Kenya: a primary health care case study in the context of the COVID-19 pandemic
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Executive summary

COVID-19 has exposed the challenges of improving primary health care (PHC) in Kenya. At the same time, Kenya’s health system has demonstrated agility, adapting and responding to the changing situation while continuing to function and provide essential services. This case study examines PHC in Kenya between March 2020 and July 2021 in the context of the pandemic, drawing on the Astana PHC framework to examine primary care services and essential public health functions, multisectoral collaboration and community engagement. The study gives a brief overview of the COVID-19 response from the initial confirmed case in March 2020, how COVID-19 affected PHC, and the range of policy and market innovations that characterized the health system’s response.

While Kenya’s pandemic response demonstrated several strengths, challenges across the public health emergency response continuum are reported, from contact tracing through to treatment and referral. Findings suggest the country’s response through to July 2021 was strongly hospital-focused and that PHC played a peripheral role. Supply-side (health services) challenges included limited testing capacity, poor access to personal protective equipment (PPE) for health workers and limited funding. On the demand side (health service users), challenges include poor communication and limited social protection of households.

Despite these challenges, agility and innovation were evident in how the health system adjusted and responded. Two broad types of innovations and solutions were identified: provider-facing solutions to strengthen the service delivery function; and consumer-facing innovations to improve access and coverage of essential services within and outside the formal health system.

There is an opportunity for the government to distil lessons from the pandemic and use these as a basis to strengthen emergency preparedness and resilience in the structure, functions and operations of the health system.
Introduction and national context

National context

Kenya is a lower-middle-income country with an estimated population of 47.6 million people, three quarters of whom live in rural locations (Government of Kenya, 2014). Roughly one third of the population lives below the poverty line. According to the World Bank (2016), poverty incidence was 36.1% in 2016. While a pre-COVID-19 analysis showed that poverty incidence reduced to 28.9% in 2019, it increased to 41.9% in 2020 (Nafula et al., 2021).

The country has a devolved system of government operating across two levels: national and county (of which there are 47). While policy leadership sits under the mandate of the Ministry of Health (MoH), sector priorities are defined under the Constitution, Vision 2030 (the country’s development blueprint) and the Big Four Agenda (the government’s five-year development) (Government of the Republic of Kenya, 2007; 2017). The MoH developed the Kenya Primary Health Care Strategic Framework (KPHCSF) (2019–2024) and the Kenya Community Health Strategy (2020–2025) (MOH, 2020b).

The public health sector is governed under the Health Act of 2017 and the Public Health Act of 1986 (revised 2012) (Republic of Kenya, 2012; 2017). While the former allocates responsibilities to national and county governments, the latter specifies government roles during outbreaks.

Health service delivery is organized in a pyramidal structure, with community services at the base and tertiary services at the top. Counties are responsible for PHC (levels 1 to 3), with the MoH providing policy leadership and minimum standards. Health insurance coverage stands at roughly 20% of the population, with the majority of this being formal workers covered under the National Hospital Insurance Fund (NHIF). Out-of-pocket spending stood at 23% of total health expenditure in 2018 (World Bank, 2022).

The design, organization and operationalization of PHC is elaborated in the KPHCSF (MOH, 2020c). This Framework recognizes PHC as the first point of contact between communities and the health system. It specifies six strategic objectives for PHC:

1. Securing political commitment towards PHC goals;
2. Building a strong workforce for PHC;
3. Improving access to quality and safe PHC services;
4. Enhancing financing for PHC;
5. Improving the PHC supply chain; and
6. Improving capacity to collect and use data for PHC decision-making.
COVID-19 in Kenya

Kenya’s first case of COVID-19 was reported in March 2020. By the end of July 2021, more than 193,000 cases and 3,800 fatalities had been reported (MoH, 2021). By mid-May 2021, Kenya had experienced three waves of COVID-19: July–August 2020, October–November 2020 and March–April 2021.

The highest transmission rates were reported across urban locations, with the country’s three largest cities of Nairobi, Mombasa and Kisumu leading the pack.

