**Background Paper (BP) on the ‘Policy lessons from country experiences with health and wellbeing (SDG3) in the wake of COVID-19’**

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**Notes on the extended outline**

*We include a draft of the case studies on Viet Nam and Peru to illustrate the general framework that the eventual case studies on Cuba, Oman, Nigeria, Rwanda, and Peru will follow. Upon completion of the country case studies, we will finish the background paper’s comparative analysis and conclusions.*

**Abstract**

The COVID-19 pandemic has had profound effects on health care and other societal systems, as well as the global economy. As is the case in most humanitarian emergencies, poorer developing nations have taken the hardest hits, and disadvantaged groups, particularly people living in poverty and subject to marginalization and exclusion, have suffered the most. Although the national response strategies to COVID-19 have, particularly during the initial phase of the pandemic, been largely similar in scope, the timeliness, scale, and assertiveness of the response have varied considerably across countries. In this background paper, we attempted to answer three questions: 1) How have different countries, particularly those that are resource-constrained, responded to the COVID-19 pandemic?; 2)What have been the main similarities and differences in policies and approaches that countries have taken to tackle this novel public health threat?; and, 3) what key policy lessons can be drawn from these countries’ experiences to prepare for future public health crises? To draw conclusions from the various COVID-19 response strategies and approaches taken by governments to mitigate the multifaceted impacts of the pandemic, we compiled country case studies on Cuba, Nigeria, Oman, Peru, Rwanda, and Viet Nam. These six countries were selected based on their varying levels of national progress towards Universal Health Coverage (UHC) and other health-related Sustainable Development Goals (SDGs) targets over the past decade, their differing levels of pandemic preparedness and response capacity, and their overall level of economic development. Given that the COVID-19 pandemic is still ongoing, we employed a qualitative case study methodology which leveraged national and other official policy documents on countries’ COVID-19 responses from the start of this public health crisis in January 2020 to date and the academic literature. Where possible, we used quantitative data from international and national sources to provide context or support for our findings. The COVID-19 crisis has brought into sharp focus the weaknesses in almost every health care system around the world. We hope that the findings of this analysis will inform the development of synergistic strategies to achieve an equitable and robust global recovery from COVID-19 and help strengthen overall resilience in all nations to respond better to future public health crises, with the primary aim of driving progress toward the achievement of the health-related SDG targets by their 2030 deadline.

**Introduction**

*The global ramifications of the COVID-19 pandemic*

* Since December 2019, COVID-19 has evolved to become a pandemic and resulted in, according to the WHO as of May 31, 2021, 170 million cases and 3.5 million deaths.
* Understanding countries’ responses to the COVID-19 pandemic is important for three primary reasons: first, it allows policymakers to better understand the similarities and the differences between national strategies and better gauge the nature of the global response [1]. Second, an analysis of national strategies allows researchers to identify the different policy choices involved in these strategies and the complex set of factors that shape a country’s capacity to respond and make determinations about the effectiveness of different strategies and the feasibility of implementation in different local contexts. And, third, this analysis enables us to make recommendations about future courses of action, including how to coexist with the pandemic until it is brought under control, achieve an equitable and robust recovery from COVID-19, and build resilience to respond better to future public health crises.
* While some COVID-19 response measures, such as international border restrictions, school closures, national lockdowns, and restrictions on non-essential businesses, have been broadly adopted by countries as part of their national strategies, there has been stark country-to-country variation in the implementation of other measures, such as mandatory mask-wearing, deployment of testing and vaccination, re-organization of health services, domestic travel restrictions, the creation of new task forces, and the restriction of non-essential government services [2]. Such variation in the types of response measures exists not only between countries, but even within countries—for instance, many states in the United States of America adopted markedly different response measures to combat the pandemic [3, 4]. There has also been substantial county-to-country variation in the timing and sequence of implementation, particularly in the initial phase of the pandemic; while some countries were slow to ramp up their response to COVID-19 until they started experiencing COVID-19-related deaths (e.g., the United Kingdom and Colombia), other countries mounted an aggressive and comprehensive response even before seeing any marked increases in cases (e.g., Viet Nam, Taiwan, and South Korea).
* It is readily apparent that COVID-19 has had differential impacts across countries and across populations within countries, affecting disproportionately those that are living in poverty and subject to marginalization and exclusion [5]. The difficulty of any analysis, including this one, is objectively parsing out how much of the differential impact of the pandemic is due to countries’ pandemic responses as compared to the pre-existing conditions within countries, such as a country’s pandemic preparedness and response capacity, disease surveillance system, and health system capacity and infrastructure. Other facets of disease spread, like the frequency of travel to and from countries with high levels of disease prevalence, socio-demographic characteristics such as population size, age distribution, and density, the prevalence and spread of COVID-19 variants, may also account for some of the variation observed in the impact of COVID-19 across space and time within and across countries. While empirical evidence on the importance of these factors is growing and essential to understanding the course of the pandemic and informing policy responses forward, there are inherent methodological challenges involved in such analyses, and the pandemic is far from being over yet.

*Contributions of this background paper*

* First, the evidence-base on national response strategies to COVID-19 has largely fallen into two categories: broad-brushed global datasets that compile surface-level data on country policies and response strategies; and in-depth qualitative research studies that have generally, though not always, focused on pandemic response in high-income country settings as these countries got hit hard much earlier due to their higher global connectedness. We aim to contribute to the academic literature by observing how different countries, with a particular focus on those in low- and middle-income settings, have responded to COVID-19 in the initial phase of the pandemic. Such countries are more likely to face higher disease burden and social and economic pressure due to COVID-19 because of their weaker health system capacity and infrastructure and heightened demand for health care in a backdrop of highly strained resources [6].
* Second, this background paper aims to not just describe how each of the six case study countries has responded to the pandemic, but specifically elucidate the similarities and differences in the policies and approaches these countries have adopted to confront the multi-faceted challenges posed by the COVID-19 pandemic, with the recognition that their health systems have provided the context for and shaped their pandemic response. By doing so, we aim to understand the extent to which the policies, approaches and measures taken by the six countries before and during the COVID-19 pandemic have further strengthened or weakened their health systems.
* Third, we aim to proffer lessons learned based on a novel analysis of countries’ policies and approaches—both successful and unsuccessful—to the COVID-19 pandemic. In drawing these conclusions, we aim to fulfil three key objectives: first, to provide information that could inform national strategies and approaches to combatting the pandemic now, especially in resource-limited settings, as the pandemic is far from over yet. Second, to offer recommendations about what policies should be taken if the world must co-exist with the pandemic into the near future. And, third, to elucidate the lessons of this pandemic that could improve countries’ capacity and resilience to respond to similar public health emergencies in the future.

*Methodology*

* Until the COVID-19 pandemic has run its course, there are intrinsic difficulties in assessing the validity of countries’ self-reported data or third-party data on cases or deaths. Further, national statistics are not real-time, so there is a delay in obtaining data on the true health impact of the pandemic. There are additional challenges in that while there were limited differences in national strategies and response measures implemented across countries during the initial phase of the pandemic (March-May 2020), within-country and across-country differences have become more marked over time [3, 6]. Additionally, there has been clear variation in the level of implementation of policies and the level of adherence to those policies within and across countries, and ascertaining these facets of implementation is difficult while the pandemic is still ongoing. We thus attempt to draw conclusions by primarily using qualitative data and information from national and other official policy documents on COVID-19 response and the academic literature to compare countries’ response strategies and the COVID-19 impacts. However, we do present quantitative data to buttress our arguments and findings when possible and when we have confidence in the data as presented.
* Determining which countries to include in our study was difficult for two reasons: first, the pandemic is still ongoing, and countries that have been lauded for their pandemic response may still experience a resurgence of cases due to the complex set of factors that shape disease transmission and spread, including the emergence of more infectious variants of the virus; and second, countries have experienced very different per-person rates of COVID-19 infections even when compared with countries that are located in the same region with similar level of economic development, or have made similar progress towards universal healthcare coverage (UHC) (see Figure 1). We therefore attempted to select countries, especially those in resource-limited settings, which took different policy approaches to the pandemic, and undertook a qualitative, context assessment of each country to assess how those policies have affected COVID-19 outcomes to date and what policies and approaches have proved to be important.

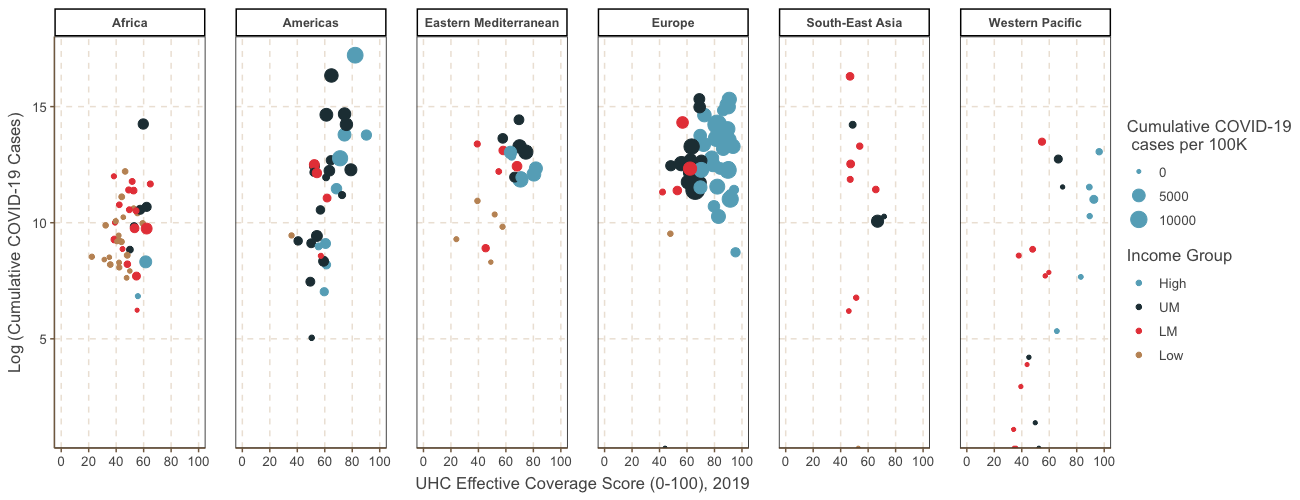


Figure 1. A visualization of cumulative COVID-19 cases and Universal Health Coverage (UHC) Index by income group (UM=Upper-Middle; LM=Lower-Middle) and geographic region

*Findings*

* We find that a country’s level of pandemic preparedness, the speed with which it responded to the spread of COVID-19, and the comprehensiveness of its pandemic response measures impacted its ability to cope with the pandemic. These findings show that low-income countries can use their resources efficiently and innovatively to cope with a public health emergency. Meanwhile, there is only moderate evidence that a country’s health system capacity and universal health care coverage impacted the country’s ability to address the COVID-19 pandemic, there is other evidence to suggest that it may impact a country’s ability to recover quickly from the pandemic. Conversely, the pandemic exposed the weaknesses of fragmented health systems centered around for-profit health care providers, including in high income settings such as the United States.
* The emerging lessons also highlight the paramount importance of political readiness and capacity to mount coordinated action from central to local levels, particularly across the health sector (e.g., Thailand and Viet Nam). These lessons also spotlight the importance of trust and government legitimacy among the public (e.g., Rwanda and Viet Nam) and the significance of past experience with pandemics and resulting public health emergency preparedness (e.g., Viet Nam, South Korea, and Taiwan). Of note, countries initially appeared to have observed their neighbors’ pandemic response and acted in concert before diverging policy-wise in later months, which in part explains why various regions had initially similar levels of COVID-19 case counts [7]. Further, some countries have shown high degrees of adaptive capabilities in their response where both central and local governments continuously created, amended, and deployed new policies in harmony to respond to the evolving pandemic in a timely manner while also prioritizing corrective actions in light of the accumulating experience and scientific knowledge base related to COVID-19 (e.g., Viet Nam and Germany).
* These lessons are especially important for much of the developing world, which is getting increasingly affected by the pandemic as evidenced by the recent shift in the distribution of mortality attributable to COVID-19 to developing nations in recent months. Developing countries are highly vulnerable to COVID-19 due to their large populations, high infection prevalence as a result of a number of structural factors, including poverty, urban density, and informality of economy, and the emergence of several more infectious variants of the COVID-19 virus. Furthermore, many developing countries face an uphill battle due to limited economic resources and pre-existing health capacity constraints, and the health care systems have already become overwhelmed in response to the initial rapid spread of COVID-19. The lessons learned and the best practices highlighted in this background paper may help developing countries be better prepared to mitigate new waves of COVID-19 infections and stay on track toward the health-related SDG targets.
* COVID-19 has highlighted the deep inequalities across and within countries and will surely have significant health and economic ramifications for countries that experience a large burden of disease. However, we note that, as of writing, the countries profiled in this background paper have fared reasonably well in their response to COVID-19 despite limited resource and health system capacity constraints. Based on the experiences of these countries, we highlight the opportunities that have arisen from the pandemic, especially the opportunities for increased international collaboration on health systems strengthening, increased investment in and progress towards UHC in resource-constrained settings, increased use telemedicine to provide routine health services, and strengthened disease surveillance efforts across regions. At country level, it is also possible that governments are more inclined to shift their position and choose to be proactive in responding to a crisis and prioritize investments in pandemic preparedness and response capacity in the future.
* The countries profiled in this background paper was primarily focused on containment and mitigation efforts due to the novelty and immediate impacts of COVID-19. As the pandemic continues its course and the widespread distribution of vaccines falls short across the developing world, the countries profiled herein will likely begin designing and implementing new strategies and policies to co-exist with COVID-19. Co-existence presents new challenges both to countries’ health systems and progress towards the SDG3 targets. Countries will be challenged with finding the right balance between investing in COVID-19 response measures versus other goals that require financing, as well as between stringency of measures and ease-of-movement. Figure 2 highlights the extremely varied governmental policy approaches currently employed by the countries. Continued investments into the long-term goal of health systems strengthening, which would include robust surveillance and data and information systems, reduced fragmentation, and removal of all financial barriers to health care access, may prove the most effective, as they allow countries to concurrently respond to public health emergencies quickly and efficiently and make progress toward the SDG3 targets. Conversely, it is costly and inefficient to respond to each public health crisis with one-off interventions.

