

One Step Forward, How Many Steps Back? Benchmarking the US Covid-19 Pandemic Response Against United Nations Sustainable Development Target 3.3

By Yutia Li

Author Biography

Yutia Li is a sophomore at St. John's School in Houston, Texas. She is passionate about all things STEM and hopes to pursue a career in public health. In her spare time, Yutia plays competitive club softball, serves as an editor for her school's award-winning student newspaper, and volunteers frequently at the Houston Museum of Natural Science.

Abstract

In 2015, the United Nations adopted 17 sustainable development goals (SDGs), mapping out specific targets to work toward in order to achieve worldwide peace and prosperity. SDG 3 promotes healthy living, while target 3.3 strives to end epidemics of various infectious diseases. In this project, I examine how the Covid-19 outbreak impacted the US's progress toward SDG target 3.3, analyzing both academic literature and government documents in the form of a literature review. I discuss trends and flaws in the US pandemic response, briefly contrasting US containment measures with Singapore's, before examining the pandemic's effects on incidence rates and service outcomes for two communicable diseases — tuberculosis and HIV. Although a lack of internal and external coordination, the federalist structure of the US government, inflexible funding, and politicization of infectious disease control prevented the CDC from responding to the pandemic effectively, tuberculosis incidence rates dropped in 2020 due to less face-to-face contact and possible missed diagnoses, while HIV services experienced a rebound in late 2020 due to self test, telehealth, and antiretroviral therapy home delivery services. While Covid-19 did not dismantle the US's progress toward UN SDG target 3.3, greater communication, deeper public understanding, and an ability to expect the unexpected would accelerate the US's movement toward effective management of communicable diseases.

Keywords: Communicable disease, sustainable development, Covid-19, United Nations, United States, Singapore, public health institution, CDC, silo, politicization, HIV, tuberculosis

Introduction

In September 2015, the United Nations (UN) adopted the 2030 Agenda for Sustainable Development as a blueprint to achieve worldwide peace and prosperity. The 2030 Agenda laid out 17 specific sustainable development goals (SDGs), providing targets for countries to work toward. SDG 3 is to “ensure healthy lives and promote well-being for all at all ages.” Target 3.3 falls under SDG 3, striving to “by 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases” (United Nations, 2015). The outbreak of coronavirus disease 2019 (Covid-19) after the SDGs were established has significantly impacted worldwide progress toward SDG 3 and target 3.3. In March 2023, the United States (US) accounted for over 100 million of the 677 million confirmed worldwide Covid-19 cases, indicating apparent gaps in the US pandemic response and public health infrastructure (Johns Hopkins University, 2023). This paper aims to assess the extent to which the US is or is not meeting SDG target 3.3, examining the US’s progress in the field of communicable disease since 2019. Public health institutions in the US were under considerable pressure during the Covid-19 pandemic, so successes and failures in health policy can now be assessed with the benchmark of SDG target 3.3.

This paper specifically examines the Centers for Disease Control and Prevention (CDC), the primary public health service organization in the US. Despite employing over 10,000 staff and receiving tens of billions of dollars in annual government funding, the CDC received strong public criticism for its pandemic response, presenting an opportunity to identify key lessons (Andrzejewski, 2020). This paper first analyzes the trimodal rise-and-fall trend in US Covid-19 data, followed by a review of the CDC’s Covid-19 pandemic response and identification of key shortcomings such as a lack of flexibility within the agency and an inability to consolidate funds. The paper then discusses inconsistencies across the US media landscape that caused public confusion, including a brief section contrasting Singapore’s less polarized political landscape with that of the US, before examining the effect of Covid-19 on tuberculosis cases and HIV treatment services. The paper concludes by analyzing the US Covid-19 response with respect to UN SDG target 3.3.