The Government reacted swiftly, with the president establishing the National Emergency Response Committee (NERC), which drew membership from the ministries responsible for health, transport, foreign affairs, information and communications technology (ICT), finance and various semi-autonomous government agencies. Shortly after the first few cases, the government announced a raft of directives, including a nationwide dusk-to-dawn curfew and mandatory wearing of face masks. These policy actions varied periodically throughout 2020 and early 2021 depending on transmission rates and caseloads.

Kenya participated in the COVAX facility, a global initiative to promote equitable access to COVID-19 vaccines. The first batch of 1.02 million vaccines were received in March 2021. However, increased cases in India caused the Indian government to reduce exportation, resulting in the postponement of the delivery of Kenya’s second batch due in May 2021. While vaccine uptake was slow initially, a government-led vaccination campaign improved uptake.

By July 2021, 1,028,000 persons had received their first dose of the COVID-19 vaccine, with roughly half also receiving their second dose. Gender and regional inequity concerns arose. While 49% of Kenyans are male, they received 56% of the vaccines by July 2021 (MOH, 2021). At the end of 2021, vaccine coverage stood at 17%, with the poorer rural counties having lower coverage (Muchiri et al., 2022).

Methodological approach

To explore PHC in the context of the COVID-19 pandemic, this case study gives an overview of the response between March 2020 and July 2021. Using the Astana PHC Framework as a basis (WHO & UNICEF, 2018), the study considers the pandemic response across three critical components: 1) the delivery of primary care services (essential services, critical care support and referrals); 2) multisectoral collaboration to address health determinants and improve services more broadly; and 3) community engagement. The study was conducted as a desk-based review drawing on published literature and data sources.

This research primarily reviewed policy documents, peer-reviewed publications and commissioned reports. A scoping review approach was adopted, where the focus was to identify and use all available materials through online searches (but not limited to peer-reviewed materials), with snowballing and
How primary care and essential public health functions are responding to COVID-19

According to health care leaders and managers, the emergency response utilized four key functions: 1) community awareness; 2) home-based care; 3) screening and treatment; and 4) referrals.

Kenya’s emergency response strategies between March 2020 and July 2021 included contact tracing, screening, testing, and treatment or home isolation of COVID-19 patients depending on the severity of their illness. Against a background of inadequate pandemic planning and chronic underfunding, primary care facilities were expected to support all of the above strategies and maintain routine services.

Functioning of the primary care system during COVID-19

Early in the pandemic, the government emphasized contact tracing to minimize community spread. Countries across Africa were advised to identify and screen at-risk persons, including activating local detection points like private pharmacies (Africa CDC, 2020). Contact tracing was coordinated by the Kenya Public Health Emergency Operations Centre (KPHEOC) and was perceived by many stakeholders as being more effective at national than subnational level. Information flows and contact tracing support to counties and their facilities was ad hoc, and the government failed to use smaller private facilities properly as case detection points.

All facilities were directed to establish screening stops at points of entry and to create separate pathways for suspected COVID-19 cases. However, low PPE availability and lack of training and information made some PHC workers feel unsafe talking to patients. Some declined to see patients with flu-like symptoms (Ouma et al., 2020), and some facilities closed down when colleagues had interacted with suspected COVID-19 patients (University of Maryland, 2020). Yet, at a general level, previous experience managing infectious diseases like tuberculosis (TB) and cholera outbreaks may have enabled health workers to cope better.

Unlike screening, which was operationalized across facilities, testing was mainly conducted at the National Public Health Laboratories, the Kenya Medical Research Institute (KEMRI) laboratories and at selected public and private hospitals, complemented by selected large private laboratories. As case numbers increased, the government deprioritized some routine laboratory activities. For instance, some HIV viral testing capacity was diverted to COVID-19, which resulted in increased turnaround times (Lagat et al., 2020).
Due to a shortage of testing kits, only those who exhibited COVID-19 symptoms were tested. While testing was done mainly in Nairobi, samples were also collected at selected facilities for transportation to the testing sites. The implications of this were that many positive cases may have been missed.