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Figure 2. The Oxford COVID-19 Government Response Tracker’s Stringy Index for the world with average trendline from January 2020 to present (Figure and Analysis by Authors)

**Case studies**

**Cuba: Return of the Decades of Investment in UHC, Science, and Human Resources, and the Ways to Move Forward**

*Introduction*

The Republic of Cuba, an upper-middle income country of 11.2 million people located in the Caribbean, has been widely lauded for its efforts, both in Cuba and abroad, to stem the COVID-19 pandemic [8]. In the past decade, Cuba is known for having one of the highest doctor-to-patient ratios in the world, has made widely renowned progress against malaria and tuberculosis, and has one of the lowest maternal and child mortality rates in the region (Figure 3). Cuba’s GDP per capita in 2019 was about US$8,800, which put it towards the lower end of the region [9], and it had a pandemic preparedness index score of 35.2, which ranked it 110/195 in the world [10].

Although Cuba derived some of its success in stemming COVID-19 for most of 2020 from its ability, as an island nation, to quickly halt international travel, it also derived benefits from its pre-existing disaster-response institutions, its strong primary healthcare system and workforce, and its ability to mount a rapid government response [11]. Cuba’s pandemic response is all the more interesting because of its difficult economic circumstances, which are in part due to a United States embargo prohibiting the normal trade of food, medicine, and medical equipment [12]. Cuba thus might shed light on some lessons learned for other highly resource-constrained countries. Ultimately, Cuba’s success to date in containing COVID-19 and having one of the lowest COVID-19-attributable mortality rates regionally [13], is indicative of the significance of a well-established and accessible primary healthcare system with resources allocated equitably across the country and a strong emergency preparedness and response capability.

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Figure 3. Trends in selected SDG 3 indicators in Cuba, 2009-2019

*Overview of the health system and progress towards UHC*

Cuba currently has a single, universal health system with national coverage and free-of-charge care for patients [14]. Almost all health facilities are government owned and operated; though the health system was centrally developed, local flexibility has been highlighted such that localized health incidents can be readily addressed [12]. The health system is split into three hierarchical levels, which interlock: *consultorios* (family doctor clinics); *policlinicos* (specialty clinics which provide secondary care; and hospitals and *institutos* (hospitals and medical institutions which provide tertiary care). At the first level, family doctor clinics generally serve a population of up to 1,500 patients [12]. At the second level, each polyclinic serves a geographic region of about 25,000 to 35,000 people. In any given location in the country, a polyclinic is usually located within a few blocks. And, at the third level, circa 2019 Cuba had 150 hospitals and 12 medical research centers [15].

Cuba’s centralized and free-of-charge health system focusing on primary health care enabled the country to make robust progress towards achieving UHC (Figure 4) [12]. Cuba has long stressed the importance of population health [16]; during the crisis of the 1990s, Cuban health service infrastructure rapidly deteriorated [17]. Later, recuperation and modernization were key strategies: human resources for health were a key priority, as well as strengthening professional development and family medicine and support services of policlinics [16]. The medical training curriculum has in many ways reflected the Cuban health system, focusing on population health and public health measures [18]. Cuba has additionally focused on rural health; a Rural Medical Service (RMS), established in 1960, has been a precursor to later models which embedded health professionals in underserved communities [12].

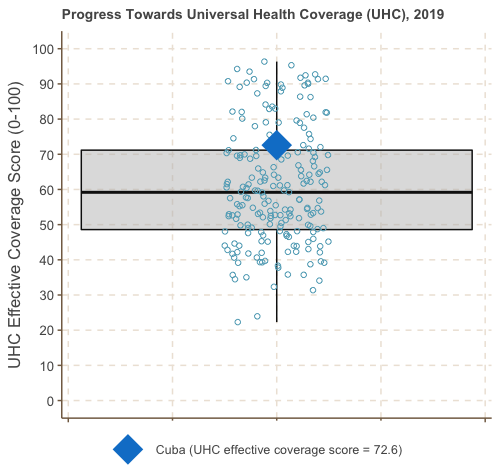


Figure 4. The Universal Health Coverage effective coverage index for Cuba, 2019

Though Cuba has attracted praise for its achievements in matters of health and the robustness of its National Health System (SNS) [19], other scholars, however, note that the government of Cuba has previously manipulated key health statistics, such as the infant mortality rate (IMR), for political legitimacy [20].

*Pandemic preparedness and response capacity*

Though Cuba had a low pandemic preparedness index score of 35.2, which ranks the country 110/195 in the world [10], it also possesses several underlying factors that enables the country to mount a robust response to public health crises.

First, Cuba has a history of implementing the requisite steps to contain health threats in the country, which includes elimination of 13 diseases since 1960, including measles, rubella, mumps, tetanus, meningitis B and C, and hepatitis B [19]. Cuba was also the first country in the world to certify elimination of the vertical transmission of HIV and congenital syphilis in 2015 [19, 21]. Part of Cuba’s ability to contain and control HIV was the strict state control over its population’s health—Cuba is the only country where HIV detection tests are obligatory and where at least until recently people with HIV were confined [20]. Cuba also eliminated malaria in 1976 as the first country in Americas, which, to date, is only followed by Paraguay in 2018 and by El Salvador in 2021 [22]. These active steps rest upon an already strong bedrock of clinical preventative services and disease surveillance and control efforts, as well as disease-specific action groups, which work alongside routine health services and civil defense units to respond to crisis events and mobilize rapid to minimize any potential threat to the population[12]. For instance, a dengue task force is deployed in the face of an outbreak with the specific objective of containing it and works across multiple levels of governance from the municipality to the MoH. A similar task force was instituted when Zika started to spread through the Americas which enabled a systematic response with proactive measures to prevent the introduction of the disease into the country. Within this context, it is important to note that Cuba also has a distinct focus on point-of-entry controls at airports for every flight and has the capacity to undertake personalized follow-ups of travelers [27].

Second, Cuba had its strong progress towards UHC, which included extremely strong primary health care, a large and well-trained workforce, and the presence of strong research centers organized for innovation [14]. By the end of 2016, more than 2,000 health investigations were being carried out in Cuba by more than 3,200 researchers [19]. That said, about half of Cuban physicians work in international missions and many are gynecologists [20]. Outside of the health context, Cuba also has ample experience in disaster mitigation, developing disaster preparedness institutions that have been used not just during epidemics but also during tropical hurricanes [11].

Third, Cuba has been focusing on building its health system resilience by investing in science and technology, which enabled the supply of medicines and medical equipment through domestic production [23]. The country is internationally recognized for its well-advanced biopharmaceutical industry; according to WHO, Cuba holds over 1,300 international patents in the field and 9 of Cuban inventions received the gold medal from the World Intellectual Property Organization (WIPO) [24]. These advances in R&D and the domestic manufacturing capacity support the country to be relatively self-sufficient in medical supply; about 65 per cent of the health needs of the country is supported by domestically manufactured products [24]; Cuba’s high immunization coverage against various vaccine-preventable diseases is powered by the domestically manufactured and supplied vaccine products, which accounts for around 80 per cent of the total vaccines used in the country [23, 25]. On net, this bolstered the overall resilience of the health system to external shocks.

Lastly, Hurricane Irma in 2017 serves as a prime example of the country’s emergency preparedness and public health response capacities. Fast resource re-allocation, including the immediate creation of extra hospital beds in major healthcare facilities, pre-emptive staffing of medical workers in rural areas, and equipping healthcare facilities with emergency power generators to anticipate electricity loss all concurrently enabled uninterrupted healthcare service provision during and after Irma. Post-hurricane epidemiological surveillance revealed no occurrence of waterborne and/or gastroenteritis disease outbreaks across the country, reaffirming Cuba’s adequate disaster management strategies. Cuba is also an active international player in supporting other countries’ emergency response capacities. The country dispatched healthcare workers to support numerous hurricane damages in Caribbean countries, as well as the two major Ebola virus disease outbreaks in African countries [26, 27]. All being said, Cuba is arguably considered one of the most prepared countries for COVID-19, though much of this preparedness came due to a particular political context that raises questions about civil liberties [27].

*Response to COVID-19*

In January 2020, Cuba activated the National Temporary Group to intersectorally confront the pandemic, outlining the policies of government, communication, and science and technology [13]. Cuban authorities subsequently followed international guidelines, conducting contact tracing, isolating suspected cases, and mandating the use of masks in public places [28]. The first case of COVID-19 was confirmed in Cuba on March 11, 2020 [13]. On March 22, 2020, Cuba announced the selective closure of its international borders at airports and recreational ports; this was at a time when the country had fewer than 50 confirmed cases and only one death from COVID-19 [11]. Simultaneously, all public events where safe social distancing cannot be respected were suspended. The immediate re-allocation of healthcare resources created enough hospital beds to accommodate all severe cases. In April 2020, when the transmission rate in the country peaked, they still had around 20 per cent occupancy rate of ICU beds after accommodating all COVID-19 patients across 30 major hospitals [23]. Authorities, thereafter, activated Cuba’s defense councils, which decentralize the chain of command, and instituted interprovincial checkpoints to enforce mobility bans [11]. By mid-May, the Oxford Stringency Index gave Cuba its highest evaluation for governmental response [3, 11] (Figure 5). During the three months after the first case of COVID-19 was confirmed, Cuba also instituted some unique measures, including instituting a nationwide door-to-door active screening for individuals with COVID-19 symptoms, which reached about 9 million people within a few weeks, and referral of suspected cases into isolation facilities where treatment and tests were provided [23]. Much of Cuba’s success has been attributed to these proactive measures [13].

After the immediate governmental response, Cuba relied on its primary healthcare workers to carry out a proactive nationwide campaign of disease surveillance and community outreach [11]. Cuba’s research centers continued working through the pandemic; by October 2020, Cuba had four vaccine candidates, and Cuba’s Finlay Institute of Vaccine had a promising vaccine candidate, SOBERANA 01 [23]. Cuba additionally focused some of its efforts abroad, garnering positive international reactions as stories of Cuban doctors being flown around the world widely circulated; these stories were reminiscent of similar praise garnered by Cuban doctors who flew to help during the Ebola epidemic [11].

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Figure 5. The Oxford COVID-19 Government Response Tracker’s Stringy Index for Cuba with average trendline from January 2020 to present (Figure and Analysis by Authors)

As the pandemic spread throughout Latin America, Cuba became a relative regional success story. Explanatory factors included Cuba’s universal health system, particularly the services provided by family doctors and nurses at the first level of care [29]. Other measures included Cuba’s previous history controlling communicable diseases, the swift closing of borders, the restriction of movement across the country, and nationally manufactured pharmaceuticals, which proved effective at controlling some of the more severe COVID-19 symptoms [29, 30]. However, despite the prevalence of locally available doctors, there were still urban-rural disparities in the level of care offered and available throughout the pandemic [29]. We also note that though Cuba garnered praise for its response to COVID-19, its economy was hit hard, and the pandemic amplified pre-existing social inequities [11].

