with citizens to continue to practice social distancing, Bolsonaro has advocated for a return to “normal.”³⁶ While Bolsonaro’s power is checked by Brazil’s Federal Supreme Court, the back-and-forth has made it difficult for the public to discern which recommendations the government has advocated for. The blatant disregard for the scientific and medical community that was seen in the actions of Trump can also be seen in Bolsonaro’s actions when he “repeatedly resisted recommendations made by scientific experts and governors to engage in physical distancing while his administration initially restricted testing to only the worst COVID-19 cases.”³⁷ The mixed messages from Bolsonaro and the Supreme Court have undermined the government’s policy recommendations and has made it challenging for the public to stay informed. Power-hungry figureheads who have a small population of passionate supporters are dangerous in times of crisis. The pandemic has further exposed fractures within various governments, which have impeded swift, coordinated COVID-19 countermeasures.

When idolized leaders use their political capital to undermine support for public health measures, they hinder their country’s return to pre-pandemic circumstances. The promotion of pseudoscientific treatments and efforts to convince the public that the virus is not a threat can prevent the achievement of herd immunity. If citizens who become enthralled by their leaders’ biases do not perceive the virus as a major safety concern, they are less likely to get vaccinated and disregard other safety measures such as social distancing and masking in public. During a global health crisis, projecting a sense of unity and cohesion is key. The more closely coordinated the messages and advice of health officials and

³⁵ Ibid.

³⁶ Talha Burki, “COVID-19 in Latin America,” *The Lancet Infectious Diseases* 20, no. 5 (2020): pp. 547-548, [https://doi.org/10.1016/s1473-3099\(20\)30303-0](https://doi.org/10.1016/s1473-3099(20)30303-0).

³⁷ Lorena G Barberia and Eduardo J Gómez, “Political and Institutional Perils of Brazil’s COVID-19 Crisis,” *The Lancet* 396, no. 10248 (August 8, 2020): pp. 367-368, [https://doi.org/10.1016/s0140-6736\(20\)31681-0](https://doi.org/10.1016/s0140-6736(20)31681-0).

governments are, the clearer the messages the public will receive. A priority of governments should be to increase trust in the COVID-19 vaccine if they want to open up their economies and return life to normal.

Fake News, Misinformation, and Disinformation

A rising threat in the internet age is the spread of falsified information. While this phenomenon has been gathering notoriety in the recent decade, it has proven to have fatal consequences during this major public health crisis. Misinformation refers to false information that is spread regardless of intent or knowledge of its fallacy. Disinformation, on the other hand, is the spread of falsified information with malicious intent, whether to confuse, defame, or push an agenda. Rumors and conspiracy theories have become highly mobile since the expansion of the internet, creating significant challenges for administrations and health care officials to contain the spread of the coronavirus. Given trends of increasing vaccine hesitancy as well as misinformation will make it challenging to convince enough individuals to receive COVID-19 vaccines to reach herd immunity.

A coordinated government effort to present correct information and guiding constituents to accurate scientific information will encourage greater policy adherence.

Vaccine Misinformation and Hesitancy

The major reasons deterring people from receiving a COVID-19 vaccine are existing distrust in vaccines, perceived safety risks of the COVID-19 specific vaccines, and a lack of recognition of the legitimacy of the disease. Lack of trust in COVID-19 vaccines as well as vaccines in general can be heavily connected to misinformation, particularly on social media. Throughout the pandemic, rumors have spread that falsely suggest that “5G mobile networks are linked with the virus, that vaccine trial participants have died...and that the pandemic is a conspiracy or a bioweapon.”³⁸ Almost as soon as one theory is debunked, another appears, sparking widespread panic. As more countries begin their vaccine rollouts, this will prove to be a significant obstacle to achieving herd immunity. Given the correlation between perceived disease severity, vaccine safety perceptions, and willingness to vaccinate (Figure 3.1), false narratives that promote the pandemic as a conspiracy will make it challenging to reach herd immunity. Governments have a responsibility to accurately portray the severe and deadly nature of the disease alongside promoting the safety of the vaccines if they want to encourage vaccination.

³⁸Sahil Loomba et al., “Measuring the Impact of COVID-19 Vaccine Misinformation on Vaccination Intent in the UK and USA,” *Nature Human Behaviour*, February 5, 2021, <https://doi.org/10.1038/s41562-021-01056-1>.

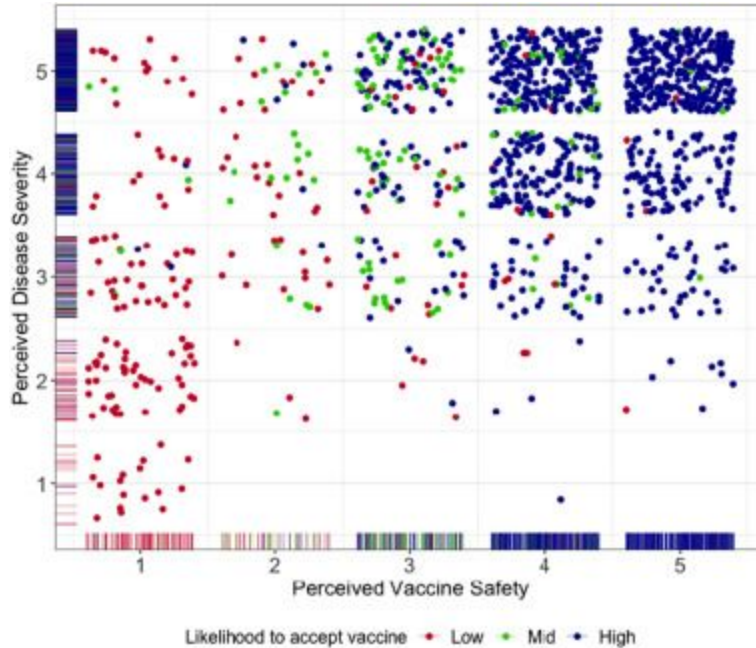


Figure 3.1. COVID-19 Vaccination Intentions.³⁹

There is a widespread concern, even amongst healthcare workers, that the vaccine was developed too fast, which has caused doubts regarding the safety of receiving a vaccine.⁴⁰ Studies show that exposure to misinformation can increase the likelihood of a person declining to get vaccinated. In a study by Loomba et al. comparing how individuals exposed to misinformation versus accurate information would react to the vaccine, it was found that:

“misinformation exposure induces a decrease in the number of respondents who would ‘definitely’ take the vaccine relative to the control group in [the UK and the USA] by 6.2 percentage points... in the UK and 6.4 percentage points... in the USA”⁴¹

Misinformation campaigns are influential and have legitimate impacts on how individuals perceive the vaccine. Combating misinformation has become a growing global concern, and there is a concern of misinformation crackdowns leading to limits of freedom of speech. A potential alternative would be to “‘inoculate’ the public against misinformation by presenting counterarguments to misinformation and raising awareness of negative emotional appeals leveraged by anti-vaccine campaigns.”⁴² Increasing

³⁹Linda C. Karlsson et al., “Fearing the Disease or the Vaccine: The Case of COVID-19,” *Personality and Individual Differences* 172 (December 14, 2021): p. 110590, <https://doi.org/10.1016/j.paid.2020.110590>.

⁴⁰Amiel A. Dror et al., “Vaccine Hesitancy: the next Challenge in the Fight against COVID-19,” *European Journal of Epidemiology* 35, no. 8 (2020): pp. 775-779, <https://doi.org/10.1007/s10654-020-00671-y>.

⁴¹Sahil Loomba et al., “Measuring the Impact of COVID-19 Vaccine Misinformation on Vaccination Intent in the UK and USA,” *Nature Human Behaviour*, February 5, 2021, <https://doi.org/10.1038/s41562-021-01056-1>.

⁴²Wen-Ying Sylvia Chou and Alexandra Budenz, “Considering Emotion in COVID-19 Vaccine Communication: Addressing Vaccine Hesitancy and Fostering Vaccine Confidence,” *Health Communication* 35, no. 14 (2020): pp. 1718-1722, <https://doi.org/10.1080/10410236.2020.1838096>.

public awareness of common tactics of misinformation combined with correct and factual information can make individuals feel more autonomous and less intellectually manipulated.

Given the powerful impact and pervasiveness of vaccine misinformation and disinformation, government leaders and healthcare providers are faced with a significant challenge when educating the public. First, one must get to the root of why hesitancy is occurring. Given that one of the major concerns about COVID-19 vaccines is the speed at which they have been developed, “educational campaigns should focus on alleviating this apprehension in particular.”⁴³ It would be a misstep to ignore the emotional aspects of these responses. Many have lost loved ones, faced unemployment, or been otherwise negatively impacted by the pandemic. A seemingly “quick fix” may feel alarming to many, especially communities that face healthcare discrimination. Public health approaches aimed at building up trust in vaccines need to address “community-specific concerns or misconceptions, address historic issues breeding distrust and be sensitive to religious or philosophical beliefs.”⁴⁴ Minority populations, for example, have been disproportionately impacted by the pandemic and in general, vaccinate less frequently than majority groups.⁴⁵ Vaccine hesitancy persists in these communities for reasons including “limited access to primary care, failure of clinical staff to communicate the importance of vaccination during health care visits, and/or misconceptions about the costs, adverse effects, risks, and benefits of vaccination.”⁴⁶ It is critical to have empathy and respond in a manner that caters to the emotional aspects of vaccination and validate the presence of fear. Effective education campaigns on misinformation tactics and realities of vaccine testing safety from local leaders, especially in minority communities, can increase trust in receiving the vaccine.

Positive Uses of Fear

Fear typically holds negative connotations, but some forms of fear can actually be beneficial. A distinction needs to be drawn between fear and panic. For the sake of this chapter, fear refers to an awareness of the dangers one faces and concern for one’s well-being. In contrast, panic would be best described simply as fear that is out of control, that behaves without forethought, and that does not allow for intervention. Panic can be seen in the looting and hoarding of supplies, and violence directed at fellow citizens. The proposed method to achieve constructive fear instead of panic is a balance

⁴³Amiel A. Dror et al., “Vaccine Hesitancy: the next Challenge in the Fight against COVID-19,” *European Journal of Epidemiology* 35, no. 8 (2020): pp. 775-779, <https://doi.org/10.1007/s10654-020-00671-y>.

⁴⁴Jeffrey V. Lazarus et al., “A Global Survey of Potential Acceptance of a COVID-19 Vaccine,” *Nature Medicine*, 2020, <https://doi.org/10.1038/s41591-020-1124-9>.

⁴⁵Jamie Murphy et al., “Psychological Characteristics Associated with COVID-19 Vaccine Hesitancy and Resistance in Ireland and the United Kingdom,” *Nature Communications* 12, no. 1 (April 2021), <https://doi.org/10.1038/s41467-020-20226-9>.

⁴⁶ Ibid.

between fear and hope. Fear without hope has no outlet or actionable solution and can easily slip into mob mentalities on a collective level. In order to reach global herd immunity, it is necessary for people to have a two pronged understanding of the coronavirus: on the one hand, the virus is a threat and should be treated as such; on the other hand, individuals must recognize their own power to limit the spread of COVID-19 by evaluating their behavior.

Fear is a positive tool when it comes to matters in which people feel a sense of agency, and can elicit change. Fear without a sense of hope can result in needless panic and takes away numerous positive effects of healthy levels of fear. To reach a favorable balance between fear and inflamed tensions, it is paramount to promote “positive and emotion-based messages” alongside “fear-based appeals” in order to maintain concern for one’s safety but also hope for progress.⁴⁷ When using fear as a tool, allowing audiences to still feel empowered and hopeful is essential. The use of fear and grave messaging will elicit the “greatest behaviour change only when people feel a sense of efficacy, whereas strong fear appeals with low-efficacy messages produce the greatest levels of defensive responses.”⁴⁸ Presenting the deadly nature and severity of the COVID-19 virus without indicating that there are actionable steps to be taken to protect oneself can cause panic or the direct rejection of proposed safety guidelines. In contrast, fear with a sense of efficacy combines the knowledge of the threat COVID-19 poses to one’s livelihood, while also empowers individuals to take steps to stop the spread.

Countries such as the United States that failed to perceive the coronavirus as a legitimate threat eventually became overwhelmed with COVID-19 cases due to the passivity of the government and its citizens. It is important that the public understands that the virus is serious and dangerous to their health and livelihood in order for them to comply with life-saving policies. There should be a balance between fear and accurate knowledge in order to encourage active participation in combating the spread of the virus. Consistent messaging in tandem with a full picture of the severity of the virus can positively impact adherence to government-mandated standards.

Language, Framing, and Rhetoric

Rhetoric is often an undervalued skill that can be effective in encouraging or discouraging compliance with COVID-19 policy. Language choice in this context refers to the way careful selection of words can lead to more effective policy. The public must recognize the severity of the virus and how the virus is

⁴⁷Abrar Al-Hasan, Dobin Yim, and Jiban Khuntia, “Citizens’ Adherence to COVID-19 Mitigation Recommendations by the Government: A 3-Country Comparative Evaluation Using Web-Based Cross-Sectional Survey Data,” *Journal of Medical Internet Research* 22, no. 8 (November 2020), <https://doi.org/10.2196/20634>.

⁴⁸Jay J. Bavel et al., “Using Social and Behavioural Science to Support COVID-19 Pandemic Response,” *Nature Human Behaviour* 4, no. 5 (2020): pp. 460-471, <https://doi.org/10.1038/s41562-020-0884-z>.

framed as it can affect how the public views policies and recommendations. China serves as an excellent case study for the ways tailored language can cater to specific country values.