Positive cases were advised to isolate at home or to seek treatment, depending on the severity of their symptoms. Home isolation patients were required to register on the Jitenge mobile app for support (see Box 1) and were to receive visits from community health volunteers (CHVs), who serve as the link between communities and PHC facilities. Some stakeholders reported challenges with home isolation, including insufficient space within poor households, low information on what providers would do for deteriorating patients, and the costs of home visits and PPE. Support was mainly provided as information delivered via the Jitenge app, including on what to do when faced with different scenarios, and the need to seek hospital care if symptoms worsened.

The PHC system played a limited role in the provision of treatment to those with mild COVID-19 symptoms and referred the rest to higher levels. While the MOH provided interim treatment guidelines, some PHC workers felt that they had not received timely communication. The bulk of treatments were carried out at tertiary facilities. There were reported cases of patients dying on transfer from PHC facilities to tertiary facilities and a lack of ICU beds at the isolation centres as the number of patients increased. Overall, the absence of clear linkages between the two levels of government on matters of public health emergency response, plus poor coordination between the public and private PHC systems, contributed to underutilization of the PHC system in the COVID-19 response.

The absence of effective Public Health Emergency Operation Centres (PHEOCs) at county level also made it difficult for the MoH to obtain reliable and up-to-date information on caseloads and fatalities. However, the national-level KPHEOC supported counties to establish COVID-19 committees, which played an important role in collecting and reporting data. In addition, the KPHEOC received daily test results from national laboratories and shared these at county level, allowing the latter to keep accurate records.

Finally, the health system was expected to disseminate accurate information on COVID-19 trends. However, this was potentially hampered by PHC facility staff and CHVs avoiding close contact with patients. Movement restrictions and lack of PPE also made it difficult for CHVs to conduct household visits and to engage communities through normal channels.

Innovative solutions to address primary care challenges

Innovative solutions were sought to support health services continuity during the pandemic. While there was little detailed information on the coverage and effectiveness of these interventions, there are indications that various initiatives have the potential to strengthen future responses and to improve the functioning of primary care beyond the pandemic.
Use of technology

The pandemic brought about unprecedented technological innovation to support health care. This included strategies to strengthen contact tracing, surveillance, home isolation and the vaccination process, which were mainly rolled out using mobile apps (see Box 1 on the Jitenge app). Kenya’s high mobile phone coverage of over 90% (Communications Authority, 2018) facilitated deployment of the apps, although attaining scale was harder. Telemedicine was also used to serve patients; however, this was mostly used in urban and affluent areas with good internet connectivity. PHC facilities did not have the infrastructure to support telemedicine and virtual patient care was delivered on an ad hoc basis by health providers through mobile phone calls or messaging to patients.

Box 1. Jitenge: a mobile app to support home isolation

Home isolation patients were entitled to physical visits and/or phone calls from CHVs to assess recovery, monitor adherence to guidelines and to be reminded to report new symptoms. However, there were no clear mechanism to achieve this at scale. This gap saw the launch of an innovative MoH-supported mobile app called Jitenge (Swahili for “isolation”).

Following a positive test for COVID-19, patients registered via the app (those with smartphones) or unstructured supplementary service data (USSD) code (those without smartphones). The app allowed health providers to identify those in need of care and was adopted successfully at immigration centres and other venues (including airports). This enabled immigration centres to go paperless while obtaining traveller information and following up on reported symptoms. The app was linked to DHIS2 and worked well in larger towns. Poor coordination between the two levels of government limited nationwide application of Jitenge, however.

Source: The authors, drawing on information from MHealth Kenya, 2022 (https://www.mhealthkenya.org/covid-19)
Another app, Chanjo (“vaccination” in Swahili) enabled the government to track vaccine distribution and stock levels, as well as to communicate important information to vaccinated individuals (e.g., vaccine batch numbers and date of next dose). The app also allows individuals to print vaccination certificates. The app was implemented nationally. The centralized approach was primarily used to standardize the response. However, intercounty variations in the role and performance of the community strategy and primary care facilities made it difficult to deploy a one-size-fits-all tool (e.g., there were variations in the level of education of CHVs in different regions).