After containing COVID-19 successfully for most of 2020, Cube has experienced a peak in infections in 2021. More than 70 per cent of current cases are linked to international travelers arriving at the country following the relaxion of travel restrictions [31].

*Conclusions*

Cuba’s universal health system providing equitable access to primary care throughout the country, disaster preparedness and response capacity, which has been bolstered in the aftermath of each disaster, and healthcare institutions operated by professionals whose training includes immense focus health promotion and prevention of diseases, coupled with the agile and committed government, enabled a quick, effective, and adaptive response to COVID-19 [14]. Cuba has its own shortcomings in the health system, including the increasing burden of noncommunicable diseases due to the fast changing population dynamics and the trade-offs between close medical surveillance and health system performance and civil liberties [20]. A large part of the country’s success during the COVID-19 pandemic has been attributed to the strong central governance, which enabled streamlined execution of policies and strategies, and the existing close medical surveillance system. In the case of the COVID-19 pandemic, a large-scale public health crisis, this strong governmental control worked favorable for Cuba. However, post-pandemic direction of Cuba’s health system strategy, whether or not it could embrace and overcome the current criticisms around the suppression of civil liberties, would be crucial to the long-term sustainability of the country’s much lauded success in achieving universal health care and other health-related SDG3 targets.

*Takeaways*

* Cuba, an upper-middle income island country in the Caribbean, received both appraisal for its universal health coverage and strong investment in public health over decades, and criticism for its lack of transparency in reported indicators and potential suppression of basic human rights.
* Cuba was able to respond to the COVID-19 pandemic in a timely and effective manner, due to the following strengths, coupled with a benefit of being an island nation:
  + Strong foundation of its well-established primary healthcare system, run by the government, the sole payer of the health system
  + Relatively equitable and abundant human resources allocated across the country
  + Lessons learned and applied from previous emergencies and disasters
  + Investment in science and technology supporting self-sufficient supply of medicines and equipment
* While the current health system worked favorable in the case of a large-scale public health crisis, the country’s long-term success in achieving UHC and other health-related SDG3 targets will rely on how Cuba embraces its current criticisms.

**Nigeria – Avoiding potential crisis by quick government action and expanding social protection strategies**

*Introduction*

Nigeria, a lower middle-income country located in West Africa and the most populous African nation with 201 million people, was one of 13 countries identified by the WHO as a high-risk priority zone for proactive surveillance, detection and containment of the spread of COVID so as to not overwhelm the already vulnerable health system of the country [32]. Nigeria’s GDP per capita in 2019 was roughly US$2,200, which was marginally higher than the comparable countries of Ghana and Kenya [9]. The country’s pandemic preparedness index score was 37.8, which ranked 96/195 for countries in the world and 11/54 for countries in Africa [10].

In December 2020, Nigeria had the second-highest number of confirmed COVID-19 cases in Africa and accounted for 7 per cent of all confirmed cases on the continent [33]. As of May 24, 2021, Nigeria reported 166,061 confirmed cases of COVID-19, placing it at the 8th highest number of cases in Africa and making up 3.5 per cent of all confirmed cases on the continent to date [34]. While the number of cases is high and is likely an underestimation due to limited testing in some communities, Nigeria faced a potentially devastating COVID-19 outbreak due to several factors, including high population density in urban slums, large numbers of internally displaced people (IDP) due to the presence of Boko Haram, prevalence of other infectious diseases and noncommunicable diseases which puts the population at an increased risk of serious illness as a result of COVID-19 infection and overall weak health infrastructure [35]. However, Nigeria has managed to mitigate what could have been the catastrophic impact of the pandemic by taking swift and aggressive action and importantly, implementing social protection mechanisms to ease the socioeconomic impact of COVID-19 mitigation efforts.

While progress towards UHC and other SDG3 targets has certainly been made in Nigeria, as shown in Figure X, there has not been adequate focus and investment into health systems development. Therefore, the health system remains vulnerable and UHC has not been a driving force behind the country’s COVID-19 response. Rather, taking early preventive actions, implementing social protection measures, leveraging existing epidemic preparedness and experience, and robust support from WHO and other agencies have likely slowed COVID-19 transmission [33].

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Figure 6. Trends in selected SDG 3 indicators in Nigeria, 2009-2019

*Overview of the health system and progress towards UHC*

Nigeria’s health system is largely publicly managed, with 66 per cent of the 34,000 healthcare facilities owned by the government. There is also substantial private sector involvement in the provision of health services [36]. The structure of the Nigerian health system is a decentralized model that mirrors the three tiers of government with varying responsibilities at the federal, state, and local government area (LGA) levels. Each state has at least one tertiary care facility owned by the federal government, often located in more populated urban areas, along with secondary care facilities owned by individual states. Local governments provide primary care services through clinics, health posts, and dispensaries, which tend to serve more rural communities [36]. Since the establishment of the Nigerian Health Insurance Scheme (NHIS) in 2005, only about 5 percent of the population have health insurance coverage, and 70 percent of Nigerians must pay out-of-pocket for health services [37]. This points to a highly inequitable system, considering 40 percent of the population lives below the international poverty line of $1.90 a day, which presents an enormous financial barrier to access [38].

There has been very little improvement in the expansion of primary care services and UHC in Nigeria over the past decade. The lack of progress can be attributed to several factors. The leadership of the Ministry of Health changes with every change in political leadership wherein the ruling party often appoints ministers based on political favors rather than competency [35]. This is a major contributing factor to the Nigerian health system being ranked the worst by the Transparency International on healthcare system corruption [35]. Additionally, investments and overall resource allocations are aimed at secondary and tertiary care services rather than primary care, which has been a limiting factor in Nigeria’s progress towards UHC [36]. As of 2019, IHME estimated that Nigeria had achieved 38.3% effective UHC coverage, an increase of 6.7% from 2010 (Figure X) [39].

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Figure 7. The Universal Health Coverage effective coverage index for Nigeria, 2019

Nigeria faces three health system-specific challenges that put the country at particular risk and complicated its response to COVID-19. First, Nigeria consistently faces overcrowding in hospitals; there are nine hospital beds per 10,000 population [40]. Overcrowding was a challenge even before COVID-19, and has only exacerbated by the ongoing pandemic, with healthcare providers being forced to make difficult decisions as to whom to prioritize for care, especially in major cities such as Konos and Lagos, which have reported the highest rates of positive cases [41, 42]. Second, there is significant geographic variability in access to quality health care. Approximately 55 percent of the population lives in rural areas with limited access to secondary and tertiary care facilities, which are critical in treating serious cases of the novel coronavirus, increasing the risk of morbidity and mortality for these already vulnerable communities [43]. Third, there is an overall shortage of healthcare providers; Nigeria reported only 3.8 physicians per 10,000 population and 15 nurses and midwives per 10,000 [32]. These factors, among others, raised concerns of the capacity of the health care system during the COVID-19 and points to why Nigeria focused its efforts on containing the virus as quickly as possible.

*Pandemic Preparedness*

Nigeria is no stranger to infectious disease outbreaks, with over 20 public health emergencies and disease outbreaks reported between 2016 and 2018 alone [44]. Lassa fever, Monkey Pox, Ebola, Yellow Fever and Poliomyelitis have been found to be the top five emerging and re-emerging infectious diseases causing outbreaks in Nigeria over the last several years [44]. Nigeria’s successful response to the 2014 Ebola epidemic, which was controlled in record time, highlights that despite the challenges posed by the country’s weak health system infrastructure, effective outbreak response is possible. Nigeria’s well-coordinated response to the Ebola outbreak included key actions including: (1) leveraging existing surveillance and response systems for effective contact tracing; (2) timely identification of suspected cases; (3) scaled-up laboratory diagnostic capabilities; (4) measures to safeguard points of entry; (5) management of rumors and misinformation; and (6) community engagement strategies [44]. The experience of the 2014 Ebola epidemic alerted the health system, the government, and importantly, local communities to the potentially devastating impact of highly transmissible diseases such as COVID-19 and the importance of implementing timely, preemptive response measures [45]. Since then, Nigeria has had some notable successes, including the establishment of the Nigeria Center for Disease Control (NCDC), which led to the establishment of a countrywide network of reference laboratories and an overall strengthening of diagnostic capabilities and the Nigeria Field Epidemiology and Laboratory Training Program (NFELTP), which has played a key role in developing the public health workforce [46]. However, as previously noted, factors such as lack of investment in the health system, political instability, inadequate diagnostic capacity, and a shortage of medical personnel limit the ability of the country to effectively prepare for and respond to disease outbreaks [44].

The WHO’s 2017 IHR-JEE found that Nigeria had at least a moderate level of capacity in the technical areas of real-time surveillance; workforce development and immunization, which will undoubtedly be critical throughout the COVID-19 vaccine rollout. However, the review found that there was an urgent need to strengthen national legislation, policy, and financing; IHR coordination, communication, and advocacy; laboratory and testing capacity; and coordinated action at points of entry [47]. The results of the JEE informed the development of Nigeria’s National Action Plan for Health Security (NAPHS) in 2018, which is a five-year multisectoral plan with a one-health approach at its core. The four major initiatives included in the plan are: (1) expanding digital surveillance; (2) establishing a nation-wide laboratory network; (3) building epidemiology workforce capacity; and (4) developing an “all-hazards” preparedness plan [48]. Unfortunately, these initiatives were not fully funded and not in place ahead of the COVID-19 pandemic as they would have been helpful to mount an effective response.

*Response to COVID-19*

Nigeria’s response to COVID-19 in many aspects resembles their previous experiences in controlling highly fatal infectious disease outbreaks, such as viral hemorrhagic fevers, and can be grouped into two distinct stages: (1) pre-outbreak preparedness and (2) outbreak response measures. The outbreak response measures can be further broken down into three primary areas of focus: containment of initial cases; suppressing clusters of cases; and mitigating community transmission [33].

In terms of preparedness measures, by January 26, 2020, about one month prior to the arrival of COVID-19 in Nigeria, the NCDC established a multisectoral National Coronavirus Preparedness Group (NCPG). This group was tasked with monitoring the epidemiological curve, assessing the risk of disease transmission, and initiating measures to strengthen preparedness for early detection and response to the outbreak [33]. A week later, a Multisectoral Technical Working Group, with representation from across government ministries, was introduced at the MoH to strengthen preparedness measures. These measures included training health care workers on infection prevention and control; designating three existing laboratories for COVID-19 testing; establishing COVID-19 treatment centers, and initiating Points of Entry (PoE) surveillance at international borders [33].

The first COVID-19 case, an Italian citizen who flew from Milan to Lagos, Nigeria was confirmed on February 27, 2020, in Ogun state [49]. Through immediate contact tracing, 216 individuals were identified for 14-day mandatory quarantine and follow-up. Following the confirmation of this first case, the NCPH transitioned to a national Emergency Operations Center (EOC), activated at the highest level of response to mobilize all available resources, and the Presidential Task Force (PTF) was established to provide high-level strategic leadership. State-level EOCs were also launched in Lagos and Ogun to help coordinate the response2. PoE screening was also scaled up in high priority states with international airports, including Lagos. Transparent and timely information sharing was also facilitated from early on; NCDC has been publishing the weekly COVID-19 situation report since February 29, 2020 [50]. Risk communication strategies, including press releases, radio jingles and social media platforms, were launched to disseminate accurate information about COVID-19 and how to slow the spread of the disease.

By March 23, 2020, Nigeria implemented a ban on all international flights, and land borders were closed, and mandatory institutional quarantine and testing for all international returnees was required to reduce additional cases coming into the country from other high-risk countries [33]. The President further implemented a strict lockdown strategy in an effort to slow the spread of the virus and to buy time for the health system to increase preparedness measures, including general stay-at-home orders in high-risk areas (Lagos, Ogun, Kano and Federal Capital Territory), school closures, bans on religious and social gatherings, curfews and restrictions on movement (Figure 8) [33]. During this period, treatment centers were expanded from one center in Lagos with just 35 beds to 121 treatment centers nationwide with 6,550 beds by May 30, 2020. The number of laboratories equipped for COVID-19 testing increased from 3 to 28. A total of 13,000 healthcare workers were trained on IPC, and personal protective equipment was deployed across the country [33]. The strict lockdowns that were put into place across the country helped buy time to increase the capacity of the existing health system to better manage the outbreak. The fast expansion of control strategies undoubtedly benefited from the existing health infrastructure, including the Integrated Disease Surveillance and Response framework (IDSR), molecular diagnostics laboratory networks for specific disease programs, and existing international aids and support.