China's response and framing of the pandemic are consistent with its often nationalistic goals. Down to specific word choices, China has carefully framed the pandemic as a battle against a common enemy. The government's public health-related messaging frequently utilized terms such as "containment campaign (*zujì zhan*), total war (*zongti zhan*), battle of annihilation (*jianmie zhan*), and people's war (*renmin zhanzheng*)."⁴⁹ Given the importance of nationalism and unity in China, war-indicative discourse is an effective way to mobilize the nation against a clear threat and enemy, the virus. Such phrasing invokes the "communist armed struggle in the revolutionary era" which has become a common theme in crisis discourse for China.⁵⁰ The severity in the language choice also helps to convey how seriously the government is taking COVID-19: it is a clearly named threat that will be responded to with swift action. It also directs anger and fear at the virus itself, rather than citizens, the lockdown, or the government. The use of culturally specific phrases and values to encourage compliance demonstrates the need to tailor language as well as broader COVID-19 planning to country-specific needs.

Avoiding invoking shame is key in ensuring accurate reporting and taking into account that extraordinary circumstances may lead to noncompliance. Given the breadth of information circulating about the pandemic, health officials should emphasize delivering concise and simple guidelines and advice.⁵¹ This is relevant to areas with low literacy rates and amongst communities with minority language-speaking populations. As well, it is advisable to recognize that risk will not be avoidable for all given circumstances relevant to class, gender, and other differences. Phrasing vaccination campaigns in a similar manner to the US' "abstinence education or 'just say no,' by simply telling people to stay home during the pandemic can stigmatize certain behaviors and discourage candid discussion about risk."⁵² Expressing flexibility within public statements while still emphasizing risk allows individuals to engage in decisions that acknowledge their individual autonomy while also being informed of the dangers they face.

Phrasing can also have negative effects when done incorrectly. When approaching the topic of vaccines, word choice can have major impacts, given the topic's polarizing nature. A prominent example of dangerous word choice is the name of the US' vaccine initiative. The name "Operation Warp Speed" is

⁴⁹Alex Jingwei He, Yuda Shi, and Hongdou Liu, "Crisis Governance, Chinese Style: Distinctive Features of China's Response to the Covid-19 Pandemic," *Policy Design and Practice* 3, no. 3 (February 2020): pp. 242-258, <https://doi.org/10.1080/25741292.2020.1799911>.

⁵⁰ Ibid.

⁵¹Wesley Thompson Emily Gee, "A Communications Strategy to End the COVID-19 Pandemic," Center for American Progress (Center for American Progress, December 14, 2020), <https://www.americanprogress.org/issues/healthcare/news/2020/12/14/493777/communications-strategy-end-covid-19-pandemic/>.

⁵² Ibid.

particularly troubling when there are existing fears of vaccines. Given the concerns that the vaccine was being rushed, a name that invokes rather reckless speed would only reinforce the idea that there was not enough care put into developing the vaccine. This oversight was best described by Bruce Gellin, president of Sabin Vaccine Institute: “What is a worse name for something that's supposed to give you trust in a product that you want everybody to take?”⁵³ While the world steers toward vaccine distribution, government and public health officials should take heed to not fan existing tensions. There should be an effort to put forth language that is indicative of choice and hope. Instead of playing into existing hesitancy, “[f]raming vaccination as a concrete, actionable strategy to reduce COVID-19 risk may help to address negative emotions, increase self-efficacy... and highlight feelings of control over reducing COVID-19 risk.”⁵⁴ Language that evokes safety, altruism, and rigorous testing are valuable, while phrases associated with speed, politics, and a lack of autonomy may be perceived as threatening. Although it is a challenging balancing act, rhetoric plays a crucial role in either increasing or decreasing vaccination support.

Policy Recommendations

When making recommendations to encourage policy adherence, they must be tailored to the cultural context of the country. A one-size-fits-all approach to the global pandemic is not likely to be successful. However, there are general themes that can be adapted to a variety of cultures, making them useful non-country-specific recommendations. Recommendations specific to Cambodia are also included, although the country may also find benefits from the general recommendations.

Recommendations for Cambodia:

1. *Maintain close contact with local and religious leaders.*

In the case of Cambodia, local sources of power are considered more trustworthy. According to the Cambodian Development Resource Institute, “Cambodians trust social service providers (schools and hospitals) and local authorities more than the police, courts, media and politicians.”⁵⁵ Given the priority of local power sources over the government, efforts should be made to support leaders at the local level. Funds, educational resources and public praise can both increase trust in vertical powers as well as support existing important areas of trust.

2. *Avoid using the Pandemic for further political gain.*

⁵³Warren Cornwall, “Officials Gird for a War on Vaccine Misinformation,” *Science* 369, no. 6499 (February 2020): pp. 14-15, <https://doi.org/10.1126/science.369.6499.14>.

⁵⁴Wen-Ying Sylvia Chou and Alexandra Budenz, “Considering Emotion in COVID-19 Vaccine Communication: Addressing Vaccine Hesitancy and Fostering Vaccine Confidence,” *Health Communication* 35, no. 14 (2020): pp. 1718-1722, <https://doi.org/10.1080/10410236.2020.1838096>.

⁵⁵Eng Netra et al., “Cambodia’s Young and Older Generation: Views on Generational Relations and Key Social and Political Issues” (Phnom Penh: Cambodia Development Resource Institute, 2019), pp. 1-72.

Separating political agendas from the pandemic keeps the public's focus on mitigating the pandemic and aids in unifying messaging regardless of party affiliation. Governments should avoid using the pandemic as an excuse to achieve political ends, as it may reduce their credibility. According to English language media, young people in Cambodia tend to be more "forward looking and have higher expectations of the government" than their predecessors.⁵⁶ They also use social media to voice their dissatisfaction with the government more than previous generations. Censorship attempts may only enflame these tensions and pose a threat to vertical trust for generations to come.

3. *Treat the pandemic as an opportunity to increase vertical trust.*

Cambodia has made strides during the pandemic to increase vertical trust, and should carry on this momentum to increase trust long term. The pandemic has posed a unique opportunity for leaders to prove themselves to the public and is an area where Cambodia has made strides. Prime Minister Hun Sen has opted to publicly receive the vaccine as a move to build confidence in the vaccine and to "push the Cambodian public to get vaccinated."⁵⁷ This is an effective example of leading by example, and using powerful figures to demonstrate that everyone must play their part in slowing the spread. Furthermore, Cambodia has demonstrated support for its populations with the IDPoor subsidy programme which has been well received by citizens.⁵⁸ Continuing support for those in need and continued efforts to take the pandemic seriously can increase vertical trust to outlast the pandemic.

General recommendations:

1. *Increase vertical trust.*

More broadly, in order to increase vertical trust, governments need to be attentive to the needs of their citizens and willing to fulfill promises made to them.. This can be achieved by building connections with horizontal leaders to increase knowledge of what constituents want from their government.

Additionally, this strategy serves to educate local leadership on government-mandated measures and strategies to better educate communities.

2. *Lead by example and highlight positive action.*

⁵⁶ Len Ang and Kimkong Heng, "COVID-19: An Opportunity for the Cambodian Government to Earn Trust," E-International Relations (E-International Relations, July 21, 2020), <https://www.e-ir.info/2020/07/21/covid-19-an-opportunity-for-the-cambodian-government-to-earn-trust/>.

⁵⁷ "Cambodian Prime Minister Hun Sen to get inoculated with AstraZeneca vaccine on 4 March 2021." *Khmer Times (Cambodia)*, February 28, 2021. *NewsBank: Access World News – Historical and Current*. <https://infoweb-newsbank-com.offcampus.lib.washington.edu/apps/news/document-view?p=WORLDNEWS&docref=news/180F40FE0DE44640>.

⁵⁸ Kimkong Heng, "COVID-19 Enhances Prime Minister Hun Sen's Legitimacy," *AVI Commentary*, no. 2020 (December 8, 2020): pp. 1-3, <https://asianvision.org/archives/publications/avi-commentary-issue-2020-no-36-covid-19-enhances-prime-minister-hun-sens-legitimacy>.

Local leadership can also serve to increase trust in health measures. By appearing in advertisements, propaganda, and public vaccination campaigns, governments can “lead by example.” In terms of developing interpersonal trust, as opposed to highlighting those who are not complying with mandates, promoting collective action and highlighting compliance can increase support for policy adherence.

3. Address misinformation through educational campaigns and promote quality journalism.

When tackling the rising issue of misinformation and disinformation, a careful balance is needed to ensure that the government does not infringe on personal freedoms. Promoting quality journalism in the long term will be a durable strategy for combating fake news. Opting for more long-term strategies such as education campaigns on misinformation tactics can increase the public’s recognition of attempts to manipulate them and in return provide autonomy over their consumption of information.

4. Take language choices into account when naming programs or interacting publicly with citizens.

Misinformation can also be targeted by the careful use of rhetoric. Emotion-based tactics can promote vaccination and compliance with policies to those who are more opposed to complicated scientific explanations. For example, emphasizing how *not* getting immunized against COVID-19 prevents individuals from seeing family members, attending parties, or even finding love caters to emotional aspects of the pandemic.⁵⁹ Some individuals under the sway of idolized leaders, especially those distrustful of science or the government, may be averse to messaging that feels overly complicated or authoritarian. Instead, portraying the vaccine and health policies in ways that appeal to pathos tends to be more effective.

The importance of careful language choice is also relevant when it comes to naming programs and public health campaigns. As evidenced by the mistake of “Operation Warp Speed” in the US and the success of the “people’s war” rhetoric in China, linguistic choices have a significant impact.

Culturally-specific and collectivist language can promote cooperation and help distinguish a common threat of the virus. Meanwhile, language that inflames feelings of panic can limit progress.

Concluding Remarks

No matter what specific public health measures a country implements, communication and trust are essential to policy promotion and adherence. As the pandemic wages on, effective communication strategies is critical to maintaining adherence, especially as fatigue sets in. While many countries are still struggling to find their stride, others have surpassed expectations and achieved low numbers of cases and deaths. However, fully eradicating the COVID-19 virus on a global level seems to be a distant reality.

⁵⁹Warren Cornwall, “Officials Gird for a War on Vaccine Misinformation,” *Science* 369, no. 6499 (February 2020): pp. 14-15, <https://doi.org/10.1126/science.369.6499.14>.

In the meantime, public health policy reception and vaccine acceptance must be fortified. By using all available sources of trust, depoliticizing the virus, limiting the spread of misinformation, and fostering trust in vaccines, countries can take one step closer to ending the pandemic.

Chapter 4: Public Health Policy

Harper Zhu and Chuyi Cai

Introduction

What makes a successful COVID-19 policy response? What public health measures have been most effective in mitigating the effects of the pandemic? This chapter explores the causes and consequences of public health policy in response to the pandemic, and the extent of its impact on the ability to control the spread of the virus. Upon examination of how countries have handled the pandemic, successful worldwide COVID-19 responses have had less to do with pre-existing healthcare infrastructure, and more to do with public health response strategy. For example, while the United States has a highly developed and advanced medical infrastructure, lack of a stringent and enforced policy resulted in an explosion of case numbers and deaths. On the other hand, Cambodia, a country with weak public health infrastructure and lack of access to medical resources, was able to control the impacts of COVID-19 relatively successfully—through fast-acting and effective policy measures. However, as Cambodia begins to experience a new spike in cases, it is important to consider the country's options and challenges for handling larger-scale outbreaks. This chapter will first identify Cambodia's limitations in terms of public health infrastructure, and will discuss challenges that Cambodia may face against future outbreaks and the more transmissible and infectious COVID-19 variants. Then, the chapter will analyze the grounds for what makes an effective public health policy response, with a focus on the case studies of New Zealand and Sweden. These preventive measures will be cross-compared with Cambodia's pandemic trajectory, research reports, and case studies to measure effectiveness. This chapter will then investigate the success of measures to implement effective contact tracing such as temperature screening, mass COVID-19 testing, as well as virus-tracking technology, with an analysis of China and South Korea. Finally, this chapter will aim to produce policy recommendations designed specifically for Cambodia that address effective public health policy response, the digitalization of contact-tracing, and the enhancement of case identification.

Cambodia's Challenges to Address New Outbreaks

Cambodia has been internationally recognized for its handling of the COVID-19 pandemic. While many developed countries with advanced public health infrastructure have reported large numbers of infected cases and mortalities, Cambodia has maintained one of the lowest numbers of confirmed cases, with a

total of 909 cases, and zero COVID-19 related deaths, as of March 3, 2021.¹ It should be noted, however, that due to minimal testing resources in Cambodia since the start of the pandemic, these numbers are not definite and only represent confirmed case identifications. The country's first COVID-19 case was diagnosed on January 27, 2020.² Cambodia has had a relatively stable diagnostic trajectory, with 4 small-scale breakouts (less than 30 cases each) in March, July, November, and December of 2020.³ These outbreaks have been contained and reduced to zero roughly within a 30 to 40 day period.⁴ Through its low numbers of positive diagnosis and mortality rate, Cambodia has demonstrated its ability to contain the spread of the virus. However, Cambodia remains vulnerable against the next wave of more contagious and infectious new variants, especially in certain aspects related to Cambodia's healthcare infrastructure and poverty situation. Recently, Cambodia has been experiencing its highest surges of daily confirmed cases, as a result of the "February 20" outbreak.⁵ With 150 confirmed active COVID-19 cases as of February 25, 2021, these are the highest numbers the country has seen at one time since the start of the pandemic.⁶ With this new outbreak, Cambodia has experienced hospitals reaching full capacity. A Health Ministry official stated that "Phnom Penh hospitals were currently at capacity for handling Covid-19 patients, and new patients would be sent to Kandal and Kampong Speu provinces while the ministry prepares more space for them."⁷ Thus, a new challenge for Cambodia will be to effectively control their biggest outbreak since the pandemic while managing hospital space for the ill.

Even though Cambodia has worked closely with the World Health Organization (WHO) and other international organizations in the past ten years to make extensive investments in their domestic health security system,⁸ the country still falls short in terms of public health infrastructure. According to the WHO, the leading insufficiency in the Cambodian medical system is the number of hospitals available in the country.⁹ Per 10,000 people, there is an average of 0.57 general hospitals.¹⁰ Among existing

¹ Roser, Max, Hannah Ritchie, Esteban Ortiz-Ospina, and Joe Hasell. "Cambodia: Coronavirus Pandemic Country Profile." Our World in Data, May 26, 2020. <https://ourworldindata.org/coronavirus/country/cambodia?country=~KHM>.