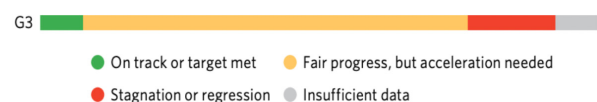
Methods

Research took the form of a literature review. Sources consisted of both gray literature, including executive and government reports, and academic literature, including scholarly journals. Gray literature contributed data and overarching ideas to the paper and included the UN 2023 Sustainable Development Report, the CDC Moving Forward webpage and Moving Forward Summary Report, and the CDC Morbidity and Mortality Weekly Report. For academic literature, the search engines of Google, Google Scholar, the Journal of Infectious Diseases, and the Lancet were used. Key words were split between two categories — CDC Covid response, and Covid-19 impact on US infectious disease with a focus on HIV and tuberculosis. Reliable sites such as the Johns Hopkins Coronavirus Research Center were used for supporting data. Limitations were considered when reviewing academic literature. This study does not offer a complete perspective on other UN SDG targets, non communicable diseases, or Covid-19 responses in countries other than the US, with the exception of a brief section contrasting Singapore’s Covid-19 measures with the US’s.

Discussion

From a global perspective, the world is far off track to meet UN SDG 3. Out of SDG 3’s thirteen outlined targets, we are on track to meet one, need acceleration to meet nine, and are remaining stagnant or regressing in two, while one target does not have sufficient data to draw conclusions, as depicted in Figure 1 (United Nations, 2023).

Figure 1
Progress assessment for UN SDG 3 based on assessed targets, 2023



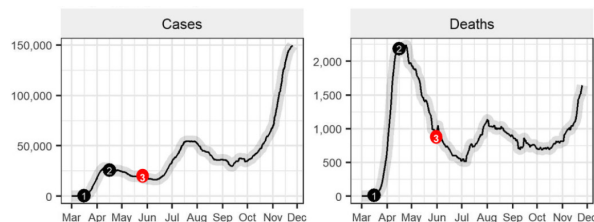
Note. Adapted from The Sustainable Development Goals Report 2023, by United Nations, 2023 (<https://unstats.un.org/sdgs/report/2023/The-Sustainable-Development-Goals-Report-2023.pdf>).

Such shortcomings can be logically attributed to the Covid-19 pandemic, among other factors. This section offers an analysis of why the US in particular is falling short of SDG 3.

Trends in US Covid-19 Data

In 2020, the US saw a “trimodal wave” in Covid-19 cases, meaning each new peak was higher than the last, as depicted in Figure 2 (Alexander et al., 2021). The seven-day average of confirmed cases peaked at approximately 25,000 in mid-April, over 50,000 in mid-July, and 150,000 by the beginning of December.

Figure 2
Seven-day average of confirmed Covid-19 cases and deaths in the US, 2020



Note. Adapted from “United States Response to the COVID-19 Pandemic, January–November 2020,” by M. Alexander et. al., 2021, *Health Economics, Policy, and Law*, 17(1), 1-29 (<https://doi.org/10.1017/s1744133121000116>).

This trimodal wave trend points to a lack of full control in the US Covid-19 response. On March 15, 2020 (point 1 on Figure 2), former President Donald Trump implemented a voluntary national lockdown, restricting mass gatherings to less than 10 people, cautioning against non-compulsory travel, and recommending school and venue closures. The voluntary nature of these guidelines led to a lack of a unified response across the country. Containment measures and decisions regarding resource allocation were left to states and counties to make based on conditions across the region. After point 1, both cases and deaths spiked, indicating this policy’s ineffectiveness in reducing transmission.

In mid-April (point 2 on Figure 2), the CDC released recommended reopening criteria including a

downward case trajectory, sufficient hospital capacity, and solid testing infrastructure. By late May and early June (point 3 on Figure 2, added on to source graph), most states had begun to reopen after seeing a downward trend in cases and deaths. However, another surge in both cases and deaths followed soon after. Similarly, after cases dipped in September and October, some states lifted restrictions once again, leading to the highest case surge by the beginning of December (Alexander et al., 2021).

While many pandemics do follow an up-and-down trend, the cycle of loosened measures, followed by a surge in cases and deaths, followed by tightened measures, followed by a dip in cases and deaths, followed by loosened measures and another surge, is especially apparent in the US.

CDC Pandemic Response

Excessive cases and deaths, along with growing public scrutiny, led former CDC Director Dr. Rochelle Walensky to launch an independent review of the CDC’s Covid-19 pandemic response in April 2022. This CDC Moving Forward Summary Report first noted a striking lack of flexibility within the CDC.