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Figure 8. The Oxford COVID-19 Government Response Tracker’s Stringy Index for Nigeria with average trendline from January 2020 to present (Figure and Analysis by Authors)

The early and rapid response by the Nigerian government has been critical in managing the pandemic; however, simultaneous implementation and scale-up of social protective measures also contributed to its success in part. As noted previously, over 40 per cent of the population of Nigeria live in extreme poverty. The sweeping travel restrictions enacted as part of the COVID-19 response had significant consequences for the 90 per cent of Nigerians that work in the informal sector. The World Bank recently predicted that an additional 5 million people will be forced into poverty either as a direct or indirect result of COVID-19, pointing to the need for urgent social protection strategies [38]. While this is far from being a reality in Nigeria, the existing systems have been leveraged to provide support to the most vulnerable to economic shocks, including the development of a Rapid Response Register to supplement the existing National Social Register, which is limited to rural populations, to build a more comprehensive database of the urban poor [38]. Additionally, the government launched a food distribution program in particular states, which included the delivery of rations through the pre-existing school feeding program and a suspension of loan obligations for medium, small, and micro-enterprises that were funded by the government [38]. The overall lack of capacity, flexibility, and inclusivity within the existing social protection systems have restricted Nigeria’s ability to provide adequate support to a wider scope of people. However, throughout the COVID-19 pandemic, renewed attention to the importance of social protection as a cornerstone of a resilient society has been established, which may remain a priority even after the pandemic.

*Conclusion*

Despite being a resource-constrained country with a particularly vulnerable health system, Nigeria managed to handle the COVID-19 pandemic relatively well. Leveraging the country’s established competencies and infrastructure from previous outbreaks, Nigeria averted a potentially catastrophic outbreak by taking swift and coordinated action to slow the spread of COVID-19, including restricting travel and mobility and rapidly remobilizing the capacity of the existing public health system. This country experience demonstrates the important role of prioritization under resource constraints, which serves as an important example for other countries under similar situation. In addition to these strategies, the government of Nigeria was acutely aware of the economic impact of the pandemic on its already vulnerable population and built upon existing social protection systems to provide direct relief in the form of cash transfers, loan suspension, and food provisions. The implementation of these social protection measures may also help with the post-pandemic economic recovery. In the post-pandemic world, Nigeria’s renewed attention to social protection in addition with continued UHC progress will be important as the country recovers from COVID-19 and to ultimately build a more resilient society.

*Takeaways*

* Nigeria, a lower middle-income country located in West Africa, was one of 13 countries identified by the WHO as being high risk for a potentially catastrophic COVID-19 outbreak, given their weak primary care system and existing pockets of humanitarian crises, which in turn caused the severe disparity in access to and quality of care.
* However, Nigeria was relatively successful at controlling the virus due to their agile response in the early phase of the outbreak. Nigeria’s success is attributable to the following factors:
  + Prioritization of strategies in the face of severe resource constraints, including leveraging existing national disease surveillance network and laboratory capacities established for other disease programs.
  + Prior experience with outbreaks, which led to agile and proactive actions by the government, such as early establishment of the EOC.
  + Transparent and timely communication on the COVID-19 situation and active engagement on risk communication.
  + Implementation of social protection strategies.
* While Nigeria’s progress towards UHC may not have played a major role in the country’s successful COVID response, its UHC capacity, alongside continued commitment to social protection, may enable the country’s successful economic and social recovery from COVID-19.

**Oman – Multisectoral Collaboration and Community Participation Under Robust Health System and Strong Preparedness Capacity to Slow the Spread of COVID-19**

*Introduction*

Oman is a high-income country of 5.2 million people located on the Southeastern corner of the Arabian Peninsula with a stable political, economic, and social systems [32]. Although Oman has successfully controlled and eliminated major communicable diseases and achieved remarkable reductions in maternal and child mortality rates, the burden of noncommunicable diseases is on the rise due to the rapid demographic transition and risk factors including unhealthy diet, physical inactivity and tobacco use (Figure 9). Oman’s GDP per capita in 2019 was roughly US$15,300, which is lower than the regional countries of the United Arab Emirates and Bahrain but doubled over the past decade [9]. The country’s pandemic preparedness index score was 43.1, which ranked 73/195 for countries in the world and was slightly lower than other countries in the Gulf [10].

During the past decade, Oman has been lauded for its rapid advances it made in the public health sector in close collaboration with international agencies, and for the strong commitment of the government toward the national health priorities [ref]. Oman faced several challenges to mitigating the impact of COVID-19, such as densely populated urban areas, a large population of migrant workers living in crowded informal settlements, and the diversity of languages spoken, complicating the implementation of effective public health communication strategies challenging during the pandemic [51]. As of June 2, 2021, Oman reported 218,271 confirmed cases of COVID-19, which is approximately 4,274 cases per 100,000 people [52]. While these numbers are undoubtedly significant, Oman implemented a number of innovative strategies that likely slowed COVID-19 transmission and are worth noting.

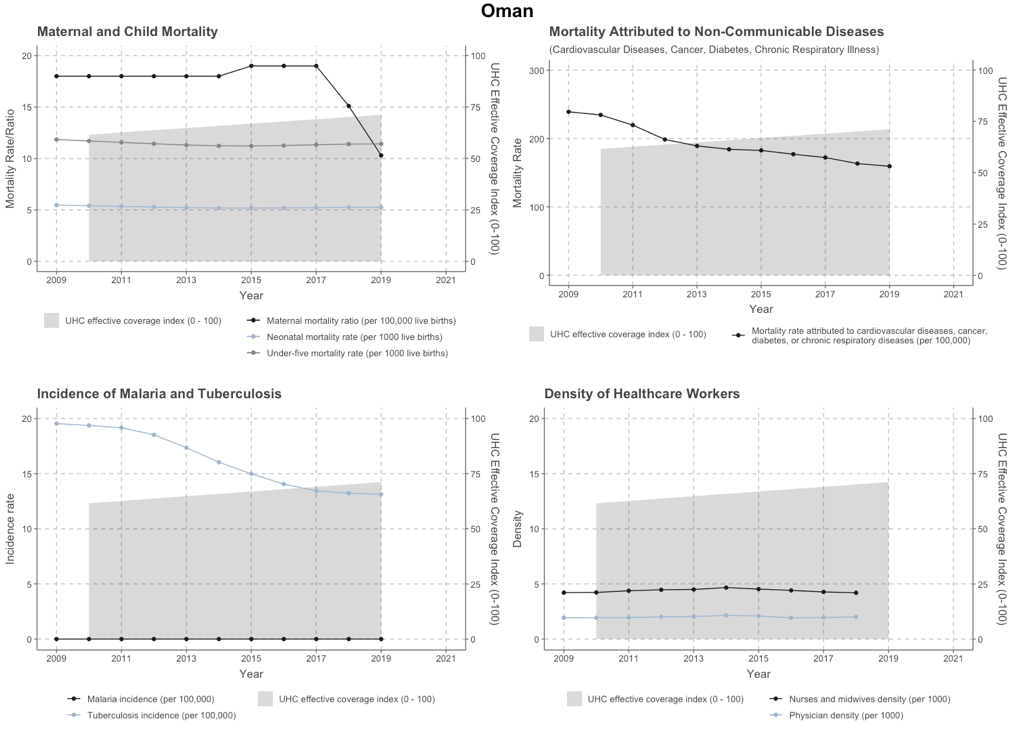


Figure 9. Trends in selected SDG 3 indicators in Oman, 2009-2019

*Overview of Health System and progress towards UHC*

Oman has a predominantly public health system in which government-run facilities provide most of the health services for primary, secondary, and tertiary care [53]. Healthcare facilities that are run by the MoH are classified into three levels, ranging from governorate (regional) hospitals that focus on secondary and tertiary care to local health centers that provide primary healthcare services. In addition to those under the direction of MoH, there are also governmental hospitals operated by the Ministry of Defense, Royal Oman Police, Petroleum Development of Oman, and Sultan Qaboos University. Taken together, the government provides 83 per cent of hospitals, 93 per cent of hospital beds, 62 per cent of outpatient services, and 95 per cent of inpatient services [54]. The MoH provides free universal health care to all Omani nationals and for expatriates that work for the government, employer-provided insurance covers expatriates that work for the private sector [55]. Overall, while fees for doctor’s visits have recently been established, people pay very little, if any, out-of-pocket, and the MoH covers over 80 percent of healthcare costs [53]. The great progress achieved by Oman in the past decade is shown in Figure 9, with an apparent overall improvement in the selected SDG3 indicators before the COVID-19 pandemic.

UHC has been a priority for the government of Oman since the establishment of the MoH in 1971 by classifying health care as a fundamental right for all Omani citizens, and as a result, today, the population has near-universal (both financial and geographic) access to health services [55]. Despite this success, Oman still faces challenges to achieving effective UHC. Over the past 40 years, primary health care has been extended to all the regions in Oman and remains a priority [55]; however, there is a need to increase investment in primary healthcare services to keep up with increasing costs and demands on the existing health care system and to adapt to the demographic changes [56]. Oman has experienced and is projected to continue experiencing significant population growth with a rapidly growing aging population, which requires a shift in health services being provided. There is also a need to focus on preventative versus curative care, which will require additional investment in primary healthcare as a core tenant of UHC [56]. As of 2019, IHME estimated that Oman had achieved 71 per cent effective UHC coverage (Figure 10), an increase of 10 per cent from 2010 [39].

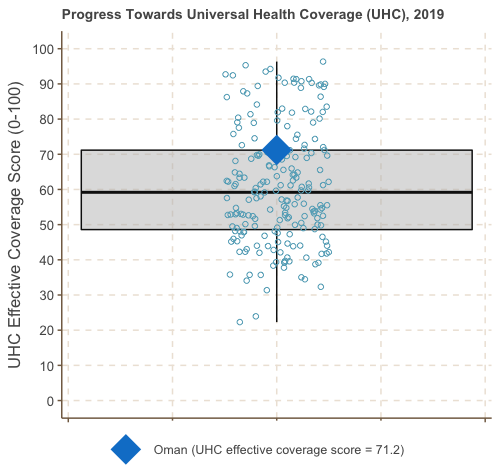


Figure 10. The Universal Health Coverage effective coverage index for Oman, 2019

*Pandemic Preparedness*

Prior to the COVID-19 pandemic, Oman has had experience with other infectious diseases, including HIV/AIDS, tuberculosis, and MERS-cov-2 [51, 57, 58]. However, because of the robust disease surveillance mechanisms in place, and effective immunization programs for vaccine-preventable diseases, there has been a significant decline in morbidity and mortality of these diseases since 1990 [51]. The country’s preparedness and response capacity before the COVID-19 pandemic largely focused on eliminating the ongoing transmission of HIV and TB, as well as on detecting and containing sporadic outbreaks of MERS. The WHO’s 2017 International Health Regulations (IHR) joint external evaluation (JEE) found that Oman had a high level of capacity in almost every technical area [53]. The review found that Oman scored the highest for legislation and coordination of IHR activities but that there was a need to strengthen cross-sector cooperation [53]. As noted, Oman has been committed to disease surveillance and other disease-related preparedness and response plans for decades, which has undoubtedly played a part in developing the country’s response to COVID-19.

Arabian Peninsula is a region where MERS is endemic among the dromedary camels. Since the first detection of the human MERS infection in 2013, Oman established a national taskforce to implement multiple measures to strengthen the country’s preparedness on MERS outbreaks [59]. As a result, Oman reported a total of 32 confirmed cases, a much lower number than the neighboring Saudi Arabia or United Arab Emirates [60]. Unlike aforementioned two countries bordering Oman, who reported the outbreaks of MERS in 2020 – 2021, Oman’s last MERS outbreak was reported in March 2019, with only 21 confirmed cases across 2 governorates [61]. After the detection of the first 13 cases, active surveillance and contact tracing activities, followed by laboratory testing, were robustly implemented and identified 8 additional cases, which were not epidemiologically linked to the previously detected cases [51, 61, 62]. Only 3 confirmed cases were identified as healthcare workers who acquired the disease through nosocomial infection, all in 2019 [61, 62]. Oman’s infection prevention and control measures, since then, were further reinforced. Oman’s epidemiological situation with MERS illustrates the country’s strength in responding to infectious disease outbreaks and their commitment to bolstering the response capacity for potential future outbreaks.