² Cambodia: Who Coronavirus Disease (COVID-19) Dashboard. (n.d.). Retrieved February 28, 2021, from <https://covid19.who.int/region/wpro/country/kh>

³ Ibid.

⁴ Ibid.

⁵ Leakhena, Khan. "Phnom Penh Hospitals at Capacity for Covid-19 Patients: Health Ministry." VOD, February 24, 2021. <https://vodenglish.news/phnom-penh-hospitals-at-capacity-for-covid-19-patients-health-ministry/>.

⁶ Ibid.

⁷ Ibid.

⁸ "The First 100 Days of the COVID-19 Response: Past Investments in Health Security System Pay off, and Learning Lessons for the Future." World Health Organization. World Health Organization, May 29, 2020. <https://www.who.int/cambodia/news/feature-stories/detail/the-first-100-days-of-the-covid-19-response-past-investments-in-health-security-system-pay-off-and-learning-lessons-for-the-future>.

⁹ "The Kingdom of Cambodia Health System Review." World Health Organization. World Health Organization, January 1, 1970. <https://apps.who.int/iris/handle/10665/208213>.

¹⁰ Ibid.

hospitals, there is less than one hospital bed available per 1,000 people.¹¹ Current funding is inadequate to support a large inventory of critical-care equipment and resources such as MRI scanners, CT scanners, and ventilators. Critical-care equipment and acute care availability are essential to combating COVID-19, as about 15% of COVID-19 patients require hospitalization, while 5% require a combination of oxygen and intensive care.¹² Failure to provide sufficient hospital beds or critical-care equipment can hinder sufficient treatment, thus potentially increasing the mortality rate.¹³

The second challenge for Cambodia is medical resource distribution, due to centralization of health care and insufficient public transportation infrastructure. Cambodia is a predominantly rural society. An estimated 84.3% of Cambodia's population is spread across rural areas, with the remaining 15.7% living predominantly in Phnom Penh.¹⁴ Unlike the demographic layout, medical resources are primarily centralized in urban areas. Cambodia has experienced allocative inefficiencies to medical resources such as ventilators - which are centralized in urban areas, while the majority of the population resides in rural areas.¹⁵ Furthermore, residents in rural areas have to rely on Health Posts, which are the lowest echelon in the public health system. They are located in remote areas with each post covering 2000-3000 people, and are distant (>15 km) from the closest Health Centre¹⁶. Thus, residents in these remote regions of the country may not have timely access to appropriate medical treatment, which could result in higher mortality rates during larger-scale outbreaks. In order to address the imbalance of medical resource allocation across urban and rural areas, the government should decentralize medical resources, hospital staff, and healthcare equipment. In the long-term, public health infrastructure should continue to develop and expand, especially in rural areas to balance out demographic spread.

Another challenge for Cambodia is the implementation of preventive measures for marginalized groups. In Phnom Penh, there is a large number of informal settlements, known as slums. Inhabitants in informal settlements have a greater risk of becoming infected due to limited living space, geographic isolation, as well as lack of sanitation, hygiene, and clean water. These informal settlements are geographically

¹¹ "The Kingdom of Cambodia Health System Review." pp.117

¹² "Coronavirus Disease (COVID-19)." World Health Organization. World Health Organization, October 12, 2020. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19>.

¹³ Ibid.

¹⁴ Fallavier, Pierre. United Nations Human Settlements Programme. The Challenge of Slums : Global Report on Human Settlements, 2003. London ; Sterling, VA: Earthscan Publications, 2003.pp.222-223

¹⁵ "Rural Population (% of Total Population) - Cambodia." Rural population (% of total population). The World Bank Data Bank . Accessed March 2, 2021. <https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?end=2019&locations=KH&start=1960&view=chart>.

¹⁶ "The Kingdom of Cambodia Health System Review." pp.23

isolated due to flooding and lack of electricity, public lights, and road access.¹⁷ Furthermore, because there is an absence of governmental communication in these areas, inhabitants have very limited knowledge or means to practice basic preventive health measures such as social-distancing and mask-wearing. The CDC suggests that individuals practice social distancing of 6-feet in order to lower the risk of transmission.¹⁸ However, the informal settlements in Phnom Penh are usually made up of clusters of families living in small shelters, or squatters living in dilapidated buildings. Shelters in the slums are crowded and cramped, making social-distancing nearly impossible. In addition, geographic isolation also creates difficulties in distributing vaccines to these informal settlements. Lastly, inhabitants usually have little access to safe drinking water and sanitation facilities, which are also risk factors considering that the COVID-19 virus can be transmitted through drinking water and feces.¹⁹ Cambodia should be aware of the limitations for these marginalized groups to comply with public health measures. These groups should be taken into careful consideration and monitored for COVID-19 outbreaks in order to mitigate national spread of the virus.

Finally, another difficulty that has been exacerbated due to the COVID-19 pandemic in Cambodia is the issue of malnutrition and poverty. The pandemic has made it more economically challenging for families to afford food and to consume healthy diets. According to the WHO, “Cambodia is one of the countries with the highest malnutrition rates in the region, with 32% of children under five identified as stunted and 10% identified as wasted.”²⁰ Although access to food has not been greatly impacted by COVID-19, the aggravated economic circumstances have forced people to reduce food intake, borrow food, and depend on cheaper and less nutritious options.²¹ Malnutrition has been a long standing issue in Cambodia, and the country has worked hard in the past several years to improve the situation, but COVID-19 is “putting that progress in jeopardy.”²² Being able to address malnutrition as the pandemic continues will be critical for Cambodia in the coming years.

¹⁷Fallavier, Pierre. “(PDF) Urban Slums Report: The Case of Phnom Penh, Cambodia.” ResearchGate. Earthscan, January 1, 2003. https://www.researchgate.net/publication/200538441_Urban_Slums_report_The_case_of_Phnom_Penh_Cambodia.

¹⁸ “How to Protect Yourself & Others.” Centers for Disease Control and Prevention. Centers for Disease Control and Prevention. March 5, 2021. <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>.

¹⁹ Pierre Fallavier, United Nations Human Settlements Programme. *The Challenge of Slums : Global Report on Human Settlements*, 2003. London ; Sterling, VA: Earthscan Publications, 2003 https://www.ucl.ac.uk/dpu-projects/Global_Report/pdfs/PhnomPenh.pdf

²⁰ “Going Hungry – How COVID-19 Has Harmed Nutrition in Asia and the Pacific.” World Health Organization. World Health Organization. Accessed March 5, 2021. <https://www.who.int/cambodia/news/detail/01-02-2021-going-hungry-how-covid-19-has-harmed-nutrition-in-asia-and-the-pacific>.

²¹ Ibid.

²² Ibid.

Although the challenges identified above could pose a potential threat to Cambodia’s ability to combat new outbreaks and new variants, Cambodia has also developed resources that have aided its fight against the first wave of the pandemic, such as a surveillance system for early detection of infectious disease and gathering epidemiological information. The surveillance system is not limited to only event-based and indicator-based surveillance, but it also includes risk assessments, medical database, rapid response teams, and national laboratory capacity.²³ These systems have enabled the government to detect and identify the emergence of confirmed cases and assess the situation to come to a rapid response. In addition to the surveillance system, Cambodia has also established a Rapid Response Team (RRT) composed of 2,910 medical staff responsible for contact tracing at national, provincial, district, and health center levels.²⁴ The RRT will verify any suspected case reports while at the same time conducting field investigations on any clusters or hotspot of confirmed cases. These achievements do not only enable Cambodia for a timely response, but also lay a foundation for future possibilities of improving and learning in Cambodia’s response policy as the pandemic continues to progress. This section has outlined the limitations that Cambodia may face in terms of medical resource allocation, hospital space, marginalized groups, and economic challenges causing malnutrition. Cambodia should keep these constraints in mind when future outbreaks occur, and continue to develop technology and medical teams for effective case identification.

Evaluating Public Health Policy Response

The epidemic trajectory in Cambodia has been steadily low with only small-scale breakouts in short timeframes, except for the country’s most recent “February 20 outbreak” of larger scale.²⁵ The first smaller clusters of confirmed cases were quickly contained: as Cambodia’s statistics indicated, in mid-March Cambodia was having daily positive cases ranging from 5-15, and by mid-April, the daily confirmed cases had reduced to zero.²⁶ It is evident that Cambodia was able to control the spread of the virus and contain transmission early on. Cambodia had successfully implemented many preventive measures advocated in the WHO’s technical guidelines, such as strict lockdowns, travel restrictions, and mask mandates, which allowed for such high success in containing the spread of the virus. The continuance of these key successes in non-pharmaceutical interventions will be essential in the

²³ “The First 100 Days of the COVID-19 Response: Past Investments in Health Security System Pay off, and Learning Lessons for the Future.” World Health Organization. World Health Organization, May 29, 2020. <https://www.who.int/cambodia/news/feature-stories/detail/the-first-100-days-of-the-covid-19-response-past-investments-in-health-security-system-pay-off-and-learning-lessons-for-the-future>.

²⁴ Ibid.

²⁵ Ibid.

²⁶ “Cambodia.” Worldometer, March 5, 2021. <https://www.worldometers.info/coronavirus/country/cambodia/>.

prevention and management of new variants and outbreaks. This section will analyze Cambodia's implementation of public health measures such as travel restrictions and mass lockdowns. Through the comparison of two case studies, New Zealand and Sweden, this section will examine the factors that have allowed countries to implement effective public health policy responses that have resulted in low case numbers and deaths.

External Travel Restrictions

At the initial stage of the outbreak, a national action plan was created in collaboration with the WHO, CDC, and the Cambodian Ministry of Health (MOH) to prioritize the reduction and delay of viral transmission.²⁷ With clearly defined goals and strategic approaches, timely external travel restrictions including banning international entry, were imposed by the Cambodian government at the start of the pandemic. Cambodia implemented border restrictions with neighboring countries, such as Vietnam and Thailand, and suspended all inbound flights coming from countries that had identified cases of COVID-19, such as Malaysia and the Philippines.²⁸ Early restrictions on international travel also included temporary suspension of citizen entry from high-risk countries including the United States, France, Germany, Italy, and Spain.²⁹ In a statement from March 27, 2020 the government imposed a temporary suspension on visa exemption policy and issuance of tourist visas, e-visas, and visas upon arrival to all foreigners for a period of one month.³⁰ On May 20, 2020, the government of Cambodia mandated a 14-day quarantine for all travelers, both citizens and foreign nationals, arriving in Cambodia.³¹ Furthermore, foreigners were required to possess a medical certificate certifying a negative COVID-19 status issued by medical authority within 72 hours prior to arrival in Cambodia.³² Data shows the effects that these travel restrictions had on containing the spread of the virus. For example, in late March, case numbers reached their peak, then steadily dropped after travel restrictions and border controls were

²⁷ Hydernareth, Ziauddin, and Nareth Iy. "What Explains Cambodia's Effective Emergency Health Response to COVID-19 (Coronavirus)?" World Bank Blogs, November 19, 2020.

<https://blogs.worldbank.org/health/what-explains-cambodias-effective-emergency-health-response-covid-19-coronavirus>.

²⁸ "Cambodia: Authorities Tighten COVID-19 Restrictions November 8 /Update 12." GardaWorld, November 10, 2020.

<https://www.garda.com/crisis24/news-alerts/398076/cambodia-authorities-tighten-covid-19-restrictions-november-8-update-12>.

²⁹ "Timeline Of Who's Response To Covid-19 In Cambodia". World Health Organization. World Health Organization. Updated on 19 October 2020.

https://www.who.int/docs/default-source/wpro---documents/countries/cambodia/covid-19/timeline-of-who-response-to-covid-19-in-cambodia.pdf?sfvrsn=53b73753_2

³⁰ "Cambodia to Impose Travel Restrictions from Tuesday." Khmer Times, March 29, 2020.

<https://www.khmertimeskh.com/706863/cambodia-to-impose-travel-restrictions-from-tuesday/>.

³¹ "Information on Cambodia Travel Restrictions." Royal Embassy Of Cambodia To The United States Of America In Washington D.c., June 5, 2020. <https://www.embassyofcambodiadc.org/embassy-updates/information-on-cambodia-travel-restrictions>.

³² "Coronavirus (COVID-19) Related Travel Guide for Cambodia." Office Holidays. Office Holidays Ltd., July 2, 2020. <https://www.officeholidays.com/coronavirus/cambodia>.

implemented. By April 21, all positive cases were temporarily cleared.³³ Maintaining strict border controls and external travel restrictions as Cambodia completes comprehensive vaccination will continue to be essential for Cambodia's COVID-19 prevention and preparedness, as it is clearly effective in reducing the risk of importation and exportation of cases. The country's swift implementation of travel restrictions and border lockdowns allowed for the minimization of viral spread.

Further research on the correlation between pandemic progression and border controls in Europe continue to demonstrate the importance of travel restrictions. The WHO advises against international travel in its public health guidance regarding COVID-19 pandemic, as it can potentially carry the risk of importation or exportation of cases from country to country.³⁴ Researchers at Humboldt University in Berlin produced a report intending to determine whether border control has a measurable performance in epidemic control.³⁵ The report collected daily confirmed new COVID-19 cases from statistical agencies of 18 Western European countries from the period of March 2, 2020 to April 26.³⁶ The research report concluded that border controls are effective for containing the spread COVID-19, particularly in regions with substantial cross-border activities. During the initial two weeks of the selected period, the sample region witnessed a rapid spread across borders. However, when cross-border activities were suspended the following weeks, there were reductions in new confirmed cases in multiple countries in the region. Statistical research models further support this claim: the PPML estimator suggests that border controls contribute to a 25% reduction in new daily confirmed cases, while the INLA approach suggested a 6% reduction.³⁷ Thus, this evidence suggests that border controls and imposing travel restrictions have a measurable impact on the containment of pandemic spread.