The absence of a regulatory framework for telemedicine dissuaded some patients, investors and providers from using these technologies. Although the Kenya Medical Practitioners and Dentists Council (KMPDC), the medical services regulator, developed guidelines, these were poorly communicated.

**Establishment of local emergency operation centres (EOCs)**

At national level, the government introduced a toll-free COVID-19 call centre with support from the leading mobile network provider, Safaricom. This enabled the public and health workers to access information about the virus, report close contacts and call for emergency medical care. However, there was no clear mechanism to cascade this at subnational level. One county, Kisumu, used its own resources to establish a local EOC, which initially served as a COVID-19 information centre and later expanded to handle all kinds of emergencies, including ambulance fleet management.

**Specimen collection and transportation**

Decentralization of testing proved difficult because of infrastructural deficiencies and pre-existing inadequacies in linkages between primary care and higher levels of the health system, and between the public and private PHC systems. In response, specimen collection points were established at selected lower-level hospitals.

**Normal PHC service continuity during COVID-19**

To ensure continuity of primary care services, the MoH developed guidelines incorporating strategies like telemedicine and patient flow management (MoH, 2020a). However, major disruptions occurred in health service delivery, especially for non-emergency services such as chronic care, HIV, antenatal care and routine immunizations. Challenges were reported in terms of:

1. services slowing down due to social distancing requirements/avoidance of crowding (Lagat et al., 2020) and the diversion of resources to COVID-19 priority areas (e.g., repurposing HIV viral load testing capacity towards COVID-19 testing);
2. reduced opening hours at facilities due to movement restrictions and curfews (although health workers were exempt, restrictions to public transport forced some to work within curfew hours);
3. patients avoiding facilities for fear of infection;
4. facilities closing for fear of infection, especially where there was no PPE (Ahmed et al., 2020); and
5. the conversion of some health facilities into isolation units, thus reducing access further (Olago & Chowdhury, n.d.).

Informal workers dwelling in urban settlements were affected by the restrictions to a greater degree than formal workers through loss of wages as businesses closed. Some stakeholders reported that access to essential services was more challenging in rural areas, due to lower service capacity and the lack of a critical mass of key workers. Many people deferred their utilization of services due to loss of income, which consequently created inequity. It has been estimated that out-of-pocket expenditure increased, in part because COVID-19 treatment was an additional cost (Barasa et al., 2021).

Innovative solutions to support service continuity

Two main strategies were employed to ensure continuity of primary care services: 1) establishing an appointment system for certain routine services; and 2) use of online resources.

To minimize crowding and risk of cross-infection at facilities while at the same time ensuring service continuity, the African Medical Research Foundation (AMREF) – a leading Kenyan nongovernmental organization (NGO) – deployed a book-in-client approach for family planning clinics. This approach was enforced to a greater degree by smaller, private facilities.

The pandemic drove a renewed focus on telemedicine and increased approval of telemedicine providers was reported by stakeholders. Some facilities used telemedicine to ensure continuity of mental health services, for example. Strategies included direct calls to patients, online training of health workers at facilities on mental health care and the introduction of mental health topics in all online COVID-19 management training to sensitize health workers.

The impact of COVID-19 on the broader health system

Primary care services are funded by the Treasury through conditional grants to facilities, supplemented by direct budget allocations at the county level. Health is poorly funded overall, with only about 6% of the national budget being allocated in 2020/2021 (Treasury, 2020). While approximately one third of county allocation also goes to health (MoH, 2022), very little flows down to support PHC operations – and this results in overreliance on donors, particularly for community health services. Consequently, CHVs focus on donor priority activities at the expense of broader health system goals, which makes it difficult for the government to mobilize their support during emergencies.
Health system funding is skewed towards tertiary care, and this was evident during the pandemic from March 2020 through to early 2021 when the majority of funding went towards increasing bed capacity and oxygen delivery in isolation facilities. The government allocated extra funding to the counties, however, which was to be utilized to upgrade isolation facilities and to support prevention measures that the PHC system was responsible for. County governments were expected to design tailor-made COVID-19 solutions.