The CDC has a silo structure in which its individual centers work toward individual goals, preventing crucial internal coordination and resulting in an inability to divert resources and attention where needed (CDC, 2022b). For instance, the Department of Homeland Security (DHS) issued orders early in the pandemic preventing certain travelers from entering the US based on vaccination status and restricting the countries US citizens could travel to. However, the DHS was soon condemned for lacking consistent criteria to base these bans on. Had the CDC been able to divert attention to working with the DHS to establish science-based standards for imposing travel restrictions (e.g. based on the Covid-19 infection rate of other countries, which the CDC can obtain), quicker and more informed guidelines could have likely been established. Lack of internal coordination prevented the CDC from diverting attention to and efficiently collaborating with not just the DHS, but other agencies, community organizations, and the private healthcare sector as well (Patnaik et al., 2023). Moreover, CDC incentives such as staff evaluations and promotions have always centered on publication

productivity, a physical output, rather than impactful action (CDC, 2022b). This motive often translated into long wait times for the CDC to take crucial action, rendering the agency unable to keep up with the pandemic's pace (Jaffe, 2022). Although literature does provide crucial support for the CDC's work, rewarding efforts, such as mobilizing forces in response to a public health emergency or extending vaccination and disease testing services to other areas, would spur quicker responses to future pandemics — that is, public impact instead of publications that are not as immediately crucial (CDC, 2022b).

The federalist structure of the US government was a major factor in the lack of a centralized nationwide response. Because the US has an overarching national government with state, county, and city governments managing aspects of their own jurisdictions, healthcare policy devolved to the states, allowing local governments the freedom to develop their own pandemic guidelines. For instance, New York saw a surge in Covid-19 cases in April 2020, prompting the government to issue mask mandates and stay-at-home orders that reduced the number of infections within a month. Meanwhile, Wisconsin administrators issued a stay-at-home order in March 2020; however, the state's Supreme Court overturned the mandate in May. This decision caused many to take part in high-exposure activities such as maskless political rallies in the summer and fall, leading to skyrocketing cases in the winter. Regions with fewer restrictions and less public compliance, along with areas that reopened public facilities the earliest and quickest, saw the greatest spikes in cases and deaths (Alexander et al., 2021).

Finally, the CDC suffered from a failure to communicate effectively with the public. The Moving Forward Summary Report argued that the CDC's guidance documents are often unnecessarily long and difficult to understand, while the CDC website is complex to navigate (Jaffe, 2022). Moreover, the White House openly contradicted the CDC's guidelines, requesting that the CDC filter its guidance updates through the executive government, alter its Morbidity and Mortality Weekly Report, and dismantle its symptom tracking tool in favor of one developed by the Trump Administration and Apple instead (Schiff & Mallinson, 2022).

It is also worth noting that the CDC's budget

consists of separate line items that must be used for specific purposes — Congress prevents the CDC from shifting its budget to other areas when the need arises. Instead of consolidating its funds, the agency has always been forced to rely on a budget increase during public health emergencies (Schiff & Mallinson, 2022).

Emergency funding was a critical asset in the CDC's Covid-19 response; however, this budget was a single-time provision restricted to pandemic-specific purposes. Just as other line items could not be used to tackle Covid-19, these emergency funds could not be easily used to address public health infrastructure cracks or to combat other diseases (McKillop & Alpert Lieberman, 2023). Hence funding for infectious diseases such as HIV has remained flat since the pandemic's onset without accounting for the added costs of maintaining sufficient services during a worldwide crisis, indicating relatively little attention toward the SDGs (U.S. Federal Funding for HIV/AIDS: Trends over Time, 2024).

The CDC continues to reorganize and transform its ways under the guidance of new director Dr. Mandy Cohen according to the CDC Moving Forward Plan, which was launched following the completion of the Moving Forward Summary Report in April 2022. Additionally, the CDC established a National Center for State, Tribal, Local, and Territorial Public Health Infrastructure and Workforce in February 2023 to “improve collaboration with local health departments and public health partners” (CDC, 2022a). Amidst these reforms, the picture of the US Covid-19 response is incomplete without a look at the country's political landscape.