Implementation of Lockdowns

The WHO advises large-scale physical distancing measures and movement restrictions, which helps to reduce transmission by limiting contact between people.³⁸ Cambodia imposed restrictions on domestic traveling and implemented lockdown to prevent mass spreading. On March 16, 2020, approximately six weeks after first reporting positive diagnoses, all educational institutions were closed until late

³³ Roser, Max, Hannah Ritchie, Esteban Ortiz-Ospina, and Joe Hasell. "Cambodia: Coronavirus Pandemic Country Profile." Our World in Data, May 26, 2020. <https://ourworldindata.org/coronavirus/country/cambodia?country=~KHM>.

³⁴ "Public Health Considerations While Resuming International Travel." World Health Organization. World Health Organization, July 30, 2020. <https://www.who.int/news-room/articles-detail/public-health-considerations-while-resuming-international-travel>.

³⁵ Eckardt, Matthias, Kalle Kappner, and Nikolaus Wolf. "Covid-19 across European Regions: The Role of Border Controls." VOX, CEPR Policy Portal. VoxEU & CEPR, November 4, 2020. <https://voxeu.org/article/covid-19-across-european-regions-role-border-controls>.

³⁶ Ibid.

³⁷ Ibid.

³⁸ "Coronavirus Disease (COVID-19): Herd Immunity, Lockdowns and COVID-19." World Health Organization. World Health Organization, December 31, 2020. <https://www.who.int/news-room/q-a-detail/herd-immunity-lockdowns-and-covid-19>.

November 2020, and any gatherings or meetings with over 50 attendees were banned.³⁹ On April 9, 2020, Prime Minister Hun Sen ordered one week of travel restrictions and avoidance of mass gatherings during Cambodia's new year holiday.⁴⁰ Restrictions were imposed on any residents leaving or entering Phnom Penh, travel between provinces and districts was also banned.⁴¹ These strict lockdown measures contributed to Cambodia's success of managing outbreaks and effectively containing the virus. In order to deepen the analysis of what makes for an effective public health policy response, the comparison of two case studies, New Zealand and Sweden, will be used and evaluated to determine success in handling the pandemic.

Policy Responses and Public Health Measures: New Zealand

New Zealand has been one of the few nations around the world that was able to successfully contain and prevent the spread of COVID-19. Official statistics indicates that New Zealand has experienced a total of 2357 cases among a population of 4.917,⁴² (0.04% of the population infected), 2277 recovered cases (97% of total infected population), 26 death cases (3% of the total infected population), and an average of only 2 new cases each week.⁴³ Such a low infection rate and high percentage of recovery among the infected population has proven the efficacy and success of New Zealand's policy response to the pandemic.

New Zealand implemented a centralized planning strategy to combat the spread of the virus. This coordinated governmental effort was formed by the nation's Ministry of Health, as well as the national emergency response organizations including all ministries and government agencies. Even with a stringent policy response to COVID-19, popular support remained high with the government's effective and transparent efforts to keep the public informed about the trend of pandemic and the policy response. In addition, to deepen the trust between the public and the government, an alert system was introduced during the beginning of the outbreak in March 2020 to help people understand the current level of risk and legal restrictions.

New Zealand's case shows that a stringent and quick lockdown policy during the beginning of the outbreak was its key to success. When more than three new cases were identified in the country, the

³⁹"Timeline Of Who's Response To Covid-19 In Cambodia". World Health Organization.

⁴⁰ Ibid.

⁴¹ Turton, Shaun. "Cambodia Issues Order Banning Travel to and from Phnom Penh." Nikkei Asia. Nikkei Asia, April 9, 2020. <https://asia.nikkei.com/Politics/Cambodia-issues-order-banning-travel-to-and-from-Phnom-Penh>.

⁴² "New Zealand Metadata." The World Bank - Data Bank. Accessed February 22, 2021. <https://data.worldbank.org/country/new-zealand>.

⁴³ "COVID-19 – current cases". Ministry of Health (New Zealand). 2 February 2021. Retrieved 2 February 2021. <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-data-and-statistics/covid-19-current-cases>

highest level of lockdown was imposed. People were instructed to stay at home other than for essential purposes, and travel was severely limited. All gatherings were cancelled and all public venues closed, with a two meter strict social distancing mandate legally required in public.⁴⁴ Businesses were shut down except for essential services such as grocery stores, pharmacies, clinics, petrol stations, and lifeline utilities.⁴⁵ Educational facilities closed, while the rationing of supplies, requisitioning of facilities, and reprioritization of healthcare services were implemented wherever needed.

Travel restrictions served as a preventive measure for new cases brought by oversea travel. Before travelers entered New Zealand, they needed proof of a COVID-19 test within 72 hours before departure⁴⁶. In addition, isolation vouchers were created and utilized by the New Zealand government to keep track of traveler influx. Travelers had to create an account on the government website, book an isolation accommodation before purchasing their flight, and present a voucher. Upon arrival in New Zealand, there was a 14 day quarantine requirement, and compliance was checked and tracked through the vouchers.

Another critical element that aided New Zealand's success was the implementation of rigorous testing measures. Anyone experiencing COVID-19 symptoms could schedule a testing appointment, and the National health hotline was available for discussion of symptoms and arrangement of testing. The availability of COVID-19 testing has allowed approximately 157,000 COVID-19 viral tests to be administered from Jan 22, 2020 to Feb 15, 2021.⁴⁷ In addition, contact tracing has been implemented through the NZ COVID tracker app. The app is able to keep track of with whom, when, and where they have been.⁴⁸ The data collected does not include personal information or active physical location. When someone who tests positive for Coronavirus within the previous 14 days is in close physical proximity, the app will send out an alert and advice on next steps to stay safe. The NZ COVID tracker app is able to collect helpful data and conduct real-time contact tracing, while maintaining the privacy of the citizens. A NZ COVID Tracer QR code is required at all business and workplaces, public transportation, community organizations, and private events and social gatherings. Each location legally must display their QR code poster in a visible location, at or near a main entrance.

⁴⁴ "Alert Level 4 - Information about What Measures Could Be Taken at Alert Level 4." United against COVID-19, the Government of New Zealand. Accessed March 5, 2021. <https://covid19.govt.nz/alert-system/alert-level-4/>.

⁴⁵ Ibid.

⁴⁶ "Travel to New Zealand." United against COVID-19. the Government of New Zealand, January 19, 2021. <https://covid19.govt.nz/travel-and-the-border/travel-to-new-zealand/>.

⁴⁷ "Testing for COVID-19." Ministry of Health NZ, March 5, 2021. <https://www.health.govt.nz/our-work/diseases-and-conditions/covid-19-novel-coronavirus/covid-19-data-and-statistics/testing-covid-19>.

⁴⁸ "NZ COVID Tracer App." United against COVID-19. the Government of New Zealand. Accessed March 5, 2021. <https://covid19.govt.nz/health-and-wellbeing/protect-yourself-and-others/keep-track-of-where-youve-been/nz-covid-tracer-app/>.

A combination of stringent travel restriction, strict lockdown policy, available testing, and contact-tracing systems have allowed for the New Zealand government to identify transmission chains before the virus spread out of control. By actively detecting new cases and imposing rapid lockdowns, the government was able to avoid undetected circulation of the virus to high risk populations.

Policy Response: Sweden

In contrast to New Zealand, Sweden had a different strategy and experience in terms of policy response geared toward controlling the virus. Official data indicates that Sweden has had 631,000 cases among a population of 10.23 million (6% of the population), 12,649 death cases (2% of the population), and around 5000 new cases each week.⁴⁹ In the second wave of the COVID-19 pandemic, Swedish national response continued to be an outlier, with cases and deaths increasing more rapidly than its Nordic neighbors. The number of COVID-19 deaths in Sweden had reached 787 deaths per 1 million population on Dec 20, 2020, which was four to ten times higher than its European neighbors.⁵⁰ Sweden can be used as an appropriate case study demonstrating ineffective policy response, not just because of its high infection rate and new weekly cases, but also because policy response can be isolated as the sole variable that contributed to its failure. Therefore, Sweden's ineffectiveness at containing COVID-19 pandemic is directly correlated to the government's efforts and strategy to respond and take action.

As previously discussed in New Zealand's case, a decisive, unified action during the beginning of the outbreak was a key factor of successful viral containment. Compared to China and New Zealand's efforts to flatten the curve from the onset, the Swedish Public Health Agency (FHM) decided to implement a de-facto herd immunity approach. Under the assumption that younger generations would gradually develop immunity to the virus, the government decided to not impose strict lockdown or mask mandates and allow younger people to naturally become immune. By allowing community transmission to occur relatively unchecked, Sweden's approach was to count on herd immunity as a protective measure for its citizens.

Sweden experienced a lack of centralized guidelines on a national level, which resulted in chaos in the decision making of states and institutions, and caused many institutions and states to miss the opportunity to contain the virus at its earliest stages. Institutions and states were forced to make their own decisions concerning public health mandates: some educational institutions switched to online instruction teaching; some restaurants and bars mandated seating distance; some companies enforced

⁴⁹ "Sweden Metadata." The World Bank - Data Bank. Accessed March 05, 2021. <https://data.worldbank.org/country/sweden>

⁵⁰ Claeson, Mariam, and Hanson, Stefan. "COVID-19 and the Swedish Enigma." *The Lancet (British Edition)* 397, no. 10271 (2021): 259-61.

mask wearing rules on-site and encouraged employees to work from home. Since the risk of violating public health policy guidelines was minimal, policies failed to inform citizens of the severity of the pandemic. For example, no mandatory measures were taken to limit crowds on public transport, in shopping malls, or in other crowded places. On March 12, 2020, in the early stage of the pandemic, the government restricted public gatherings to 500 people and issued a press release encouraging people with possible COVID-19 symptoms to stay home.⁵¹ On March 19, 2020, the social gathering sizes were limited to 50 people, which did not even apply to schools, libraries, corporate events, swimming pools, or shopping malls.⁵² Furthermore, in November 2020, face masks were introduced in care homes and health-care facilities and were recommended on public transport. Thus, a lack of centralized guidelines left room for inconsistent responses and impacted the nation's ability to effectively contain the spread of COVID-19.

Unavailability of testing and medical attention is another stimulant for the further increase of transmission. More than 100 people who were in need of medical attention reported to have been denied medical care, as one had to show severe symptoms in order to be admitted.⁵³ The reason for denial, reportedly, was lack of medical capacity and hospital space to take in all patients. To measure whether someone should receive hospital care, clinical frailty was used by regional health agencies to predict the need for care in a nursing home or hospital, and the life expectancy of older people by estimating their fragility.⁵⁴ As these guidelines not only applied to COVID-19, many people with medical needs unrelated to COVID-19 were not getting the care they needed. For comparison, China faced a similar situation and resolved it with the establishment of temporary hospitals⁵⁵. In comparison, Sweden failed to develop the testing nor the contact-tracing capacity that other European countries did. In addition, COVID-19 testing was only available at the time for those returning from high risk areas who displayed symptoms, those admitted to the hospital, and those working in health care. Until the end of May 2020, and again in August 2020, Sweden tested 20% the number of people per capita compared with Denmark, and less than both Norway and Finland.⁵⁶ Even with increased testing in the fall, Sweden still only tests only about one-fourth that of Denmark.⁵⁷ The lack of central guidelines, lack of united

⁵¹ Bjorklund, Kelly, and Andrew Ewing. "Why the Swedish Model for Fighting COVID-19 Is a Disaster." Time. Time, October 14, 2020. <https://time.com/5899432/sweden-coronavirus-disaster/>.

⁵² Ibid.

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ "China Coronavirus: Lunar New Year Subdued as Outbreak Spreads." BBC News. BBC, January 24, 2020. <https://www.bbc.com/news/world-asia-china-51240355?piiano-adblock>.

⁵⁶ Bjorklund, Kelly, and Andrew Ewing. "Why the Swedish Model for Fighting COVID-19 Is a Disaster."

⁵⁷ Ibid.

action early on in the outbreak, and lack of firm policy response and medical capacity are the central factors that resulted in Sweden's failed response. Thus, this section has addressed the key differences that have allowed countries to enact successful public health policy responses. Through centralized planning and stringent governmental action, countries should implement travel restrictions, lockdowns, social gathering restrictions, and provide accessibility to testing - which as with the case of New Zealand, will be effective in mitigating transmission of the COVID-19 virus and limiting case numbers.

Enhancing Case Identification & Digitalization of Contact Tracing

As mentioned previously, Cambodia has proven to be relatively successful in its non-pharmaceutical responses, and should continue to impose public health policy measures in the following months to combat new variants and outbreaks. In order to strengthen Cambodia's capacity to mitigate the transmission and effects of COVID-19, these policies will work best in tandem with contact tracing.⁵⁸ The successful enforcement of lockdown, social distancing, and travel restrictions, to a large extent, depends on contact tracing to effectively prevent the peak of new outbreaks before they take place.⁵⁹ Thus, contact tracing is key for deterring viral transmission and reducing the spread of infection. Furthermore, a digital contact tracing system provides a wealth of data and illustrates the bigger picture for the current dynamic of COVID-19 transmission—helping to determine control strategies at the individual, community, and national level.⁶⁰ This section seeks to examine the technicalities and importance of contact tracing, as well as the effects of providing mass COVID-19 testing, temperature screening, and digitized tracking apps, which will be highlighted through the examination of the following case studies.

Effective Contact Tracing: China

China has made significant efforts to achieve maximum results in contact-tracing. The Chinese government has invested and designed a digitized system with the goal of greater epidemic surveillance, including the introduction of the QR code system, the health code system, and the national reporting system. The QR code system is used by more than 200 Chinese cities to ensure that only those who are sick are not going out in public.⁶¹ Before entering public places such as malls and metro stations, people are required to scan the QR code displayed by the business. The color of the QR code signifies the

⁵⁸ Successful Contact Tracing Systems for COVID-19 Rely on Effective Quarantine and Isolation (Updated July 22, 2020). 2020. Medical Letter on the CDC & FDA. NewsRX LLC.