*Response to COVID-19*

Oman’s first two cases were reported on February 24, 2020; both patients has a recent travel history to Iran [63]. Upon detection, the government immediately released a statement which included the recommendation for all travelers from high-incidence countries to quarantine [63]. Oman, similar to other Gulf countries, took early actions to mitigate the impact of COVID-19, and first barred entry of travelers coming from high-incidence countries (e.g., China, South Korea, Italy, and Iran) in March 2020. The implementation of a number of other response measures followed as early as March 2020, including heavily enforced night-time curfews, prohibition of mass gatherings, requiring wearing of masks in all public venues, screening and quarantine of all incoming travelers. However, lockdowns and restrictions on travel and gatherings has been periodically lifted in effort to keep the economy afloat, which may have led to increases in COVID-19 transmission (Figure 11).

The agile response in the early phase was possible due to the country’s proactive activation of the emergency taskforce in January 2020, even before the detection of the first cases, based on their previous experience and lessons learned from MERS [64]. This was followed by an establishment of a multisectoral supreme committee in March 2020, immediately after the detection of the first cases, which was charged with implementing necessary measures to reduce disease transmission [64]. The committee was led by the Minister of Interior Affairs and had representation from key leadership of the MOH.

Oman’s robust and accessible health system has undoubtedly been critical in the country’s response to COVID-19. Oman’s national committee strategically focused on supporting existing primary healthcare facilities in the early pandemics and has demonstrated its continued commitment to universal health coverage by taking swift action to increase hospital capacity, including the number of dedicated ICU beds and mobilizing the health workforce to be able to address the needs of the entire population [64]. The government provided diagnostic and treatment coverage free-of-charge to both Omani citizens and the large expatriate community [65]. In addition, the health system that is predominantly driven by the public health sector enabled the smooth coordination of the response activities across levels: Each region operated its own emergency operation center (EOC) and collaborated with each other under the central coordination of the MoH [64]; Community engagement and participation was largely driven by community members and existing organizations in the local communities [66]; The private sector closely collaborated with the government to facilitate supplies and technologies [64, 67].

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Figure 11. The Oxford COVID-19 Government Response Tracker’s Stringy Index for Oman with average trendline from January 2020 to present (Figure and Analysis by Authors)

There are also key challenges that may have hindered the response. First, Oman only has 1.6 hospital beds per 1,000 population, which is likely a result of the population growing at a faster rate than the health system is adapting, which led to overcrowding and made it particularly difficult to isolate positive COVID cases [68]. This has become even more clear during the most recent spike in COVID-19 cases, with only 14 ICU beds available across the country as of April 12, 2021 [69]. Overcrowding is of particular concern in the large cities in Muscat and Al-Batnah, where approximately 50 per cent of the population resides, with 72 per cent of the population living in urban areas [53]. While individuals living in these cities have easy access to care, the density adds to the risk of overcrowding. It is also important to note that Oman is home to approximately 3.6 million expatriates or “non-nationals” and while many of them also live in the major cities, they often reside in more rural settlements with less access to care, making them vulnerable to COVID-19 [54].

*Conclusions*

Oman was relatively successful in reducing the spread of COVID-19 throughout the pandemic. The COVID-19 attack rate in Oman seems to be the highest in the Eastern Mediterranean region [70]. However, this is most likely due to their robust surveillance system with high sensitivity to detect cases, as well as their transparent and timely information sharing, which is not always the case for countries in the region. It is also important to note that Oman is currently experiencing its “third wave” of community transmission with a spike in March and April 2021 due to the introduction of the highly transmissible U.K. variant of COVID-19 paired with low vaccination rates, with under 2% of the population fully vaccinated as of June 10, 2021 [71]. This highlights the danger of prematurely lifting containment measures in favor of reopening for economic purposes and points to the need for continued mitigation efforts until the majority of the population is vaccinated and the country can safely reopen. Nevertheless, there are a few indications that reflect the success of Oman’s COVID-19 response: The case fatality rate remains low [70]; The country is less affected by the new variants than the countries in the region; It is one of the first two countries in the region to kick off its vaccine roll-out and have so far fully vaccinated over 500,000 people [70]. Oman also plays an active role in cross-country collaboration and information sharing under the IHR framework (IHR, 2005), which further contributes to the building of strong international framework of public health system and collaboration [65].

Oman’s strong response to COVID-19, as described in the case study, was warranted by several elements in their health system, which existed before the pandemic: Firstly, Oman’s significant progress towards achieving UHC and the government’s strong commitment to its core principles enabled equitable access to care, including the COVID-19 diagnostics and treatment, during the pandemic [65]; Overall focus on existing primary healthcare facilities for COVID-19 response activities leveraged the strength of the system well. Oman’s pre-existing preparedness plans for other zoonotic diseases, such as MERS, made the early agile governmental response possible. Well-coordinated multisectoral collaboration, including the strong private sector engagement, led by the central government was key to coordinated response strategies across different domains. Community participation approaches have been key factors that supplement holistic national-level outbreak preparedness and response plans with context-specific and community-driven strategies so that no one is left behind. Moving forward, Oman’s strong UHC will be critical in effective vaccine rollout and will likely help the country recover after the pandemic.

*Takeaways*

* Oman, a high-income country in Arabian Peninsula, was relatively successful in implementing COVID-19 response.
* Oman’s strength during the pandemic was strongly grounded in its recent achievements towards UHC, i.e. in expanding healthcare coverage, and in providing close-to-free access to primary healthcare to its population.
* Their previous experience with MERS outbreaks since 2013 provided strong backbone of COVID-19 preparedness and response strategies. The establishment of national taskforce even before the country detected its first cases enabled the government to react with agility in the early phase of the pandemic.
* The government-driven national-level response strategies were complemented by strong engagement of the private sector and community-driven local engagements.

**Peru: When expansion of public health insurance and robust normative framework proves insufficient to tackle a public health crisis**

*Introduction*

Peru is an upper middle-income country in Latin America with over 32 million inhabitants. [ref] Though Peru has made strides over the past decade towards greater UHC effective coverage, it has faced varied success on decreasing maternal and child mortality, and decreasing the incidence of malaria and tuberculosis (Figure 12). Peru’s GDP per capita in 2019 was roughly US$7,000, which was marginally higher than the regional countries of Colombia and Ecuador [WB]. The country’s pandemic preparedness index score was 49.2, which ranked 49/195 countries in the world and about par for the region [GHS index].

The majority (79 per cent) of Peru’s population lives in urban areas, with over 30 per cent living around the capital, Lima[ref]. It is administratively divided into 26 departments, with marked health and wealth disparities. Life expectancy at birth in 2020 in the more affluent, mainly urban departments, such as Lima, was estimated at 78 years, compared to 71 years in the poorest, mainly rural departments, such as Huancavelica[ref]. In 2019, 20 per cent of the population lived below the poverty line, with large disparities by residency status; 40 per cent of the rural population lived below the poverty line compared to 15 per cent of the urban population [ref]. In 2019, 73 per cent of the working population was in informal working arrangements with large disparities by department, ranging from 92 per cent of working people in the department of Huancavelica to 60 per cent in Lima [ref]. The largest informal sectors are fishing, agriculture and commerce. Women make up a disproportionate share of the informal workforce (76 per cent of women vs 70 per cent of men)[ref].

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Figure 12. Trends in selected SDG 3 indicators in Peru, 2009-2019

*Overview of the healthcare system and progress towards UHC*

The Peruvian healthcare system is decentralized and includes both public and private services and providers.[ref] The Ministry of Health (MoH) is by far the largest insurer and service provider. About 44% of the population is insured by Seguro Integral de Salud (SIS, Integral Health Insurance), a government-subsidized healthcare plan. [ref] The services provided by the MoH are further decentralized into national, regional, and municipal levels. The introduction of SIS signified a remarkable growth in health coverage, particularly in primary care coverage, and led to a reduction in out-of-pocket expenditures.[ref] EsSalud is the second largest insurer in the country, with 25 per cent of the population affiliated. EsSalud services are regulated and operated by the Department of Labor and Employment, and provides mandatory health coverage for all people employed in the formal sector through their employers. Finally, 6% of the population are affiliated with the Armed Forces, the National Police, and the private sector.[ref]

UHC is promoted under a legal framework in Peru. Adopted in 2009, the Universal Health Insurance Law (Ley Marco del Aseguramiento Universal en Salud) stipulates universal health coverage and defines the basic package of services.[ref] Since then, the government has enacted multiple other decrees to continue expanding SIS in an effort to achieve UHC, including expanding SIS inclusion criteria and the essential package of services that are available free-of-charge to reduce out-of-pocket expenditures, regardless of income. As a result, between 2009 and 2017, healthcare coverage increased significantly from 61 per cent to 76 per cent (Figure 13).[ref]

An analysis by the civil society alliance to end poverty identified three main weakness in the healthcare system: 1) fragmentation; 2) low overall health investments, which limits response capacity; and 3) underfunded primary health care, with most investment going to second and tertiary care levels.[ref]

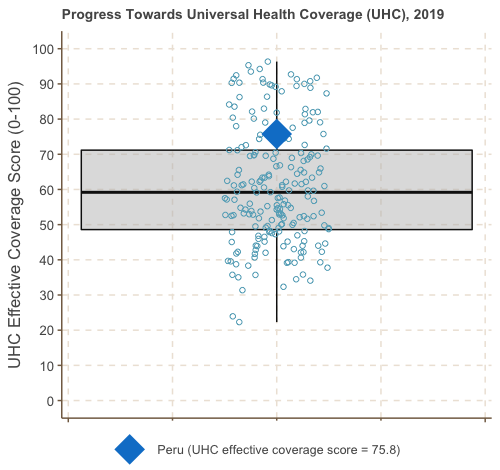


Figure 13. The Universal Health Coverage effective coverage index for Peru, 2019

Peru’s healthcare system includes about 20,000 healthcare establishments, including over 600 hospitals. However, the distribution is uneven, with roughly 67 per cent of hospitals located in Lima. Since 2010, all insurance schemes must cover an essential care package, as regulated by the Plan Esencial de Aseguramiento Universal.[ref] Total health expenditure, including private and public, represents 5.5 per cent of Peru’s GDP on health, which is an improvement from below 3 per cent of GDP until the healthcare reform of 2013. However, these levels are below the Latin American average of 7.7 per cent and below those of most high-income countries.[ref] Healthcare expenditures are shared by the government, employers, and households, although, as of 2019, 60 per cent of health expenditures were in the public sector.[ref]

Because the healthcare system is fragmented and not all services are covered or available from each insurer, most households incur significant out-of-pocket expenses in the form of monthly subscription fees or fee-for-services for non-basic services. As a result, premature death attributed to NCDs remains a key issue. [ref] High informality in labor markets, a deficient health infrastructure in rural areas, and deeply ingrained social inequalities, are barriers to universalize access to care despite the country’s efforts.[ref] As a result, Peru’s progress towards the SDG3 targets has been slow in recent years. The Peruvian government, in response to this, has recently aligned their overall government agenda to the 2030 SDG targets and has been publishing annual report on its strategic focus and progress.[ref] Overall, maternal health was not a priority area before and during the pandemic (X).