Politicization of Covid-19 and the SDGs

The polarized US media landscape resulted in manipulation of guidance messages to the public, as outlets such as Fox News and CNN began to spread contradicting information in the early stages of the pandemic. While Fox News deemphasized the severity of Covid-19 and deemed that the public could continue safely with everyday activities, CNN portrayed the virus as a greater threat based on commentary from the World Health Organization (WHO) and CDC. Such inconsistencies accounted for not only public confusion but also a wide range of contrasting

responses to the pandemic, with CNN followers engaging more frequently in preventive measures than Fox followers (Zhao et al., 2020).

Moreover, Trump and former chief medical advisor to the president Anthony Fauci openly disagreed over the threat Covid-19 posed. When Fauci warned against reopening cities prematurely without meeting necessary criteria, citing the possibilities of an unprecedented death toll and further economic setbacks, Trump criticized Fauci's recommendations as "unacceptable" and pressured states to reopen their economies (Rutledge, 2020). This controversy contributed to still increasing waves of misinformation (false information) and disinformation (deliberately misleading information).

Finally, while the Trump Administration never officially withdrew its support from the SDGs, it gave the SDGs little attention and funding under America First Policies, which advocated for US withdrawal from international relations. Consequently, cities and states such as Los Angeles and New York launched independent attempts at working toward the SDGs, including voluntary local reviews and online progress-tracking dashboards. Meanwhile, corporations such as Walmart and Verizon publicly aligned their environmental and health practices with the SDGs. Despite these efforts, however, a lack of federal support led to an overall neglect of SDGs during the Covid-19 pandemic (Pipa, 2023).

The politicization of Covid-19 and infectious disease control led public behaviors and attitudes to trend toward extreme opposites rather than a united consensus during the pandemic. Leaders turning typically science-based decisions into opinionated debates disrupted the US pandemic response and subsequent work toward the SDGs. Conversely, lessons can be learned from a country with little politicization that used other strategies to tackle Covid-19.

Singapore's Pandemic Response: A Quick Glance

Singapore, with a population of 6 million, took drastically different measures to contain the Covid-19 pandemic than the US, with a population of 340 million, did. Although Singapore's population

is much smaller than that of the US, its population density ranks among the highest in the world (Countries in the World by Population (2024), 2023). Because Singapore differs greatly from the US in culture and political landscape, its Covid-19 response offers an opportunity to contrast infectious disease control in the two countries.

Singapore holds regular elections; however, the voting system heavily favors the People's Action Party (PAP), which has remained politically dominant since 1965. The Singapore government has extensive power to limit individual rights as a trade off for an orderly society, resulting in little pushback from the law-abiding public (Abdullah & Kim, 2020).

The Singapore government took immediate action against Covid-19, setting up a Multi-Ministry Task Force (MMTF) in January 2020 to tackle arising threats. The MMTF facilitated close cooperation between the government, scientists, and the public, whereas the US lacked this strong coordination. Singapore also benefited from strict, government-enforced containment policies, including a national circuit breaker lockdown followed by gradual reopening phases. High public compliance rates led to low numbers of Covid-19 cases and deaths in Singapore during the early pandemic stages (Abdullah & Kim, 2020).

Although Singapore was globally lauded for its low infection and mortality rates in early 2020, the country's later failures were masked due to lack of a dissenting public culture and little media presence. Migrant workers in Singapore live in crowded conditions, with single bedrooms housing up to 20 men each and bathrooms being shared throughout dorms containing hundreds, making such areas ideal for rapid disease transmission. These circumstances went unheeded by the government until Covid-19 clusters began to pop up in dormitories and spread into the wider community (Bhandare, 2020).

On the contrary, when minorities began to suffer in the US, independent sources that do not exist in Singapore, such as media outlets and the Kaiser Family Foundation, shed light on the issue immediately. The actions to take in response, however, grew into a matter of prolonged debate (Artiga et al., 2020).

This contrast highlights a key difference between the US and Singapore — political landscape. In Singapore, the parliament and PAP hold all political authority, whereas US residents sacrifice such centralization for increased freedom to act in favor of their own opinions. Ultimately, Singapore, with 341 deaths per million people, saw greater success in combating Covid-19 than the US, with 3671 deaths per million people, did (Covid-19 Coronavirus Pandemic, 2024).