⁵⁹ Feil, Lauryn. "The Ever-Growing Importance of Contact Tracing." UT Health Austin. University of Texas at Austin. Accessed February 27, 2021. <https://uthealthaustin.org/blog/the-importance-of-contact-tracing>.

⁶⁰ Park, Young Joon, Young June Choe, Ok Park, Shin Young Park, Young-Man Kim, Jieun Kim, Sanghui Kweon et al. "Contact tracing during coronavirus disease outbreak, South Korea, 2020." *Emerging infectious diseases* 26, no. 10 (2020): 2465-2468.

⁶¹ Mozur, Paul, Raymond Zhong, and Aaron Krolik. "In Coronavirus Fight, China Gives Citizens a Color Code, With Red Flags." *The New York Times*. The New York Times, March 2, 2020. <https://www.nytimes.com/2020/03/01/business/china-coronavirus-surveillance.html>.

different health status: green indicates low risk, yellow means potential risk of exposure, and red denotes a positive test result of COVID-19.⁶² Individuals can only enter if the app displays a green thumbprint and their temperature is within the normal range. Timestamps and locations are recorded with a second scan of the QR at the time of departure.⁶³ The QR code system is able to produce extensive data, and thereby can assess the risk of individuals transmitting the virus. The data generated by the QR code system is able to create a large-scale visualization of viral transmission, which informs government officials of real-time viral data and helps to facilitate public health policy response. While the QR codes function more as an official monitoring tool of the case flow, the health code works more as a self-reporting tool for those who suspect themselves to be infected by the virus. The health code requires daily self-reporting of body temperature and questionnaires such as whether an individual is experiencing symptoms or if they have come into contact with any positive cases.⁶⁴ Individuals' travel history is also tracked with the GPS function that signifies where individuals have been the previous 14 days.⁶⁵ While the QR code and the health code appear similar, they serve as two different ways to achieve the same purpose: enhance contact tracing and break down the transmission chain.⁶⁶ This duo strategy allows for highly effective contact tracing, as it records specific locations through the QR code, as well as identified GPS locations. Both data tools contribute to increasing the governments' ability to contact trace and generate networks of people who have been in contact. With the combination of contact tracing and quarantine, China has been able to identify potential viral exposure and predict potential extension of the transmission chain. For example, in situations where one has been exposed to the infected person without knowing, the network can notify individuals of their exposure and initiate a series of steps for quarantine enforcement. This system is thus highly effective as it provides individuals of potential threats of exposure in real-time, allowing for successful containment of the virus.

Along with case tracking and identification, a national reporting system in China was established to further achieve the goal of knowing where the virus has spread. One of the measures is the mandatory daily reporting to China's National Infectious Disease Information System (IDIS) and National Disease

⁶² AlTakarli, Nourah S. "China's Response to the COVID-19 Outbreak: A Model for Epidemic Preparedness and Management." *Dubai Medical Journal*. Karger Publishers, May 19, 2020. Accessed date: Feb 15, 2021 <https://www.karger.com/Article/FullText/508448>.

⁶³ Flanagan, Ryan. "See China's COVID-19 Contact Tracing System in Action." *Coronavirus*. CTV News, May 17, 2020. <https://www.ctvnews.ca/health/coronavirus/see-china-s-covid-19-contact-tracing-system-in-action-1.4943352>. Accessed date: Feb 16, 2021

⁶⁴ Mozur, Paul, Raymond Zhong, and Aaron Krolik. "In Coronavirus Fight, China Gives Citizens a Color Code, With Red Flags." *The New York Times*. The New York Times, March 2, 2020. <https://www.nytimes.com/2020/03/01/business/china-coronavirus-surveillance.html>.

⁶⁵ Daugelaite, Tautvile. "China's Health Code System Shows the Cost of Controlling Coronavirus." *Wired UK*. Wired UK, July 17, 2020. <https://www.wired.co.uk/article/china-coronavirus-health-code-qr>.

⁶⁶ Gan, Nectar, and David Culver. "China Is Fighting the Coronavirus with a Digital QR Code. Here's How It Works." *CNN*. Cable News Network, April 16, 2020. <https://www.cnn.com/2020/04/15/asia/china-coronavirus-qr-code-intl-hnk/index.html>.

Reporting System (NDRS).⁶⁷ Hospitals throughout China are required for immediate electronic reporting to the system of newly suspected, diagnosed, and asymptomatic cases and death. The data from each hospital will update hourly and generate daily reports with statistics for observing the epidemiological curve and active tracking of pandemic progression.⁶⁸ This statistics further complete the picture of the viral transmission on a national scale and provides an overview of the situations, which helps to determine if a lockdown policy in a specific region is needed to contain the spread.

Effective Contact-Tracing: South Korea

In the example of South Korea, the contact tracing system is even more stringent compared to that of China. Information is drawn from credit and debit card transactions, phone location logs obtained from mobile operators, and details captured by South Korea's extensive network of surveillance cameras.⁶⁹ Such extensive use of information allows the authorities to track people who have been infected, their movements in the days before they tested positive, and thereby alert people who have been in close contact with the infected individual.⁷⁰ As South Korea set up a government-run, technologically advanced contact tracing system at the early stage of the outbreak, the country lowered the number of infections from 851 on March 3, 2020 to 11 infections as of April 21, 2020.⁷¹ The effectiveness of contact tracing systems as it shapes the dynamic of the breakdown is also reflected in South Korea's mortality rate: only 2% of the population died from their infection.⁷²

China and South Korea's usage of digitalized contact tracing systems, in combination with proper quarantine policy, has successfully reduced the transmission. Therefore, the establishment of a digitalized contact tracing system can further help Cambodia track down and locate potentially infectious individuals to help break the transmission chain. Cambodia can improve their contact tracing system through advancing the development of CamEWARN,⁷³ Cambodia's official early warning and response system that collects aggregated information on infected cases, disease symptoms, respiratory infections, data, news, and reports of new infections. The government can set up various checkpoints in

⁶⁷ AlTakarli, Nourah S. "China's Response to the COVID-19 Outbreak: A Model for Epidemic Preparedness and Management."

⁶⁸ Ibid.

⁶⁹ Cellan-Jones, Rory. "Tech Tent: Can We Learn about Coronavirus-Tracing from South Korea?" BBC News. BBC, May 15, 2020. <https://www.bbc.com/news/technology-52681464>.

⁷⁰ "South Korea." Worldometer, March 5, 2021. <https://www.worldometers.info/coronavirus/country/south-korea/>.

⁷¹ Ibid.

⁷² Feil, Lauryn. "The Ever-Growing Importance of Contact Tracing."

⁷³ Communicable Disease Control Department, Ministry of Health. "Applied Epidemiology Training in Cambodia". Oddar Meanchey Province, Cambodia, 2012 http://www.aseanplus3fetn.net/doc/update_on_cambodia_aet_march_2012.pdf

multiple public places to ensure a comprehensive tracking system. In addition, a subsequent isolation policy for those who are exposed or infected should also be set up to lessen transmission.

Mass Testing

The purpose of mass testing is to detect symptomatic, pre-symptomatic, and asymptomatic infectious individuals before they can spread the coronavirus. One unknowingly infected person is capable of infecting many others, causing a “super-spread.” In these situations, mass testing serves not only to identify infected cases in the larger social network, but also to inform individuals of their health status. Mass testing initiates a series of feasible actions that the government can take to contain the spread, such as quarantining or receiving medical attention. As previously discussed, countries that have successfully controlled their outbreaks, such as New Zealand and South Korea, have effectively been able to identify cases through massive testing, thereby limiting further viral transmission in communities. In March, the WHO issued a plea for countries to develop their testing capacity for COVID-19.⁷⁴ For example, South Korea responded with weeks of development to increase its testing capacity to an average of 12,000 per day, sometimes as many as 20,000 at hundreds of drive-through and walk-in testing centers.⁷⁵ Statistics indicate that more than 270,000 people had been tested by mid-March, 2020.⁷⁶ The number of daily new cases dropped from around 900 per day at the end of February to single digits at the end of April.⁷⁷ Cambodia should consider incorporating similar measures to its medical system by setting up abundant, accessible checkpoints for all residents, regardless of their geographical location. Drive through and walk-in testing should be made available in both city and rural areas to ensure accessibility. It is also important for Cambodia to enforce testing mandates for those who are suspected to be infected or have been potentially exposed. This setup will allow for mass testing, encouraging citizens to get tested after possible exposure to the virus, or before or after travel.

Temperature screening

Temperature screening serves as a tool to detect infected and symptomatic individuals. New studies show that many new cases have originated from superspreading events in public places such as large, indoor events and restaurants.⁷⁸ The combination of temperature screening, proper quarantine, and medical attention can achieve its best effect and slow down the spread in public areas.

⁷⁴ McCurry, Justin. “Test, Trace, Contain: How South Korea Flattened Its Coronavirus Curve.” The Guardian, Guardian News <https://www.theguardian.com/world/2020/apr/23/test-trace-contain-how-south-korea-flattened-its-coronavirus-curve>

⁷⁵ Ibid.

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ Rabin, Roni Caryn. “Fever Checks Are No Safeguard Against Covid-19.” The New York Times. The New York Times, September 13, 2020. <https://www.nytimes.com/2020/09/13/health/covid-fever-checks-dining.html>.

China. China has conducted massive temperature screening among its population for case identification. China has installed thermometers for temperature screening at transportation checkpoints including airports, bus stations, subway stations, and ferry terminals. The checkpoints later expanded into malls, community entrances, and workplaces.⁷⁹ It has been effective in identifying potential infected individuals and containing the pathway of spreading. In China, temperature screening for COVID-19 is implemented in a wide range of settings across different regions.⁸⁰ During the initial outbreak, multiple checkpoints were set up in metro stations and additional staff were deployed to manage the flow of passengers. The first method of temperature screening used a handheld thermometer, which involved the risk of close contact and further transmission. In February 2021, body temperatures of each passenger began to be checked with a non-contact AI fever screening system in many locations, minimizing unnecessary contact and quickening the process.⁸¹ Such temperature screening, as carried out by a non-contact AI system, will be able to quickly identify potential infected passengers without close contact and risk for staff members. If an individual's body temperature exceeds 37.3°C (99°F), they are taken to an isolation zone by staff in PPE suits and escorted to a hospital for further checks.⁸² Data from the Xinhua Net, a well-respected newspaper in China, indicates that 15 passengers suspected of fever can be detected every second, even when they are more than 3 meters away, with an error of 0.3 Celsius.⁸³ This system allows a systematic body check without close physical contact while lowering potential viral transmission. However, it is worth noting that by itself, temperature screening is a somewhat limited approach to detect coronavirus. Clinical experiments indicate that about a quarter of patients who tested positive for COVID-19 did not have a fever and passed the temperature check.⁸⁴ As there are many asymptomatic patients who can pass through the temperature screening and continue to spread it to others, it is only through a combination of temperature monitoring, massive testing, quarantine, and lockdown that countries will be able to slow down the viral transmission. This section has outlined effective methods for case identification and contact tracing, through the evaluation of China and South Korea's systems. Cambodia should reference these technologies while advancing their

⁷⁹ Flanagan, Ryan. "See China's COVID-19 Contact Tracing System in Action."

⁸⁰ Yan Ning, Ran Ren, Gerard Nkengurutse. "China's Model to Combat the COVID-19 Epidemic: a Public Health Emergency Governance Approach." *Global health research and policy*. U.S. National Library of Medicine, 2020. <https://pubmed.ncbi.nlm.nih.gov/32685691/>

⁸¹ Mingmei. "China Focus: AI Fever Screening Empowers Virus Control for Upcoming Travel Peak." *Xinhua*, February 2, 2021. http://www.xinhuanet.com/english/2020-02/05/c_138757507.htm.

⁸² Ibid.

⁸³ Ruiwei, Liu. "China Uses AI to Combat the Novel Coronavirus Outbreak." *Healthcare business news, trends & developments*, February 18, 2020. <https://healthcare-in-europe.com/en/news/china-uses-ai-to-combat-the-novel-coronavirus-outbreak.html>.

⁸⁴ Vilke, Gary M, Brennan, Jesse J, Cronin, Alexandra O, and Castillo, Edward M. 2020. "Clinical Features of Patients with COVID-19: Is Temperature Screening Useful?" *The Journal of Emergency Medicine* 59 (6). United States: Elsevier Inc: 952–56. doi:10.1016/j.jemermed.2020.09.048.

own contact tracing systems, as the digitalization of case identification has been extremely useful for guiding governmental policies and reducing viral transmission.

Conclusion

Overall, Cambodia has demonstrated an effective and successful response against the first wave of the pandemic. However, the recent large-scale “February 20” outbreak has given Cambodia its largest challenge since the start of the pandemic, with the country’s highest surge in case numbers. Policy recommendations for this chapter will thus be useful in handling this outbreak and future outbreaks to come as new variants spread. This chapter discusses Cambodia’s potential vulnerability in medical infrastructure, resources allocation, marginalized groups, and malnutrition - all which have been exacerbated due to the pandemic. These vulnerabilities inevitably pose great challenges for Cambodia against future outbreaks and new variants. This chapter offers case study analysis to further evaluate effective public health policy response. Furthermore, this chapter discusses the impact of internal and external travel restrictions, lockdown measures, and methods for active case identification. Additionally, this chapter recommends the employment of digitalized contact-tracing systems and health status reporting channels for case-based surveillance. As this chapter has drafted multiple public health policy recommendations drawing from Cambodia’s existing policies and effective responses from countries around the globe, the learning and experience from domestic and international response policies will strengthen Cambodia’s capacity for future preparedness, containments, and management against the pandemic. By minimizing the potential of large-scale outbreaks, Cambodia will have the chance to reopen its national borders, business sectors, factories, and other GDP-producing industries. The decision-making process for Cambodia in the next few months should be multisectoral with consideration and coordination between public health, social, and economic aspects, with the aims to reduce transmission and minimize social costs in alignment with overall national strategies. The strengthening of pandemic management can prepare Cambodia for a steady policy response against the upcoming variants and a slow re-opening of the economy and key industries.