*Pandemic preparedness and response capacity*

Coordinated by the MoH’s National Center for Epidemiology, Prevention and Control of Disease (Centro Nacional de Epidemiología, Prevención y Control de Enfermedades), Peru has a robust disease surveillance system, with protocols in place for monitoring and mandatory reporting of infectious and non-infectious diseases. [ref] Data on over 20 diseases and conditions, including infectious diseases such as malaria and dengue, and health indicators, such as maternal mortality, are collected by the system. Epidemiologic surveillance of respiratory infections has been included in the system since 2015 against infectious disease outbreaks.[ref] The country’s existing burden of arboviral diseases, including dengue, chikungunya, and Zika, surpassed the country’s medical and public health capacity even before the COVID-19 pandemic. Peru is the third country in Americas with the highest dengue-attributed mortality.[ref] Rapidly changing climate in the region accelerated the spread of mosquito vectors to the areas previously unaffected by these arboviral diseases.[ref] The most recent dengue outbreak started in October 2019 and spread to 17 regions by the beginning of the COVID-19 pandemic. It continues to spread as the current report is being drafted.[ref] Early response to this outbreak included the deployment of military force for fumigation and other vector control activities in remote areas due to the shortage of public health workforce. However, this only resulted in a short-term decrease in cases, which was followed by an uptick and a declaration of health emergency.[ref] Unless the preparedness and response capacity is further bolstered, the burden of infectious disease is likely to severely hamper Peru’s progress on population health as number of other mosquito-borne diseases, including Zika and chikungunya, are also steadily increasing.[ref] Industrial development and deforestation can potentially alter and further complicate the dynamics of arboviral diseases, which should be anticipated by the strong preparedness capacity.[ref]

*Response to COVID-19*

The first COVID-19 case in Peru, an imported case with travel history to Europe, was reported on March 5, 2020.[ref] As of June 2021, almost 2 million people have tested positive for COVID-19, and over 188,000 have died,[ref] with a lethality of 9.4 per cent. There are large disparities by department,[ref] largely due to limited access to treatment for severe COVID-19, such as intensive care units, access to oxygen, and mechanical ventilators. Despite the country’s efforts to expand the healthcare coverage in the past decade, 24 per cent of Peruvians remained uninsured before the start of the COVID-19 pandemic.[ref] At the beginning of the COVID-19 pandemic, only 2,000 beds in intensive care units were available nationally.[ref] That is 2.9 beds per 100,000 people, which is lower than the regional average of 9.4 beds per 100,000.[ref] The government acted relatively quickly in response to the COVID-19 pandemic, declaring a national health emergency on March 15, 2020, only 10 days after the detection of the first case.[ref] Yet, from the emergency declaration until May 25, 2020, all primary care provision was closed, creating an immense access barrier to everyone including those who are insured. [ref] The COVID-19 pandemic hit hardest the vulnerable populations in Peru. As of June 2021, the government has also officially recognized the death of 559 medical staff between March and December 2020 while providing care for COVID. [ref] As of May 2021, there was an 43 per cent increase in maternal deaths, with COVID-19 being the leading cause.[ref] Based on preliminary data, the COVID-19 pandemic has reversed 5-years of progress towards the SDG3 target on maternal mortality (X). In response to COVID-19, the government expanded its budging telehealth program, issued new regulations to allow providers to provide services using digital technologies (X) and launched a national online telehealth platform (X).

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Figure 14. Maternal mortality rate in Peru, 2010-2020 (X)

Investment in the public health sector was reinforced, with an emergency budget approved for COVID-19 activities, such as surveillance, testing and tracing, purchase of ICU beds, and personal protective equipment, among others. Healthcare workers involved in the COVID-19 response received monetary incentives. The government also instituted mandatory reporting of COVID-19 cases.[ref] On April 16, 2021, the government launched the national COVID-19 vaccination plan, initially for people over 80 years old, which has been progressively extending to younger people and people at high risk for severe COVID-19 throughout the country.[ref] As of June 14, 2021, over 5 million people received at least one dose of the vaccine.[ref] In order to counter the limited access to necessary care during the pandemic, the government passed an emergency measure to allow more people to be affiliated with SIS, “SIS para todos” (SIS for all). This permitted having more than one type of insurer, expanded the types of services covered, including for treatment for COVID-19, and allowed flexibility in which establishments to visit.[ref] As a result, the official statistics as of October 2020 showed that 95.2% of the population was insured, reducing the uninsured to 5% of the population. [ref]

Aside from the public health measures, including the social distancing, lockdowns, and border closures, the government has issued around 100 decrees related to the economy and labor, education, transportation, rights, and health to prevent and curtail the adverse effects of the pandemic. [ref] An early analysis of the impact of the COVID-19 pandemic in Peru suggested that close to 30% of the population would be living in poverty as a result of the economic impact of COVID-19.[ref] To mitigate the impact, the government issued monetary incentives to households in poverty. In addition, special efforts have been made to contain the impact of the pandemic on hard-to-reach areas in the Amazon rainforest through the Plan de Intervención para Comunidades Indígenas y Centros Poblados Rurales de la Amazonía frente a la emergencia de la COVID-19. [ref]

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Figure 15. The Oxford COVID-19 Government Response Tracker’s Stringy Index for Peru with average trendline from January 2020 to present (Figure and Analysis by Authors)

*Conclusions*

Peru’s strength in its health system can be summarized as the expansive health insurance coverage, close to achieving UHC, and the robust normative framework to ensure the system’s resilience to crises. This served as a solid backbone that enabled the country to adapt to the pandemic with agility and flexibility. Their successful expansion of the government-funded insurance scheme and the expansion of telehealth to address the urgent health gap during the early pandemic mitigated, to some degree, the harmful public health consequences of the access barrier caused by COVID-19. The same success, however, was not achieved in controlling other simultaneous infectious disease outbreaks. Despite the country’s commitment and success in achieving UHC and leveraging both the public and private scheme, the country’s toll on COVID-19 pandemic was severe. The damage was disproportionately allocated to the vulnerable groups, such as those in hard-to-reach areas, workers in informal employment, and pregnant women. Peru serves as a good example to signify the importance of the balance between 1) resilient health system with universal coverage, 2) equitable access to health care that is inclusive of vulnerable populations, and 3) the country’s strong emergency preparedness, which includes surveillance, sufficient volume of trained medical and public health workforce, as well as laboratory capacity. In sum, decades of defunding the public healthcare system prior to reform cannot be reversed during a pandemic despite efforts. Insufficient human resources in health, deficient infrastructure in rural areas, and limited lab capacity, were barriers to mitigating the consequences of COVID-19 despite the country’s strengths in surveillance and normative framework.

Post-pandemic, the next steps for Peru would be to continue expanding the telehealth model to tackle some of the key challenges surfaced during the pandemic, including strengthening linkages with primary and secondary care services, reducing the disparity in access to care for the vulnerable and rural populations, and to build a resilient health care system against public health emergencies.

*Takeaways*

* Peru took quick action to expand the public health insurance during the pandemic to achieve UHC. This was only possible with the strong foundation of the previous 10 year’s achievement in increasing access to health care. Peru’s expanded coverage close to UHC was an essential enabler to promoting access to life-saving procedures.
* Peru’s robust legal framework on health systems enabled the government to offer new services, such as via telehealth, during the COVID-19 crisis. The country has continued to strengthen its normative and legal framework during the pandemic and allowed healthcare institutions to reorganize services.
* On the other hand, Peru’s failure to effectively control the COVID-19 pandemic stems from two main factors:

1. The weak response capacity to infectious disease outbreaks, including the shortage of staff, insufficient geographical coverage of public health and medical services, and the suboptimal laboratory capacity.
2. Rapidly changing population and disease dynamics due to the highly volatile labor market, migration, and climate change, whose speed is difficult to catch even for the agile government.
3. Decades of disinvesting in the healthcare system and the resulting fractured healthcare system.

* In sum, Peru serves as a good example to signify the importance of the balance between 1) a resilient health system with universal coverage, 2) an equitable access to health care that is inclusive of vulnerable populations, and 3) a strong country-level emergency preparedness.

**Rwanda: Innovation and Public Trust in Health Authorities Lead to Remarkable Success in Combating COVID-19**

*Introduction*

Rwanda, a low-income country of 12.7 million people located in East Africa has been a notable success story for its ability to control the COVID-19 pandemic, with one of the lowest incidence rates on the continent [72]. Rwanda’s GDP per capita in 2019 was roughly US$820, which was marginally higher than the regional countries of Uganda and the Democratic Republic of the Congo but still put in on the lower end for the East African region [9]. The country’s pandemic preparedness index score was 34.2, which ranked 117/195 for countries in the world and 20/54 for countries in Africa [10]. Over the past ten years, Rwanda has made significant strides against the incidence of HIV/AIDS and diarrheal diseases, decreased maternal and child mortality, and increased its UHC effective coverage to one of the highest scores in the region (Figure 16) [39]. Rwanda has simultaneously experienced an increasing rate of mortality and morbidity attributed to non-communicable diseases.

Chart

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Figure 16. Trends in selected SDG 3 indicators in Rwanda, 2009-2019

Despite Rwanda’s positive trajectory on health outcomes and its strong UHC, its success in combating COVID-19 was not guaranteed: Rwanda is one of the most densely populated countries in the world with approximately 4,115 people per square mile, making it particularly vulnerable to rapid disease transmission. Nonetheless, as of March 1, 2021, Rwanda had a total of 1,400 cases and reported 264 deaths due to COVID-19 [73]. That said, Rwanda continues to face imminent threats due to the emergence of new, highly transmissible variants of the virus, paired with low rates of immunization against COVID-19, with under 2% of the population being fully vaccinated as of June 24, 2021 [71, 74]. Rwanda is currently experiencing a peak in COVID-19 cases, causing the government to extend controls and continued testing throughout the country. Yet the government has continued to allow international travel in and out of the country, maintaining its continued vulnerability to the virus.

*Overview of the health system and progress towards UHC*

Rwanda has a mixed public-private health system that is governed by the Ministry of Health (MoH) with public health facilities making up 64% of non-private health facilities.9 The system is organized in four levels ranging from central (Level I) which serves the entire country to peripheral (Level IV) which includes district hospitals, health centers and posts, and community health workers (CHWs), and covers approximately 255,000 people.9 The Rwandan health system is largely a referral system wherein the burden of disease is largely treated at the village level by CHWs, at which point individual cases may be referred up to a health post, then to a health center, and then to a district hospital, provincial hospitals and referral hospitals, which has been a strategy to increase geographical accessibility to health services [75]. The government offers public health insurance, which covers 84 per cent of the population, with another 6 per cent covered through employment-based insurance [72].

Rwanda is the most advanced country in Africa in terms of achieving UHC, and, as of 2019, most of the UHC prerequisites have been reached. That said, there are some persistent gaps, which leaves room for continued improvement [76]. Public health insurance in Rwanda began in 1999 with the establishment of “mutuelles de santé”, which has been renamed to be Community-Based Health Insurance (CBHI) to provide coverage for all non-insured citizens, including the rural population and those who work in the informal sector [76]. While Rwanda has made remarkable progress towards achieving UHC as a result of continued political commitment, there have been chronic financial deficits in the CHBI system since 2011, which the government have had to cover periodically and has raised questions about the sustainability of the current CHBI model [76]. This points to a need to further reform health financing in Rwanda to ensure its sustainability over time as it continues to be a leader in UHC in the region. As of 2019, IHME estimated that Rwanda had achieved 59.4% effective UHC coverage, an impressive increase of 14-percentage points from 2010 (Figure 17) [39].

*Chart, diagram

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Figure 17. The Universal Health Coverage effective coverage index for Rwanda, 2019

Since the 1994 genocide, Rwanda has had more than two decades of political and social stability characterized by an unwavering commitment to health and development [77]. Despite making significant progress in social and economic development, Rwanda is still one of the most underdeveloped countries in the world, with 55 per cent of its population living below the international poverty line of $1.90 per day [78]. Additionally, while Rwanda has made substantial progress in reducing under-five mortality fertility rates, there are persistent challenges with chronic malnutrition, equal access to education and WASH infrastructure [79]. These issues along with the SDGs more broadly have been incorporated into Rwanda’s “Vision 2050, National Strategy for Transformation” (NST I) to drive progress in these areas [80].

Rwanda was one of only a handful of countries in Africa to achieve the health-related targets of the Millennium Development Goals and has continued to make impressive progress towards reaching the SDG 3 targets. According to the most recent report published in 2019, Rwanda’s effort has been focused on increasing equitable access to health services including the implementation of a national CHW program in 2007, which has been identified as a key driver behind achieving the health-related targets [80]. There has been a focus on reducing neonatal and child mortality, as well as reducing the incidence of HIV/AIDS through family planning and reproductive health interventions [80]. To meet the changing landscape and the burden of disease, the fourth Health Sector Strategic Plan (HSSP) prioritizes maternal and child health and human resources for health and infrastructure and service delivery, which is also a direct link with the NST I [80]. While there is certainly room for improvement, Rwanda has been applauded for its dedication to universal accessibility of equitable and affordable health services, which has been critical in the country’s progress to date.