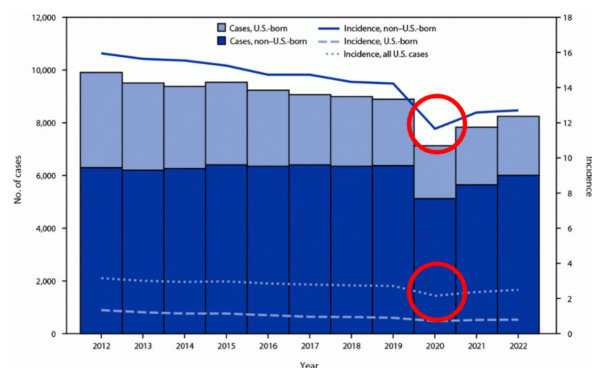
Effect of Covid-19 on Other Communicable Diseases

This section examines the effect of the US Covid-19 pandemic response on other communicable diseases and UN SDG target 3.3, studying implications on both incidence rates and treatment services.

Tuberculosis Incidence

Tuberculosis (TB) incidence in both non-US born and US-born populations declined gradually but steadily from 2012 to 2019, as depicted in Figure 3 (Schildknecht et al., 2023).

Figure 3
Change in TB cases and incidence per 100,000 persons by patient birth origin, US 2012–2022



Note. Adapted from “Tuberculosis — United States, 2022” by K. R. Schildknecht et. al., 2023, MMWR. Morbidity and Mortality Weekly Report, 72(12), 297–303 (<https://doi.org/10.15585/mmwr.mm7212a1>).

2020 saw a sharp decrease in TB incidence from just over 14 to just under 12 in non-US born

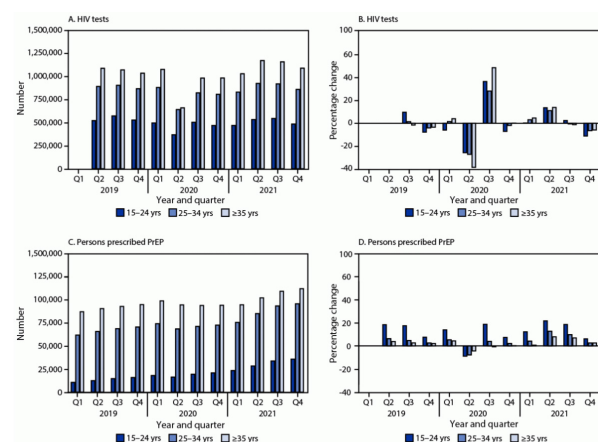
populations and from 2.7 to 2.2 in US born populations (red circles in Figure 3, added on to source graph). The CDC suggests that quarantine during the pandemic, which began in early 2020, is one reason for this sharp decline, as lockdowns decreased face-to-face contact and prevented airborne TB transmission. Additionally, people aged 65+, who have greater TB susceptibility, also had the greatest Covid-19 mortality rate. In other words, Covid-19 killed some who may have contracted TB otherwise. Therefore, lower TB cases and incidence rates during the pandemic indicate that Covid-19 may have played a role in preventing transmission of other infectious diseases. However, delayed or missed diagnoses due to an inability to visit clinics likely also account for a portion of this sharp decline (Schildknecht et al., 2023).

In 2022, the United States reported 8,300 TB cases — 426 more than 7,874 in 2021. Similarly, TB incidence increased from 2020 to 2022, but remained lower than pre-pandemic rates. As cases and incidence rates climbed with lifted restrictions in 2022 and 2023, the CDC recommended directing increased attention to the prevention, diagnosis, and treatment of TB in 2023 (Schildknecht et al., 2023).

HIV Treatment

The number of administered HIV tests each quarter year remained relatively steady among all age groups before the 2nd quarter of 2020, as depicted in part A of Figure 4 (Hoover et al., 2022).

Figure 4
Change in number of administered HIV tests and persons prescribed PrEP by age group, US 2019–2021



Note. From “HIV Services and Outcomes During the COVID-19 Pandemic — United States, 2019–2021” by K.W. Hoover et. al., 2022, *MMWR. Morbidity and Mortality Weekly Report*, 71(48), 1505-1510 (<https://doi.org/10.15585/mmwr.mm7148a1>).