Policy Recommendations

1. Planning for Outbreaks: Medical Resource Allocation

With the recent outbreak and the possibility of future larger-scale outbreaks, Cambodia should establish a plan for if hospitals become filled to capacity. Temporary spaces, such as stadiums or warehouses, should be scouted out as possible extra space for sick patients in the case of large-scale outbreak.

Additionally, more medical resources should be distributed to the rural areas of the country in order to account for a large portion of the population residing in rural areas.

2. Continue Stringent External and Internal Travel Restrictions and Lockdown Measures

Cambodia's early implementation of external travel restrictions and lockdown measures, including temporary suspension of entry of high-risk area, mandatory 14-day quarantine, and requiring negative test results upon entry, have all worked to minimize the risk of COVID-19 transmission. Continued restriction of mass gatherings and closure of non-essential businesses and educational institutions has effectively prevented the circulation of the virus domestically. Continued external border restriction and monitoring is essential for preventing new variants from entering and spreading in Cambodia. If the new variants are identified domestically, immediate internal travel restrictions are recommended. In addition, it is recommended that Cambodia adapts public transportation checkpoints and mass installation of AI operated temperature-screening devices.

3. Digitalization of Contact-Tracing Systems

The MOH launched a Health Management Information System (HMIS) in 2010 with web-based reporting and access, it is mainly implemented in referral hospitals, provincial hospitals.⁸⁵ The system has not been universal among health centers, especially those that are rurally located due to lack of electricity. Since electricity and communication infrastructure cannot be resolved in a short period of time, we recommend digitalization of contact-tracing systems, with reference to China's QR code system. By adapting to a similar system, data on the daily health status and physical location of citizens would be critical for effectively tracking exposure and transmission. For Cambodians that do not have access, the MOH can consider manual distribution of self-report and a possible collaboration between the health posts and the Rapid Response Teams. The Cambodian medical structure has an echelon where health posts cover populations within a certain geographic range. This unique structure will allow Cambodia to adopt grid management, where communities are divided into grids and responsibilities are designated to each neighborhood committee. Cambodia can consider manually and periodically collecting the reports from each grid and the RRTs can digitalize the information by entering into the MHIS system.

4. Information Distribution and Preventive Measures to the Marginalized

Cambodia's slum population poses a great challenge to disease prevention and information distribution. Since the slums are under the combination of isolation and lack of resources, without access to internet and electronic devices, the CamEWARN system cannot reach these marginalized groups. These

⁸⁵ "The Kingdom of Cambodia Health System Review." World Health Organization. World Health Organization, January 1, 1970. <https://apps.who.int/iris/handle/10665/208213>.

marginalized groups will have little awareness on preventive measures and lack of access to preventive resources such as masks and sanitizers. Thus, recommend that Cambodia tailor its response from the first wave to include these marginalized groups. The MOH should go beyond sending public health announcements through CamEWARN, but send teams of staff into the slums to distribute pamphlets and to teach these groups preventive measures. In addition, Cambodia should incorporate and prioritize the inhabitants in the slums in its effort to distribute medical resources as these groups are at higher risk and are more vulnerable to the virus.

Chapter 5: Rebuilding the Cambodian Economy During a Pandemic

Ariel Lo and Elaine Wang

Introduction

Achieving herd immunity is a necessary precursor to removing COVID-19-related restrictions around the globe. However, due to the global struggle for vaccine access, the race to achieve herd immunity could take several years in some countries. While public health measures are of paramount importance, it is not sustainable for some economies to remain locked down until herd immunity is reached. Economies around the globe must eventually be reopened in order to address growing levels of unemployment, homelessness, and hunger resulting from the pandemic-related recession. This chapter will seek to identify the most effective and safe means of reopening developing countries' economies—with a particular focus on Cambodia and its most significant industries—as they engage in the multi-year process of achieving domestic herd immunity.

Section I of this chapter will provide an overview of the current economic climate in Cambodia, and identify the ways in which the COVID-19 pandemic has intensified unemployment, lowered wages, and increased poverty rates. The following sections will concentrate on the two largest GDP generating industries in Cambodia: tourism (Section II) and garment manufacturing (Section III). Section II will address the unemployment and devastation within these industries is one strategy of rekindling the Cambodian economy. Section III will analyze Cambodia's garment industry in terms of global supply chains and the labor market. This section will also examine two case studies from the perspective of factory management and by analyzing the ways in which Cambodia can use its membership in the Regional Comprehensive Economic Partnership (RCEP) to help boost its economy.

The reliance of Cambodia's economy on two GDP-driving sectors—international tourist arrivals and global supply chains—has made the country especially vulnerable to global crises such as the COVID-19 pandemic. Based on case studies in Cambodia and other countries, this chapter proposes that it is necessary for the government to provide instructions for boosting domestic tourism and to take the time to consider more sustainable tourism options for the post-pandemic era. As for the garment manufacturing sector, cooperation between the government and factories for improved factory management, as well as active participation in bilateral and regional trade agreements, can help ease the economic distress in Cambodia's garment industries by providing access to larger regional markets and attracting foreign direct investments in technology.

A Summary of the Current Macroeconomic Climate in Cambodia

As was the case in every country, the Cambodian economy has been negatively impacted by the coronavirus pandemic. Before the COVID-19 pandemic began, the Cambodian economy had maintained an average growth rate of 7.7% over the past two decades.¹ In 2019, Cambodia's top three GDP producing sectors—tourism, garment manufacturing, and construction— accounted for more than 70% of growth and 39% of total paid employment.² However, due to the pandemic, Cambodia's economy is expected to contract by 2% in 2020.³ Domestic and international lockdowns combined with global economic recessions have resulted in unprecedented shocks to both the tourism and garment manufacturing industries, leading to widespread unemployment.

The impact of Cambodia's current fiscal policy responses are limited thus far, as they are not currently geared toward reopening the tourism and garment industries. Rather, Cambodia's current emergency fiscal policy response plan is to issue tax relief, offer retraining programs for laid-off workers, provide subsidies for suspended manufacturing and tourism workers, and establish a new SME Bank with an initial capitalization of \$100 million.⁴ These emergency fiscal policy responses were only designed for short-term emergency use. For example, one of these policies was a \$70 wage subsidy for manufacturing workers, but this only accounts for 37% of the garment sector minimum wage (\$190), which is far from enough to cover household expenses.⁵ Similarly, a 20% minimum wage subsidy was provided to workers in the tourism sector, but this is insufficient to cover workers' living expenses.⁶ In fact, while these subsidies themselves could not replace workers' incomes, only 41% of surveyed workers had actually received the full benefit provided by the government of Cambodia.⁷

To gain a more personal insight on the current economic situation in Cambodia, our Task Force interviewed a hotel owner in Phnom Penh. In the eyes of Mr. Yang, a hotel owner in Cambodia's capital city, the Cambodian government's efforts to stimulate the tourism industry have thus far been fruitless, as his hotel business has yet to receive subsidies from the government and has received no clear guidance on reopening his business. There has also been no guidance offered for cleaning protocols,

¹ "Cambodia Economic Update: Restrained Recovery - Special Focus Adapting To COVID-19 in an Uncertain World." The World Bank. November, 2020. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/986491608013945613/cambodia-economic-updat-e-restrained-recovery-special-focus-adapting-to-covid-19-in-an-uncertain-world>.

² Ibid., 2.

³ Ibid., 9.

⁴ Ibid.

⁵ "The supply chain ripple effect: How COVID-19 is affecting garment workers and factories in Asia and the Pacific." International Labor Organization. October, 2020. 22.

⁶ Ibid.

⁷ Ibid.

which are essential to slowing the spread of the virus. Although tourist destinations in Cambodia remain open, Mr. Yang expressed that there were no visitors. With the consideration of these insights, it seems that the government of Cambodia has not sought to ensure that its economic subsidies for businesses and workers, at least in the tourism industry, have been distributed.

Overall, the current fiscal policy responses instituted by the Cambodian government have been effective stopgap measures for the initial COVID-19 economic shocks. Nevertheless, they will not be sufficient policies for keeping the Cambodian economy afloat in the long term. Herd immunity is a necessity for both global public health and reopening global economies. However reaching it will take several years. Until then, a focus on safely reopening and reinvigorating Cambodia's two most important industries should be the primary focus of Cambodia's longer term economic recovery policies.

The Revitalization of Tourism Industries

By examining Japan and New Zealand's tourism recovery campaigns, this section will seek to offer the most safe and effective recommendations for rejuvenating the tourism industry in Cambodia. The crash of Cambodia's tourism industry resulted in large-scale economic effects. Due to the pandemic, international tourist arrivals fell by 74.1% during the first nine months of 2020 compared to 2019.⁸ Such an unprecedented shock caused many small and medium enterprises (SMEs) in the tourism sector, such as restaurants, hotels, and beverage shops, to go out of business.

As previously stated, Cambodia's Ministry of Tourism announced that the government would pay a subsidy of 20% of the minimum wage for the workers employed in the tourism sector.⁹ However, in 2019, the average income for workers in Cambodia's tourism sector was \$224 per month, with the minimum wage ranging from \$80 to \$130 per month.¹⁰ The average spending of workers in the tourism sector exceeds the sector's average incomes, at \$300.50 per month in 2019.¹¹ Based on this data, the government wage subsidy is far from a sufficient substitute for a wage that was already too low to cover basic living costs. In order to support the tourism sector's workers, it is vital that Cambodia begins to generate income through the tourism sector once again.

One means of generating income within the tourism sector, while navigating international travel restrictions of course, is to promote domestic tourism. Due to border closures and other international

⁸ "Cambodia Economic Update: Cambodia in the Time of COVID-19. – Special Focus Teacher Accountability and Student Learning Outcomes." 9.

⁹ "How are Countries Supporting Tourism Recovery? UNWTO Briefing Note – Tourism and COVID-19, Issue 2." UNWTO. June, 2020. 11.

¹⁰ Kunthea Mom. "CLC Seeks \$300 Minimum Wage For Tourism, Service Sector Workers." Khmer Times. June 7, 2019.

<https://www.khmertimeskh.com/612017/clc-seeks-300-minimum-wage-for-tourism-service-sector-workers/>.

¹¹ Ibid.

travel restrictions, several Cambodian travel companies have shifted their operations to target domestic tourists rather than international tourists. This section will focus on ways to stimulate Cambodia's domestic tourism industry.

Japan's "Go To Travel" Campaign

On July 22, 2020, the Japanese government launched its "Go To Travel" campaign. This campaign worked to encourage domestic tourism during the COVID-19 pandemic by offering large domestic hotel and travel destination discounts to Japanese residents.¹² Major cities such as Tokyo, Kyoto, Osaka, and Nara were included as destinations that the government recommended for domestic travel. The campaign funded up to 50% of travel expenses for domestic tourist trips, with limitations of ¥20,000 per person per night and ¥10,000 per person per day trip.¹³ 70% of the subsidy discounts offered were paid for by the Japanese government, and the remaining 30% were given as coupons from travel agencies and hotels.¹⁴ In doing this, the Japanese government covered 35% of total travel expenses for travellers taking advantage of the "Go To Travel" campaign, leaving only 65% of the total price for tourism to be paid by the traveler. In order to further promote travel, regional coupons were made available for use in designated local businesses.¹⁵ The coupons issued by the campaign thus encourage travelers to spend more money in local tourist destinations, thereby supporting SMEs and core facets of the tourism industry such as hotels.

Despite the promising economic strategy of the "Go To Travel" campaign, Japan did not necessarily achieve success. While the campaign promoted domestic tourism and helped soften the economic impact of the COVID-19 pandemic on the tourism sector's economy, it resulted in a surge of coronavirus cases. Tokyo, in particular, experienced a large spike in COVID-19 cases in late July 2020, around the time that "Go To Travel" was launched.¹⁶ The Suga cabinet was heavily criticized by the public as confirmed cases increased. This resulted in an appeal by the governor for residents to refrain from traveling outside the city.¹⁷ As confirmed cases continued to increase, Prime Minister Suga declared a second state of emergency in Tokyo and other neighboring areas, resulting in the suspension of the campaign on December 14, 2020.¹⁸ A study from Kyoto University concluded that "the incidence of travel-associated

¹² Asami Anzai and Hiroshi Nishiura. "Go To Travel' Campaign and Travel-Associated Coronavirus Disease 2019 Cases: A Descriptive Analysis, July – August 2020." *Journal of Clinical Medicine*. January 21, 2021. 1.

¹³ Rachel Davis. "Breaking Down Japan's Go To Travel Campaign." *The Japan Times*. October 18, 2020. <https://www.japantimes.co.jp/life/2020/10/18/travel/breaking-down-go-to-travel-campaign/>.

¹⁴ Davis. "Breaking Down Japan's Go To Travel Campaign."

¹⁵ *Ibid.*

¹⁶ Anzai. "Go To Travel' Campaign and Travel-Associated Coronavirus Disease 2019 Cases: A Descriptive Analysis, July – August 2020." 2.

¹⁷ *Ibid.*, 2.

¹⁸ "What will Tokyo's Second State of Emergency Mean?" *The Japan Times*. January 7, 2021. <https://www.japantimes.co.jp/news/2021/01/07/national/coronavirus-emergency-details/>

cases during the campaign appeared to be approximately three times greater than during the control period from June 22 to July 21,” 2020.¹⁹ Ultimately, the promotion of domestic tourism in Japan during the COVID-19 pandemic was unsuccessful: while the “Go To Travel” campaign benefitted the domestic tourism industry and related SMEs in the short-term, this was done at the expense of an increase in COVID-19 cases, which ultimately hindered long term economic recovery in the long-run. Were Cambodia to attempt to implement similar policies, it would be absolutely pertinent that there had not recently been any spikes in COVID-19 cases.