While Rwanda has made significant advancements in strengthening its health system over the past 20 years, the COVID-19 pandemic posed a new set of challenges to the health system. One area of concern was the limited number of ICU beds, which made up less than 2% of all available hospital beds, to treat severe COVID-19 cases [72]. Additionally, while access to primary care is widely available and accessible throughout the country, hospitals are less geographically accessible to rural populations, making it challenging for those communities to seek urgent tertiary care. Another health systems related challenge that complicated its response to COVID-19 has been a general shortage of human resources; Rwanda reported approximately 1.34 physicians per 10,000 people in 2018 [81]. These factors, along with limited WASH infrastructure which made handwashing challenging in many already vulnerable communities, highlight why Rwanda focused its early efforts on containing the virus and rapidly increasing health system capacity. Despite Rwanda’s significant progress towards UHC, it may not account for its success in controlling the COVID-19 pandemic-- instead, overall trust in the government, level of pandemic preparedness and swift governmental response seem to have played a larger role and may also help the country recover faster in a post-pandemic world.

*Pandemic preparedness and response capacity*

Over the last few decades, Rwanda has accumulated a great deal of experience in controlling infectious diseases, including malaria, HIV/AIDS, tuberculosis, and yellow fever; as a result of disease surveillance efforts and key interventions and programs, these diseases have generally led to fewer premature deaths in the population [39]. Additionally, because of its border with The Democratic Republic of Congo which has had frequent Ebola outbreaks over the last several years, Rwanda has increased control on cross-border population movement, installation of handwashing stations at key points of entry, and developed a comprehensive strategy based on a scenario of cross-border importation of the virus [82]. Rwanda has prioritized disease surveillance efforts, and, in 2013, it became the first low-income country to pioneer an electronic disease surveillance and response system (eIDSR) using mobile technology which has been leveraged during the COVID-19 response [83].

The WHO’s 2018 International Health Regulations (IHR) Joint External Evaluating (JEE) found that Rwanda had a high level of capacity in the technical areas of immunization, national laboratory testing system, real-time surveillance, emergency response operations, linking public health and security authorities, and risk communication [84]. This is mainly because Rwanda has prioritized the establishment of a national laboratory network, an electric disease surveillance system, and national preparedness plans for communicable diseases. In order to ensure effective surveillance and response to infectious diseases, the MoH launched a paper-based surveillance system in 1998 and an electronic disease surveillance response system in 2013 to more accurately track and report cases in real time, which allows for swift response, if necessary [83]. The eIDSR system was also integrated into the District Health Information Software (DHIS-2), which facilitated disease surveillance being a routine practice across all the public health facilities in the country. Staff at district hospitals and health centers enter data into the system for 24 diseases and when the number of cases for a specific disease reaches a certain threshold, it automatically sends an outbreak alert to hospitals and health centers. The eIDSR system has several important capabilities, including contact tracing, real-time data analysis, tracking lab testing, and outbreak monitoring [83].

Like Viet Nam, much of Rwanda’s response mechanisms is also a by-product of years of engagement with global health organizations. For instance, the US Centers for Disease Control and Prevention (CDC) has been working with Rwanda since 2000, providing guidance on their national HIV response program and more broadly on laboratory systems strengthening, infectious disease surveillance, and monitoring and evaluation [85]. Additionally, despite the many strengths of preparedness in Rwanda, the IHR-JEE review highlighted the need to improve upon the existing One Health framework, establish formal agreements between ministries to create a mechanism to share staff, and strengthen the existing training for health security [84].

*Response to COVID-19*

In January 2020, well in advance of the first COVID-19 case in the country, the government of Rwanda deployed medical staff to key points of entry, including the Kigali International Airport and land borders to screen for high fevers [86]. In February 2020, the government took swift action to preemptively address the issue of health system capacity by developing COVID-19 health units, purchasing personal protective equipment and test kits. Additionally, the government formed a Joint Task Force in early March, which developed the Coronavirus National Preparedness and Response Plan—that is, a detailed 6-month plan which established a national incident management system and laid out four phases of a coordinated national response [72]. At around the same time, the guidelines for social distancing and handwashing were issued, and hand sanitizing stations were placed outside of all major public buildings [86]. Rwanda had its first confirmed COVID-19 case on March 14, 2020, in a returning traveler, at which point contact tracing was initiated, and the MoH announced the closure of schools and places of worship and suspension of large gatherings, such as weddings and sporting events, and set up a toll-free number to report suspected COVID-19 symptoms. The government also ceased all commercial flights for an initial period of 30 days, and all returning travelers were required to quarantine for 14 days [72]. As cases continued to rise, by March 21st, the government placed and heavily enforced restrictions on non-essential travel, border closures, non-essential businesses closures, and mask requirements, which were in place until early May 2020. From May to July, lockdown restrictions were gradually lifted, and in-country and international travel commenced (Figure 18). However, periodic lockdowns have since then been put in place in provinces and villages that are found to be experiencing community transmission [72]. As a result of vigilant testing and contact tracing, it became clear that cross-border truck drivers carrying essential goods were significantly contributing to the increase in COVID-19 cases, leading to a new set of protocols for cargo transit workers, designed in partnership with neighboring countries. In addition to COVID-19 control strategies, in late March 2020, the government launched coordinated relief efforts, which included food distribution to vulnerable families to address unemployment and increased risk of food insecurity due to lockdown measures [72].

*Chart, line chart

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Figure 18. The Oxford COVID-19 Government Response Tracker’s Stringy Index for Rwanda with average trendline from January 2020 to present (Figure and Analysis by Authors)

As noted previously, the government of Rwanda took swift action to address the issue of health system capacity and leverage the existing structures and systems to provide the critical infrastructure needed to combat COVID-19. In February 2020, before the first confirmed case, the Kanyinya health center, which was built in 2013, was quickly transformed into a COVID-19 treatment center with 75 floor beds and 8 ICU beds to manage patients in isolated units, and following the same model, a hotel was repurposed into a treatment center with 126 floor beds and 8 ICU beds [72]. In addition to the dedicated centers, each of the 80 public hospitals set aside two beds for isolation of patients with COVID-19. This points to the adaptability and flexibility of the health system, which played a critical part in managing the COVID-19 outbreaks in the country. One of the several innovative strategies employed in Rwanda was the use of robots for patient monitoring and care documentation in order to protect healthcare staff working with suspected COVID-19 cases (X). Other innovative response measures included the establishment of a dedicated WhatsApp number to report suspected cases and recruiting college students in addition to police officers and medical staff to serve as contact tracers [72].

While Rwanda undoubtedly had a rapid and robust response to mitigate the impact of COVID-19, the core element that sets it apart from other countries in the region, and around the world, is the trust the people have in the government. A 2019 study from the Wellcome Trust found that 97% of Rwandans have confidence in the national health authority, which played a critical part in the country’s response to COVID-19 [87]. Agnes Binagwaho, one of the architects of Rwanda’s health system highlighted the importance of easing people’s fears of facing stigma, or of receiving a huge hospital bill if they seek treatment: “People need to know that the measures put into place, including lockdowns, deployment of health workers to people’s homes and robots to their hospital beds are not politically driven, but rather with their best interests at heart. Enforcement alone will not make people comply – it is trust, above all else, that is critical” [88].

*Conclusion*

Despite being a generally resource-constrained country, Rwanda was remarkably successful in containing COVID-19 outbreaks throughout the pandemic thus far. This is in contrast with other countries in Africa with similar levels of economic development, such as Burundi. Rwanda’s success in handling the COVID-19 pandemic was most attributable to the rapid and robust response, aggressive use of innovative strategies, flexibility of the existing health system, and above all, the trust people have in the government health authorities. Additionally, the country’s prior experience managing infectious diseases, such as HIV/AIDS and Ebola, left in place plans and structures that were then adapted to COVID-19. In a post-pandemic world, Rwanda’s remarkable progress towards UHC may play an important role in its economic and social recovery from COVID-19.

*Takeaways*

* Rwanda, a low-income country located in East Africa, has been highly successful at controlling COVID-19.
* Rwanda’s success is attributable to its experience combatting epidemics like HIV/AIDS and Ebola, a rapid and robust response, use of innovative strategies and technology, the flexibility of the health system and the people’s trust in the government.
* While Rwanda’s progress towards UHC may not have been at the core of Rwanda’s successful COVID response, its UHC capacity may enable the country’s successful economic and social recovery from COVID-19.

**Viet Nam: Pandemic preparedness and quick government reaction saves lives**

*Introduction*

Viet Nam, a lower-middle income country of 97 million people located in the Asia Pacific region, was a notable success story for its ability to control the COVID-19 pandemic during the first 12 months of the worldwide outbreak. Over the past decade, Viet Nam made strides against the incidence of malaria and tuberculosis, decreased maternal and child mortality, and increased its UHC effective coverage index to one of the highest values in the region; at the same time, Viet Nam also experienced an increasing rate of mortality attributed to non-communicable diseases (Figure 19). Viet Nam’s Gross Domestic Product (GDP) per capita in 2019 was about US$2,700, which puts it towards the middle of the pack for the Southeast Asia region [9], and its pandemic preparedness index score was 49.1, which ranked 50/195 countries, and was roughly similar to other countries in the region [10].

Despite Viet Nam’s positive trajectory on health outcomes and its relatively strong pandemic preparedness index, its success was not assured: Viet Nam shares a 1,300 km land border with China, which accounts for a large proportion of travelers to Viet Nam; the growth phase of the outbreak in China coincided with the Viet Namese Lunar New Year, when much of the population travels; and two-thirds of the detected cases were asymptomatic [89]. Despite these factors, as of March 1, 2021, Viet Nam had a total of just over 2,000 cases of COVID-19, which roughly corresponds to only 3 cases per million people [71]. Nonetheless, the country continues to face imminent threats from imported cases and the emergence of new SARS-CoV-2 variants, particularly in the light of the slow roll-out of COVID-19 vaccines. After successfully containing two waves, Viet Nam is, at the writing of this background paper, experiencing a third wave of community transmission, setting in motion a tightening of controls and new testing campaigns in several regions of the country. This reveals the delicate nature of hard-won containment gains and the urgent need for achieving widespread vaccine coverage as key to a sustainable exit from the pandemic.

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Figure 19. Trends in selected SDG 3 indicators in Viet Nam, 2009-2019

*Overview of the health system and progress towards UHC*

Viet Nam has a mixed public-private health system in which the public system under the Ministry of Health (MoH) is divided into two tracks focusing on prevention and clinical acute care [90]. The two tracks also span multiple levels ranging from central (Level I), which covers the entire country, to commune (Level IV), which covers fewer than 10,000 people [91]. While the government fully subsidizes premiums for special categories of citizens, including the poor, children under six years of age, and war veterans, the predominant payment method is fee-for-service, wherein fees differ by province and are set jointly by the MoH, the social health insurance agency, and the Ministry of Finance [90].

While Viet Nam has made significant progress towards achieving UHC, it has not yet achieved full coverage of its population (Figure 20). Social health insurance in Viet Nam began as early as 1992, and Viet Nam’s 2008 Law of Health Insurance called for universal coverage by 2014 [90]. Despite these efforts, Viet Nam has still not achieved UHC. Although since 2016 Viet Nam had not earmarked a budgetary commitment to UHC, a Lancet study found that UHC was still a high priority budget item; the same study concluded that while Viet Nam had initial programs and systems of implementation for UHC in progress, there was still a need for further systems development and capacity building to reach the population not yet covered [92]. As of 2019, IHME estimated that Viet Nam had achieved 60% effective UHC coverage, an increase of 3-percentage points from 2010 [39].

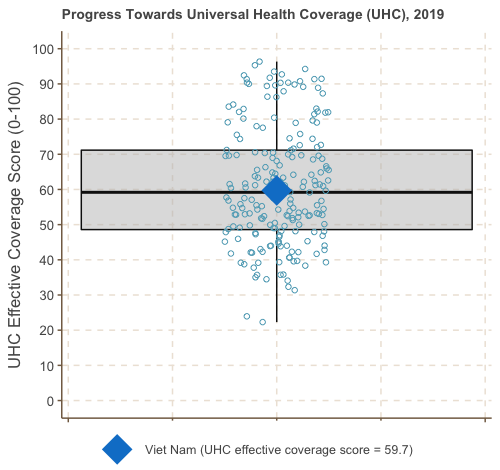


Figure 20. The Universal Health Coverage effective coverage index for Viet Nam, 2019

Viet Nam, along with many countries in Southeast Asia, has been experiencing rapid development and a population in transition. While the economy is also steadily improving, the pace has not yet caught up with its population growth rate, leaving a high proportion of households, mostly concentrated in rural areas, in poverty. In rural areas, including the Northwest and Central Highland regions where remote mountainous communities are predominant and the fertility remains high, the quality and coverage of maternal and child care is suboptimal, and the maternal and neonatal mortality rate is almost twice as high as the national average [93]. Fast changing population dynamics, including a high birth rate as well as a rapidly ageing population, creates complicated patterns of infectious diseases and the burdens of both communicable and non-communicable diseases. Uncontrolled immigration from neighboring countries adds to the existing issues Viet Nam’s healthcare system must address [94].