Stay-at-home orders and closure of healthcare venues beginning in March 2020, along with loss of employer-sponsored health insurance, caused HIV services — specifically tests performed in a clinical setting — to decrease drastically between April and June, as seen in graph parts A and B (Hoover et al., 2022). Decreased testing services caused increased missed diagnoses, resulting in delayed treatment, greater risk of HIV transmission, and more frequent progression into AIDS (Gilligan, 2022).

However, the number of administered tests rebounded to numbers similar to pre-pandemic ones in all age groups by the second half of 2020 and 2021. HIV and pre-exposure prophylaxis (PrEP) self-test kits were developed to enable diagnoses at home, while antiretroviral therapy (ART) home delivery allowed patients to continue to manage their illnesses without visiting a clinic. Additionally, telehealth services allowed for easier PrEP initiation and sustained use. As shown in part D of the graph, a negative percent change of persons prescribed PrEP in quarter 2 (between April and June) of 2020 was followed by a transition back to positive percent changes by the end of 2020. Therefore, the aforementioned tools allowed the US to maintain a resilient healthcare infrastructure and minimize Covid-19’s impact on treatment services for other communicable diseases (Hoover et al., 2022).

Conclusion

The Covid-19 pandemic exposed many of the CDC’s weaknesses in infectious disease control. Although quarantine likely reduced transmission rates of non-Covid infectious diseases, representing potential progress toward SDG target 3.3, and the US was able to rebound to similar communicable disease services as before the pandemic in mid-2020, TB cases have rebounded in recent years, and the CDC and US society must make adequate adaptations to ensure continued progress toward SDG target 3.3. Fundamental issues in public health infrastructure may need to be addressed to improve future pandemic responses.

Although the US did suffer from a lack of centralized mandates during times of crisis, it is difficult to determine if greater concentrated authority would have ultimately benefited the US. US public health and policy is more inherently political than Singapore’s, where a centralized government runs the country effectively due to great public compliance. A successful centralized government requires a balance between strong decision making and political stability — perhaps stricter mandates would have tipped this scale too far toward political unrest in the US — hence it cannot be said that increased centralization would allow for greater progress toward SDG target 3.3.

However, it is apparent that the US, and the CDC in particular, would benefit from better communication and greater flexibility. Instead of operating in isolated silos, drawing on the strong collaboration capabilities of other agencies such as Singapore’s Multi-Ministry Task Force could have allowed the CDC to publish findings and make decisions in a more confident, timely fashion. In the event of future public health crises, it is important for institutions and the government to work closely together instead of contradicting each other and causing greater public confusion. The CDC could also use its expertise to support the policies of other federal institutions, such as the DHS and the Food and Drug Administration (FDA), using its data to back up decisions made by such agencies. An interdepartmental coordination group between the CDC, other government institutions, and the White House could establish greater coordination and understanding in decision-making processes (Patnaik et al., 2023).

Moreover, increased funding flexibility could have allowed the US to better account for the difficulties in ensuring continued access to infectious disease treatment during pandemics. Such improvements would likely have strengthened the US response to Covid-19, resulting in fewer setbacks in ending epidemics and progressing toward UN SDG 3. Moreover, the public has a role to play in responding to communicable disease threats. In an environment where stories are often distorted by news outlets and media, individuals should dig deeper to truly understand the measures they must take to remain safe. A level of public cooperation is necessary to reduce disease transmission — beginning with clear, science-backed guidelines from institutions. In this way, trust gaps that have emerged between the public and institutions during the pandemic can be bridged.

Finally, the US government, institutions, and individuals alike should learn to expect the unexpected. Newly emerging variants and asymptomatic transmission during the Covid-19 pandemic show that the government and the CDC should develop the resources and flexibility to navigate unprecedented obstacles, while individuals must remain resilient in the face of uncertainty, ensuring that the US continues to move toward SDG target 3.3 and sustainable health for all (Fauci & Folkers, 2023).

Putting these lessons into action is easier said than done — the “how” is a question that invites further discussion. While Covid-19 did not dismantle the US’s progress toward UN SDG target 3.3, acceleration is still needed to reach SDG 3, and these lessons should be kept in mind in order to continue moving toward effective management of communicable diseases.

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