New Zealand’s “Do Something New, New Zealand!” Campaign

New Zealand’s success in combating the COVID-19 pandemic is renowned. By February 26, 2020, New Zealand had only experienced a total of 2,015 cumulative cases and 26 deaths, out of a population of almost five million.²⁰ Despite New Zealand’s success in controlling the virus, New Zealand’s tourism sector, like tourism sectors around the globe, suffered from international travel restrictions. Total visitor arrivals to New Zealand fell by 11% in February 2020, compared to the previous year.²¹ By March 2020, with the intensification of the pandemic, all foreign arrivals were banned.²² New Zealand has remained closed to nonessential international travellers for the duration of the pandemic thus far.²³ While these limitations to international travel pose obstacles to New Zealand’s tourism industry in terms of economic revival, it cannot be ignored that these restrictions imposed by New Zealand resulted in their astonishing success at containing the COVID-19 pandemic.

With marked caution, though, New Zealand began to ease into lifting restrictions by encouraging domestic tourism in May 2020. According to the Minister of Tourism, the reopening of the tourism sector needs to be a phased approach to focus on and promote domestic tourism in the short term, and to target an international audience in the long term.²⁴ This phased approach began with a federal tourism marketing agency launching a tourism promotion campaign called “Do Something New, New Zealand!,” aimed at encouraging New Zealanders to participate in domestic tourism.²⁵ This campaign, which is

¹⁹ Anzai. “‘Go To Travel’ Campaign and Travel-Associated Coronavirus Disease 2019 Cases: A Descriptive Analysis, July – August 2020.” 2.

²⁰ “COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University.” (<https://github.com/CSSEGISandData/COVID-19>)

²¹ “Border Restrictions Impacts Visitor Arrivals.” Stats NZ. April 14, 2020. <https://www.stats.govt.nz/news/border-restrictions-impact-visitor-arrivals>.

²² “Tourism New Zealand: Briefing for the Incoming Minister.” November, 2020. 14.

²³ “New Zealand Border Entry Requirements.” Immigration New Zealand. February 19, 2021.

<https://www.immigration.govt.nz/about-us/covid-19/border-closures-and-exceptions/border-entry-requirements>.

²⁴ Grant Bradley. “COVID 19 Coronavirus: Tourism New Zealand Leading Plans to Radically Change Approach to Visitor Industry.” The New Zealand Herald. April 8, 2020.

<https://www.nzherald.co.nz/business/covid-19-coronavirus-tourism-new-zealand-leading-plans-to-radically-change-approach-to-visitor-industry/3WALFMQ46PEPKKJQZX7UX2JYM/>.

²⁵ “Do Something New, New Zealand!” Tourism New Zealand. May 22, 2020. <https://www.tourismnewzealand.com/news/do-something-new-new-zealand/>.

promoted via social media and on the Internet, is not only working to promote domestic tourism, but also to support SMEs. “Do Something New” actively promotes SME brands and products, without charging marketing premiums.²⁶

Ultimately, New Zealand’s travel campaign has proven successful at stimulating domestic travel. According to the campaign’s domestic travel view report from October 2020, “72% of New Zealanders are planning a holiday within New Zealand in the next 12 months, [which is] a notable uplift on 64% in May.” The “Do Something New” future tourism recovery model predicts that the number of New Zealanders taking a domestic holiday could jump 118% in January this past year.²⁷ Not only did the promotion of domestic tourism prove successful in the short-term, it also sets up New Zealand’s tourism industry for the future. The Tourism Minister announced that the next step of reviving the tourism sector during and after the pandemic will be to “make New Zealand a more sustainable place, enrich the lives of all our people and deliver a sector which is financially self-sustaining in the longer term.”²⁸ To support this, a qualitative study conducted by Tourism New Zealand in late January 2021 indicates that the rebuilding of New Zealand’s tourism industry provides an opportunity for New Zealand to create a more sustainable and educational tourism sector by focusing on local cultures, history, and environmental conservation.²⁹

The true success of New Zealand’s promotion of domestic tourism lies in the fact that the country was able to mobilize within without causing a spike in confirmed COVID-19 cases. New Zealand achieved this by closing their borders and beginning lockdowns in mid-March 2020, earlier than most nations.³⁰ The early enactment of lockdown policies bought time for the New Zealand government to establish extensive testing and contact tracing operations before promoting domestic tourism. Because of this, New Zealand can serve as a model for safely promoting tourism industries in countries that economically rely on the industry and in which case numbers remain low.

Promoting Domestic Tourism in Cambodia

A report conducted by the United Nations World Tourism Organization (UNWTO) indicates that there were 11.2 million domestic visitor trips in Cambodia in 2019, nearly twice the number of inbound

²⁶ “Market Overview.” Tourism New Zealand. <https://www.tourismnewzealand.com/markets-stats/markets/new-zealand/>.

²⁷ Grant Bradley. “COVID 19 Coronavirus: New Zealand Set for Domestic Tourism Boom in January.” The New Zealand Herald. October 13, 2020. <https://www.nzherald.co.nz/business/covid-19-coronavirus-new-zealand-set-for-domestic-tourism-boom-in-january/3ONLIJ6ABVRF2Z24Q7NRG GWKFU/>.

²⁸ Ibid.

²⁹ Zena Ali and Nathan Farmer. “Unlocking the Future of Tourism.” Tourism New Zealand. January 27, 2021. <https://www.tourismnewzealand.com/media/4301/unlocking-the-future-of-tourism-deck.pdf>.

³⁰ Anna Jones. “How did New Zealand Become COVID-19 Free?” *BBC News*. July 10, 2020. <https://www.bbc.com/news/world-asia-53274085>.

international visitor trips registered in the same year.³¹ Even though domestic tourists alone cannot offset the economic losses caused by limited international arrivals, promoting and supporting domestic tourism is a critical method for helping tourism related SMEs economically survive. As noted previously, Cambodia's promotion of domestic tourism remains at a local level and the government has not yet published a plan to mitigate the costs to the overall economy.

The Rejuvenation of Garment Manufacturing Industries

The Two-Stage Shock Trap for Garment Factories

Cambodia's garment industry is export-oriented and manufacturing based. In global garment industry supply chains, manufacturing is the lowest-value portion of the entire supply chain. The method of production used in the Cambodian garment manufacturing industry is a cut-make-trim model, meaning that garment factories import raw materials, machinery, and garment designs from abroad—primarily from China—to assemble the textile goods with outsourced labor from countries like Cambodia, and then export to the US, EU, and Japan.³² Placed squarely in the middle of this supply chain, Cambodia's garment industry relies heavily on other countries for both the production of and profit from its goods. Because of this, external economic instabilities can have major impacts on the status of Cambodian garment manufacturers.

There have been two stages of external shocks in the world economic system during the COVID-19 pandemic that have impacted the Cambodian garment industry. The first of these shocks to the garment industry was the raw material supply shock from China. In March 2020, at least 60% of raw materials used in Cambodia's garment and textile factories were imported from China.³³ After the initial COVID-19 outbreak led to an almost complete economic shutdown in China, Cambodian garment factories faced severe raw materials shortages, resulting in the closure and suspended operations of 55 factories, impacting approximately 15,000 jobs.³⁴

The second shock to the Cambodian garment industry was the decrease in manufacturing demand from the EU and the US, as consumer demand across Europe and the US came to an abrupt halt. Statistics show that only 40% of factories received production orders by the last quarter of 2020, while the

³¹ Tom Starkey. "Domestic Tourism is Key to Sector Recovery: Experts." Khmer Times. December 15, 2020. <https://www.khmertimeskh.com/50793199/domestic-tourism-is-key-to-sector-recovery-experts/>.

³² Vasundhara Rastogi, "Cambodia's Garment Manufacturing Industry," ASEAN Briefing. November 1, 2018. <https://www.aseanbriefing.com/news/cambodias-garment-manufacturing-industry/>.

³³ "Chinese May Prioritise Cambodia in Meeting Raw Materials Demand," Khmer Times, March 2, 2020, <https://www.khmertimeskh.com/696721/chinese-may-prioritise-cambodia-in-meeting-raw-materials-demand/>.

³⁴ Alastair McCready. "As COVID-19 Hits Global Economy, Cambodian Workers Face Layoffs," Southeast Asia Globe. March 23, 2020. <https://southeastasiaglobe.com/cambodian-economy-COVID-19/>.

remaining 60% received none.³⁵ 45% of Cambodian garment manufacturing firms receiving orders are facing lower proposed prices by the buyers.³⁶ Due to these intense economic shocks, the immediate future of garment exports, which account for two-thirds of Cambodian manufacturing exports, remains uncertain.³⁷

Garment Workers in the Labor Market

The overall economic fallout from the COVID-19 pandemic is expected to cancel out Cambodia's progress in reducing poverty since 2015, despite Cambodia's status as one of the world's fastest-growing economies. Every wage earner in the garment sector supports roughly five to six people in other economic sectors through their own spending via local economic stimulation, meaning that the income and job loss experienced in the garment industry results in widespread income loss, decreased standards of living, and increased food insecurity beyond garment industry workers themselves.³⁸ The garment industry is not only important for Cambodia's national economy as a whole, but also for the households, which rely on garment industry wages for income and remittances. One of the largest contributing factors to the current Cambodian unemployment crisis is that the garment industry is responsible for a large percentage of jobs in Cambodia, and has been largely forced to close down due to the lack of demand. In 2019, the share of garment sector jobs in total employment exceeded 10%, the highest percentage among Sri Lanka, Myanmar, Viet Nam, and other Southeast Asian countries.³⁹ So, when the garment industry was impacted by the economic shocks induced by COVID-19, "more than 150,000 workers—approximately 15% of the country's garment workers—were reported to have lost their jobs during the pandemic."⁴⁰ For every 500 garment factories, there are more than 1 million garment manufacturing employees, making losses in this sector particularly devastating for the Cambodian economy.

Cambodian garment manufacturing heavily relies on international orders and the importation of raw materials, which explains why the garment factories have experienced a slow recovery after economic reopenings began in June 2021. During the first economic reopening stage, Cambodian garment factories still faced many constraints, such as a shortage of supplier credit and payment deferrals, due to the slow economic recovery of foreign suppliers and buyers.⁴¹ The resulting constraints on operations and

³⁵ "Cambodia Economic Update : Restrained Recovery - Special Focus Adapting To COVID-19 in an Uncertain World," 17.

³⁶ Ibid.

³⁷ Ibid.

³⁸ Ibid.

³⁹ "The supply chain ripple effect: How COVID-19 is affecting garment workers and factories in Asia and the Pacific." 2.

⁴⁰ Ibid., 10.

⁴¹ Cambodia Economic Update, 42-53.

finances have forced garment manufacturers to lay off workers, limit hours, and lower wages. The number of companies who were forced to lay off workers is exceeded only by one other nation in Southeast Asia: the Philippines. In the Philippines, employment in the garment industry was at 31% in June 2020 of what it had been prior to the pandemic⁴²

Since it is clear that revitalizing the Cambodian garment manufacturing industry is paramount, it is important to now identify the safest and most effective means of doing so. Until herd immunity is reached, the Cambodian garment industry will have to be stimulated in new ways, and the following case studies will illuminate successful and unsuccessful methods for mitigating job and wage loss in the Cambodian garment sector.

Bangladesh

Due to the infectious nature of the coronavirus, the reopening of the garment industry during the interim period until herd immunity is reached requires development of new management practices to guarantee the safety of employees as they return to work.

Similar to Cambodia, the ready-made garment (RMG) industry in Bangladesh is a major GDP driver. The RMG industry contributed to 83% of the nation's total exports in 2019 and made a GDP contribution of 12.26% of total GDP in 2017 to 2018.⁴³ It is the largest exporting industry in Bangladesh and more than 4 million workers are directly employed in the sector.⁴⁴ Similar to the RMG sector in Cambodia, the RMG sector in Bangladesh struggled in 2020 as the COVID-19 pandemic continued to diminish international demand. During the initial phase of the pandemic, the government of Bangladesh declared a state of lockdown from March 26 to May 30, 2020.⁴⁵ However, the low-income population suffers from starvation and food insecurity due to the stay-at-home policies and restrictions from work. In order to avoid this, the Bangladesh Garment Manufacturer and Exporter Association (BGMEA) declared the reopening of garment factories beginning on April 26, 2020.⁴⁶

The decision to reopen the RMG sector put the workers' health at high risk. On July 7, 2020, the total cases and COVID-19-related deaths in Bangladesh had risen to "165,618 and 2,096 respectively."⁴⁷

⁴² "WHO Coronavirus Disease (COVID-19) Dashboard." World Health Organization. February 26, 2021. <https://covid19.who.int/table>.

⁴³ Shahajada Mia and Masrufa Akter. "Ready-Made Garment Sector of Bangladesh: Its Growth, Contribution and Challenges." *Economics World*. Vol.7. January-February, 2019. 17.

⁴⁴ Mia. "Ready-Made Garment Sector of Bangladesh: Its Growth, Contribution and Challenges." 17.

⁴⁵ Md. Azmeer Rahman Sorder. "Lockdown Bangladesh Country Report." CoronaNet. September, 2020. https://www.coronanet-project.org/data/reports/finished/20200822_Bangladesh.html.

⁴⁶ Kabir Humayun, Maple Myfanwy and Usher Kim. "The Impact of COVID-19 on Bangladesh Readymade Garment (RMG) Workers." *Journal of Public Health*. Oxford University Press Public Health Emergency Collection. July 31, 2020. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7454782/>.

⁴⁷ Humayun. "The Impact of COVID-19 on Bangladesh Readymade Garment (RMG) Workers."

Bangladeshi RMG employees returned to work only to increase their risk of coronavirus infection due to poor working conditions, lack of health protections, and absence of the social distancing restrictions at workplaces.