Despite the above-mentioned challenges, Viet Nam achieved some great progress towards the SDG3 targets over the past decade. The country publishes an annual report on their progress towards SDG goals jointly with the UN agencies [95]. According to the most recent report published in 2018, between 2000 and 2015, Viet Nam’s effort has been focused on reducing the burden of communicable diseases, including HIV/AIDS and Tuberculosis, resulting in significant reductions in incidence and deaths during this period. Circa 2018, the UN and interagency partners were implementing 77 key programs across various locations in Viet Nam with the common aim to achieve SDG targets [96]. These efforts are representative of a campaign over the past decade to reinforce policy and law related to public health and social welfare. An observational study compared Viet Nam and China’s public health law coverage and concluded that Viet Nam has a high coverage of public health laws across various areas; these public health laws range from creating social insurance to improving public health [96, 97]. While the rural-urban disparities in maternal and child health indicators currently remain as a key issue, Viet Nam has been rolling out generally strong neonatal care guidelines across the country [98]. Health experts widely consider Viet Nam’s focus on law and policy reinforcement as the most effective approach to building a health system with strong resilience and long-term sustainability.

Viet Nam faces three primary health systems related challenges that complicated its response to COVID-19. First, the country generally faces overcrowding in hospitals; according to a recent interview conducted right before COVID, Viet Nam had about 24.5 beds per 10,000 population [90]. Even prior to COVID-19, this led to bed occupancy rates reaching 120%-160%, especially in the central hospitals of some large cities [91]. Second, there is an urban-rural health divide, wherein people living in rural settings often have pre-existing comorbidities and limited access to health services [99]. Third, there is also a shortage of physicians; Viet Nam reported roughly 8 physicians per 10,000 people in 2015 [91]. These factors raised questions of healthcare capacity during COVID-19, and also highlight why Viet Nam focused so much of its efforts during the pandemic on preventing the spread of disease.

Although Viet Nam’s progress towards UHC may not account for its success in containing the first two waves of infections during the first year of the pandemic—instead, Viet Nam’s high level of pandemic preparedness and rapid and swift governmental response seem to have played a larger role—it may help the country recover faster from COVID-19. Moreover, given the country’s current investment in reinforcing the law and policy to build a resilient health system, coupled with its experience with COVID-19, Viet Nam may be able to respond to the next pandemic more effectively. The health system’s future success, however, might rely on how the country expands UHC in the face of growing immigration.

*Pandemic preparedness and response capacity*

Over the last few decades, Viet Nam accumulated substantial experience in controlling infectious diseases, including malaria, HIV/AIDS, tuberculosis, and parasitic diseases; as a result of disease surveillance efforts, these diseases have led to markedly fewer premature deaths in the population during this period [cite IHME GBD]. However, Viet Nam’s most pertinent experience was dealing with emerging infectious disease epidemics, notably SARS-CoV-1 in 2003 (Viet Nam was the first country to successfully control Severe Acute Respiratory Syndrome, SARS), Swine Flu (H1N1), and Avian influenza (H5N1) in 2004 [90]. Viet Nam’s fairly recent fight with these epidemics has not only informed the institutional-level preparedness and planning capacity for pandemics [100], but also social memory, which may have led to strong public support of regulations and guidance related to COVID-19 and a high degree of adherence to personal and community preventive measures recommended by the government [101].

The WHO’s 2016 International Health Regulations (IHR) Joint External Evaluation (JEE) found that Viet Nam had a high level of capacity in the technical areas of IHR coordination, communication and advocacy, zoonotic diseases, real-time surveillance, and immunization [102]. This is mainly because Viet Nam has made a strategic decision to invest in its public health infrastructure in the aftermath of the SARS epidemic and developed a national public health emergency operations center and a national public health surveillance system. The national center along with four regional centers have since then run exercises and trainings to prepare key stakeholders in government for potential outbreaks, and have managed preparedness and response efforts for measles, Ebola, Middle East respiratory syndrome (MERS), and Zika. Hospitals are required to report notifiable diseases within 24 hours to a central database, ensuring that the MoH can monitor epidemiological events across the country. Much of Viet Nam’s response mechanisms is also a by-product of decades of engagement with global health organizations; for instance, the US Centers for Disease Control and Prevention has been working with Viet Nam since 1998, providing input on disease screening, prevention, and laboratory capacity [89]. In 2018, an innovative event-based surveillance program, which empowers members of the public to report unusual public health events, was implemented in collaboration with this agency [103, 104]. This is not to say that all levels of government were equally prepared to respond to the COVID-19 pandemic; operational readiness among grassroots health providers was found to be only moderately effective [105]. Additionally, the IHR-JEE review previously noted that there was a need to strengthen multisectoral collaboration, coordination and information sharing, and sustainable investment in health security [102].

*Response to COVID-19*

In mid-January, well in advance of the first COVID-19 case in the country, the government of Viet Nam issued first the national response plan and the technical treatment and care guidelines for COVID-19, followed by the national surveillance guidelines [103]. This early action was a result of the country’s pandemic preparedness and containment policies and led to successful identification of the first two cases on 23 January 2020 and rapid containment of the first community transmission chain in the country. Immediately after, Viet Nam suspended all flights from and to Wuhan, China, and established a national steering committee to prevent and control COVID-19. Contact tracing and quarantine measures (self-quarantine at home and quarantine at non-medical and medical facilities) were immediately put in place [106]. When a case was confirmed, the authorities would trace to the fourth contact level from the confirmed case [107]. Further, social distancing measures, mask wearing, and in-country travel restrictions were enacted and enforced [108, 109].

As part of containment policies, communication between the government units and between the government and the public was prioritized from the start of the pandemic, with regular updates on outbreak status and government actions. To this end, the government encouraged the development of a number of mobile applications, which were provided free of charge to citizens [110]. Measures were also imposed to prevent hoarding and price-gouging for basic personal protective equipment (PPE) [89]. Further, in February, Viet Nam closed the shared border with China and suspended all flights between the two countries. During the first two months into the pandemic, only 16 cases were reported. From 26 February to 5 March 2020, there were no new confirmed cases of COVID-19 [107].

In early March 2020, cases started to increase in number due to imported COVID-19 cases from Europe and the US , and community transmission was indicated due to the identification of cases with no travel history and no apparent contact with COVID-19 patients. As a result, the government successfully implemented a multi-jurisdictional cooperation mechanism between local authorities and health stations to conduct sensitive and broad contact tracing on all passengers in planes that had reported cases of COVID-19. Contact tracing was implemented as a joint effort between the MoH, the Ministry of Technology and Science, the Ministry of Public Security, the local CDC, and local authorities. Mandatory COVID-19 testing and a 14-day quarantine at a government-run isolation center were required for all international passengers. There were, though, concerns that the implementation of a 14-day quarantine for close contacts of international travelers would lead to a shortage of quarantine space [107]. During this period, all residents were requested to wear a face mask in public places; gatherings of 10 or more people were prohibited; schools were closed; and intracity/intercity movement restrictions were enacted [108]. On March 28, Viet Nam enacted a blanket travel ban for all international flights despite WHO’s advice against travel bans at the time [108].

On 31 March, with the total number of reported cases rising above 200, the Prime Minister called for urgent and stricter measures to halt community transmission, including a 15-day nationwide lockdown, where people were allowed to leave their houses for only essential activities, such as seeking medical care or buying food [111]. This included shutting down non-essential businesses and public transport, allowing only essential travel between cities and provinces, and prohibiting gatherings of more than 2 people in public places. The lockdown was extended for another 15 days in high-risk cities and was in effect until the end of April. In parallel, mass testing for COVID-19 continued, and testing was streamlined with an innovative sampling method where nasal and throat swabs from 2-7 individuals were placed in a single tube at collection. An online system was launched to provide support to all health facilities located in remote areas on medical counseling, consultation, imaging diagnosis, pathology to eliminate geographic and social barriers and enhance diagnosis and treatment capacity for COVID-19 [112]. All these measures were applied with increasing stringency until this second wave of community transmission was successfully brought under control in early June. Testing, treatment and quarantine (food and accommodation) costs were covered by the government [108]. Thereafter, testing and contact-tracing continued, and quarantine measures were enforced vigilantly as new small-scale outbreaks were identified and contained. During the first year of the pandemic, Viet Nam reported only about 1,500 COVID-19 cases and experienced low mortality rates.

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Figure 21. The Oxford COVID-19 Government Response Tracker’s Stringy Index for Viet Nam with average trendline from January 2020 to present (Figure and Analysis by Authors)

The success of Viet Nam’s policy response in the first 12 months of the pandemic has been attributed to a variety of factors, including swift policy action of the government due to the nature of its political mechanisms and administrative systems facilitating rapid and effective coordination horizontally across central government units and vertically from central to local levels [89]; the country’s high level of pandemic preparedness as a result of its experiences with past public health crises, long-running engagement with global health organizations and the resulting willingness to follow globally recommended protocols for pandemic response [108]; clear prioritization of public health above economic considerations thorough a “proactive and comprehensive” response by the healthcare system, combined with an energetic and creative public education campaign [113]; mass mobilization of government and civil society organizations in a “whole of society” approach to draw on knowledge and capacities from across multiple sectors and ministries [114, 115]; fostering cooperative national sentiment and solidarity through timely and transparent communication on the outbreak-related developments by the government and the media which fostered trust and credibility of the government among the public [89]; and the country’s adaptation capabilities whereby central and local governments has continually amended and created new policies and has rapidly adjusted and fine-tuned response measures based on scientific and epidemiologic data in response to new outbreaks in the country [89]. While these factors indicate due preparedness, it was the flexibility and capacity to respond rapidly and decisively on pertinent policy areas that helped the country to stay ahead of the pandemic’s progression during the first three waves.

*Conclusion*

Despite being a resource-constrained country, Viet Nam successfully contained the COVID-19 outbreaks during the first year of the pandemic while little was known about the virus. This is in contrast to other countries in Asia with similar levels of economic development, such as India, the Philippines and Indonesia. Viet Nam’s success in handling the COVID-19 pandemic was perhaps attributable more towards its recent experiences with epidemics and ensuing investments in its public health infrastructure, as well as its political and administrative systems that facilitate cooperation within the government units and between the government and the public. The same spirit of the command-and-control architecture of Viet Nam’s political and administrative systems, which facilitated effective coordination and management of activities for the COVID response horizontally and vertically, is also predicted to serve the post-pandemic economic recovery effort through fiscal stimulus and public investment [89, 116]. In the post-pandemic world, Viet Nam’s steady progress towards UHC may play a role in its economic and social recovery from COVID-19.

*Takeaways*

* Viet Nam, a lower-middle income country located in the Asia Pacific region, was highly successful at controlling COVID-19 during the first 12 months of the pandemic
* Viet Nam’s success is attributable to its previous experience combatting epidemics like SARS, high-level of pandemic preparedness, rapid and comprehensive action, and its adaptive capabilities in its COVID-19 response.
* While Viet Nam’s progress towards UHC may not have played a major role in Viet Nam’s successful COVID response, its UHC capacity may enable the country’s successful economic and social recovery from COVID-19

**Comparative analysis**

* Initial findings have identified that limiting gatherings to fewer than 10 people, closing high-exposure businesses, and closing schools and universities were more effective policies than stay-at-home orders [117]. We find that this makes sense in the context of our inquiry, specifically that the case studies indicate that governments’ abilities to both quickly initiate and then enforce these policies—or have societies that are amenable to adherence with these policies on their own volition—was integral to their ability to contain the COVID-19 pandemic.

*Pandemic responses in resource-constrained settings*

* Counterintuitively, the economic strength of a country can delay necessary government action to address the pandemic [118].

*Primary similarities and differences in policies and approaches across countries*

*What has been effective?*

* Fiscal expenditures on health, regional and local government capacity, and pressure on a health system can accelerate government responses [118].

*The role of UHC coverage*

*Key policy lessons*

**Conclusion**

* Impact of COVID-19 on health systems
* COVID-19 pandemic will speed up adoption of digital public service provision [119], possibly including other public service provisions including a transition to UHC.

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