So far, it is difficult to distinguish whether or not Bangladesh's decision to reopen its RMG sector during the middle of the lockdown period was the best possible decision. If the government refused to open the RMG sector, the workers would have suffered in poverty, potentially leading to more immediate and dire concerns such as poverty and increased starvation. However, reopening the factories puts workers' health at risk, and their pay was not guaranteed upon their return to work. In fact, According to the report released from the National Garment Workers' Foundation (NGWF), some factory owners are still laying off workers to control labor cost during the pandemic.⁴⁸ Rubana Huq, president of the BGMEA, claimed that "it might still take a while for economies to rebound and people to get back to jobs."⁴⁹ Bangladesh's case shows a dilemma that many developing countries are forced to face during this pandemic.

Conclusion

Due to the extended time period until herd immunity can be reached with vaccines, Cambodia must be prepared to find a safe solution to reopening the garment manufacturing industry, as it is such a significant influence on employment and poverty within Cambodia. According to the International Labor Organization, factories should remain resilient and "prepare for the possibility that the COVID-19 pandemic will have a long-lasting impact on their businesses."⁵⁰

The Significance of the Regional Comprehensive Economic Partnership (RCEP)

Improved factory management practices cannot be the only solution to temporary employment issues in the garment industry. In order to reopen the garment in Cambodia and eliminate the threat of future economic crashes such as this one, other long-term sustainable economic policies must be adapted to decrease the vulnerability of Cambodia's labor market to external economic shocks. By analyzing the strategies utilized by the RECP, this report will suggest actions to be taken by the Cambodian government. By participating in bilateral and regional trade agreements in the RECP, Cambodia can decrease its reliance on global demand and reroute its production to be sold into domestic and regional markets. The

⁴⁸ "Live-blog: How the Coronavirus Affects Garment Workers in Supply Chains." *Clean Clothes Campaign*. February 10, 2021. <https://cleanclothes.org/news/2021/live-blog-on-how-the-coronavirus-influences-workers-in-supply-chains>.

⁴⁹ Ibid.

⁵⁰ "Recommendations for Garment Manufacturers on How to Address the COVID-19 Pandemic.," International Labor Organization. April 15, 2020. 7-12. https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/briefingnote/wcms_741642.pdf.

RCEP is “an overarching agreement to broaden and deepen free trade between the Association of Southeast Asian Nations (ASEAN) and existing partners” including Brunei Darussalam, Cambodia, Indonesia, the Lao People’s Democratic Republic (Lao PDR), Malaysia, Myanmar, the Philippines, Singapore, Thailand, Viet Nam, the People’s Republic China (PRC), Japan, the Republic of Korea, Australia and New Zealand, signed in October of 2020 after almost eight years of negotiation.⁵¹ Compared with the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), the European Union, the Mercosur trade bloc in South America, and the United-States-Mexico-Canada Free Trade Agreement, RCEP will be the biggest world’s biggest free trade agreement measured in GDP.⁵² There are twelve key economic features of the RCEP, such as trade in goods, trade facilitation, rules of origin, trade in services, investment, e-commerce, and others.⁵³ All of these features are designed to lower tariffs, open international economic and trade regimes, and create sustainable economic growth.⁵⁴

As the world’s largest trading bloc, RCEP has several practical implications that apply to Cambodia’s garment industry. Cambodia’s government can utilize its membership in the RCEP to negotiate bilateral free trade agreements with other members. In doing so, Cambodia could decrease its reliance on the European Union and the United States as its dominant two export markets. The RCEP expects “to help reduce costs and time for companies by allowing them to export a product anywhere within the bloc without meeting separate requirements for each country.”⁵⁵ By taking full advantage of its status as an RCEP member state, the Cambodian garment manufacturing industry can begin to build trade networks within the trading bloc. This initiative will upgrade the domestic garment production chain and transform the garment production method from the current low-valued-added, cut-and-trim method to a new high-value-added production method.

Policy Recommendations

By analyzing the above case studies, it is clear that there are safe and unsafe means of reopening industries during the COVID-19 pandemic. Because of how long it will take to reach global herd immunity, or even just domestic herd immunity, developing countries like Cambodia must work to find safe means of reopening their economies. Based on the analysis presented above, the next section will

⁵¹ Jong Woo Kang, Pramila Crivelli, and Mara Claire Tayag. “Regional Comprehensive Economic PARTNERSHIP: Overview and Economic Impact,” December 18, 2020. <https://www.adb.org/publications/regional-comprehensive-economic-partnership-impact>.

⁵² Ibid.

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ “What Is the RCEP Trade Deal?,” November 15, 2020.

https://www.channelnewsasia.com/news/business/what-is-the-rcep-trade-deal-13552550?cid=h3_referral_inarticlelinks_24082018_cna.

provide the best course of action for Cambodia to reopen its economy until herd immunity can be reached.

Cambodia's Tourism Industry

Without well-planned official strategies, it is difficult to maximize the effectiveness of promoting domestic tourism despite its rich potential. Japan and New Zealand's campaigns have shown several takeaway lessons that can be used to improve Cambodia's promotion of domestic tourism. Japan's "Go To Travel" strategy provided an effective way to ease economic burdens on citizens who wish to travel and encouraged them to spend more in sectors that were suffering. The example of New Zealand demonstrates that utilizing marketing media can help reach a broader audience, as well as encourages the redesign of current tourism specialties to have a greater emphasis on sustainability. Lastly, the case of New Zealand provides a framework for the safe promotion of domestic tourism. Considering these examples while taking into account Cambodia's available resources and COVID-19 pandemic history, this chapter recommends that Cambodia focus on the following factors:

1. Safe Promotion of Domestic Tourism

Considering that Cambodia has had very low COVID-19 confirmed case numbers, at least until February 26, 2021, and has maintained steady domestic tourist movement throughout the pandemic, the government can consider focusing on the promotion of domestic tourism while implementing its vaccination campaign.

2. Sustainability

While there are few international visitors, take the necessary time to develop ecotourism industries, especially the 83 ecotourism site noted by Cambodia's Ministry of Tourism⁵⁶. It is also critical to develop community-based tourism in Cambodia by highlighting cultural and historical narratives that show the uniqueness of different provinces; this will encourage domestic travel into rural areas that have been most negatively impacted by the pandemic.

3. Safety and Hygiene

During the post-pandemic era, it will still be critical to maintain a certain standard of sanitation, and citizens are likely to hold businesses to a higher expectation in terms of cleanliness. Thus, it is important for the government to design a set of instructions to standardize cleaning protocols for SMEs.

4. Digitalisation of Tourism Services

⁵⁶ Sok Chan. "Boost to Tourism-related Business." Khmer Times. September 4, 2020. <https://www.khmertimeskh.com/760394/boost-to-tourism-related-business/>.

Higher use of automation, contactless payments and services, virtual experiences, and real-time information provision will likely continue to be preferred by visitors after the pandemic. Improving information gathering, research, and data analysis skills is necessary to achieve the goal. Cambodia can also include real time data monitoring of the population at tourism spots in tourism websites, alerting people to avoid overcrowded places when traveling.

5. Strengthened Multilateral Cooperation with Foreign Countries

While promoting domestic tourism is presently the primary task to support the tourism sector, it is also necessary to cooperate with other countries to quickly reopen international tourism. Some of the critical measures are: (1) develop collaborative systems across borders to safely resume travel; (2) restore traveller and business confidence; and (3) stimulate demand and accelerate tourism recovery.

6. Promotional Support of SMEs

The government of Cambodia can cooperate with the SMEs in the tourism industry to offer discounts in order to encourage spending on travel and entertainment. Electronic discount or coupon tickets are preferable to paper tickets in order to reduce physical contact.

Cambodia's Garment Industry

It is absolutely essential to the Cambodian economy to begin reopening garment factories and stimulating business in this sector. The following recommendations consider means to safely and effectively revitalize the Cambodian garment industry, and subsequently much of the Cambodian economy.

1. Utilize Measures Recommended by the International Labor Organization

The government of Cambodia should cooperate with the garment factories to enforce the six recommended measures provided by the International Labor Organization:⁵⁷

I) Take care of workers: the working environment in the garment industry is labor intensive, and thus has potential large infection and outbreak risks for workers. Thus, factories should place employee's health and safety first.

II) Stay informed: the garment manufacturing factories should pay attention to the government's economic policies to relieve the financial and operating pressure.

III) Secure cash flows: the factories should have enough cash flows to make sure its survival. In addition, this will be a great chance to review the whole business and make it lean.

⁵⁷ Ibid.

IV) Communicate with their stakeholders: since most of the garment factories is foreign owned, it is important for factory managers to communicate business situations with the stakeholders regularly.

V) Use available hours to upgrade their workforce: combined with the suggested FDI in the next section, Cambodia's government should attract more foreign investment in technology to help factories upgrade the production line.

VI) Set out their objective(s) and develop a business resilience plan: both Cambodia's government and factories should prepare with industrial resilience and reopening plans for uncertainties in the future.

2. Negotiate Bilateral Free Trade Agreements within the RECP

Cambodia should utilize its membership in RECP to negotiate bilateral free trade agreements with other members and decrease the reliance on the European Union and the United States as the dominant two garment export markets in the middle run.

3. Allow Garment Manufacturers to Engage in Trade Negotiations

Garment factories should also engage in the negotiation process, not only to understand member countries' demand on their textile manufacturing products, but also to strive for better trade provisions tailored to Cambodia's current technology and productivity.

4. Direct FDI to New High Employment Industries

FDI should also focus on emerging non-garment manufacturing industries, which are labor intensive and create more employment opportunities.

Conclusion

Cambodia's tourism industry collapsed because of a huge decrease in international arrivals caused by the worldwide travel bans and lockdown policies during the pandemic. Through studying the domestic tourism campaigns in Japan and New Zealand, this chapter suggests ways for the government of Cambodia to improve its promotion on domestic tourism while assisting the businesses and workers in tourism sectors. Although the Go To Travel campaign failed in Japan, it provides a good way to promote domestic tourism and spendings on entertainment through discounts and coupons issued by the government. New Zealand's success story suggests that promoting domestic tourism is workable if the country's confirmed case numbers remain low and the situation is under control. It also suggests that after promoting domestic tourism, the government should shift toward a more sustainable way of traveling and discover the new tourism style designed specifically for the post-pandemic era. By reinvestigating the tourism industry, the government of Cambodia can maximize the effectiveness of

promoting domestic tourism even after the pandemic and make its tourism sector more prepared for future potential pandemics.

As for the garment sector, Cambodia's garment industry collapsed due to the supply chain disruptions throughout the world. Participating in regional trade and supply chains could help Cambodia to become less reliant on the broader, more volatile, international economy. In addition to participating in the RCEP as discussed in the chapter, participating in the Belt-and-Road Initiative (BRI) and Cambodia-China Free Trade Agreement (CCFTA) can provide the government of Cambodia with access to larger regional markets and attract more foreign direct investment. Under this model, the government can also help Cambodian SMEs (which account for a majority of the economy and labor market) by connecting them with FDI offers.

By acknowledging the uncertainties, challenges, and extended time frame involved in vaccinating the Cambodian population, this chapter provides several recommendations that the government of Cambodia could incorporate to help its people recover economically from the recession caused by the COVID-19 pandemic. These recommendations can serve as a means for economic survival while waiting to reach herd domestic immunity.

Conclusion

Madeline Kessi

“To end the cycle, we cannot vaccinate only some people in some countries; we must protect all people everywhere.” — Ngozi Okonjo-Iweala

Finding a comprehensive and long-lasting method to control the pandemic is critical for mitigating its impact on public health, national economies, and social development. As virus variants continue to emerge and countries proceed to reopen their economies and borders, it is critical that populations are effectively vaccinated in order to achieve herd immunity.

This report has examined the efforts and challenges of the COVID-19 global vaccination campaign. Through the comparison of country case studies around the world, we have been able to deepen our analysis and understanding of diplomacy, distribution, and disparities concerning the vaccine. First, we discussed the causes and consequences of vaccine nationalism, as well as the role of international organizations such as the WHO and GAVI in fighting for a more equitable distribution of vaccines. We then analyzed and compared different vaccine distribution strategies, taking into account the prioritization of groups, infrastructural challenges, and demographic inequalities. Furthermore, we examined psychological discourse such as trust and communication and their role in public policy reception and vaccine hesitancy. We discussed various public health responses to the virus and explored the effects of policy centralization and public health management. Finally, the report evaluated the economic impacts of the pandemic and how Cambodia can take action to address larger-scale outbreaks and revive its economy and main industries as it awaits the mass immunization of its population.

What does the COVID-19 pandemic and efforts to reach herd immunity mean for the world order? The past several decades have been defined by rapid globalization, as our world has become more interconnected than ever. With rapid technological developments, our economies, cultures, and societies have become intertwined and reliant upon one another. However, due to this level of globalization, the COVID-19 virus has been able to spread massively and expeditiously—from a small city in China to every corner of the world—infecting the majority of countries only within a matter of months. Thus, the result of the pandemic has been the root detriment of our highly globalized world. Just as the virus was able to spread due to our world’s interdependence, we can also use our degree of globalization to take unified responsibility for the pandemic and act jointly to heal our world.

Our efforts to heal from the pandemic have been a true test of global solidarity. The COVID-19 pandemic has shed light on the extreme inequalities, power dynamics, and demographic disparities of our world: while high-income countries turn inward and stockpile an oversupply of vaccines, developing countries are left with minimal options and resources to go about vaccinating their own populations. Many countries have acted solely out of fear and self-interest, which has caused the vaccine to become a capitalized and exploited good, not a global public good or universal human right. The pandemic has demonstrated the complex interrelatedness of our world: the health of one nation depends on the health of our entire planet. Like that which resulted from the aftermath of World War II, the pandemic's global devastation will require efforts for global recovery. In order to learn from this pandemic and heal our world, we need to embrace our global interconnectedness and work together to tackle global threats. International cooperation is going to be vital in the coming years, as we must recognize and reflect on our response to the pandemic and efforts for recovery—to better prepare our world for future global conflicts and emergencies.

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