Major disbursement delays were reported, partly due to the slow release of funds from the Treasury and partly due to disruptions in County Assembly activities from COVID-19 infections. These delays compromised county capacity to mount an effective response. Furthermore, despite the increased funding, COVID-19 care was not free at the point of use. Out-of-pocket spending remained high throughout 2020 and early 2021 due to low insurance coverage and the refusal by insurance organizations to reimburse COVID-19 cases (Ouma et al., 2020). The out-of-pocket payments for treatment of COVID-19-related health concerns disproportionately affected the poor, who have been shown in prior studies to be at a higher risk of catastrophic health spending (Salari et al., 2019).

Like financing, human resources for health was a major challenge, with chronic understaffing, delayed salary payments and inadequate incorporation of CHVs into the formal health system. This worsened during the pandemic, as key staff were diverted to provide COVID-19 care.

Innovative solutions to health systems challenges

To address personnel gaps and ensure PHC service continuity, 6000 health workers of different cadres were quickly hired in Kenya on short-term contracts to serve in isolation facilities and cover shortages. Concurrently, the MoH developed guidelines around staff psychosocial support. This was an important step for the health system, considering that the issues covered in the guidelines apply to other health conditions beyond COVID-19 (Shumba et al., 2020). The MoH also established the MoH Virtual Academy to help scale up training of key personnel, including CHVs.
How multisectoral policy and action are responding to COVID-19

The pandemic, and the subsequent measures introduced, affected and triggered innovation in Kenya in areas beyond health, such as food security, living standards and poverty levels, education, social and religious activities, the environment and security.

Innovative solutions to address social and economic challenges

Recognizing the multisectoral nature of the challenges, the government set up the NERC at the start of the pandemic. Drawing on membership from the ministries responsible for foreign affairs, education, security, transport and industry, the Committee coordinated the national response strategy and fundraising. This set a strong precedent for multisectoral action, allowing the government to deploy the Health in All Policies (HiAP) approach to public policies across sectors (WHO, 2014).

Examples of the HiAP approach include directing the public transport system to reduce carrying capacity and encouraging organizations to allow telecommuting. Similarly, a government-led multisectoral programme was established to prevent gender-based violence. In this way, there is an opportunity for NERC (and other strategic vehicles) to function beyond the pandemic to address broader determinants of health through an ecosystem approach.

Other actions include social protection measures such as Inua Jamii, a conditional cash transfer policy where roughly US$ 20 is sent to orphans, the elderly and persons with disabilities, and US$ 54 is sent to families grappling with hunger. Additional interventions include: the waiver of mobile money transaction charges to minimize cash handling, and youth employment opportunities such as the Kazi Mtaani (“Work in the Community”) initiative, under which untrained youth were employed to carry out low-skill tasks such as street cleaning. While some of these were not necessarily new initiatives, the pandemic renewed government interest in using them as channels to support the vulnerable in 2020 and 2021.

Finally, the government instituted tax relief measures, including a 100% tax waiver for low-income earners; decreased Pay-As-You-Earn (PAYE) across all bands; decreased value added tax (VAT) (16% to 14%); and decreased corporate income tax (30% to 25%). These relief measures ended in December 2020.

Across these measures, however, primary care was peripheral to the process and was not involved in implementation.
Innovative solutions to environmental and WASH challenges

In 2019 only one third of households had access to piped water and nearly one out of every 10 persons had no access to proper sanitation facilities (Kenya National Bureau of Statistics, 2019). When the pandemic commenced, innovations were introduced to expand access to hand hygiene, including portable handwashing stations made from locally available materials. Water, sanitation and hygiene (WASH) activities were supported by community members and NGOs with the support of CHVs and PHC facilities. There are opportunities to sustain these collaborative efforts towards society-wide hygiene ongoing.

Public-private collaboration in the COVID-19 response

Public-private collaboration was achieved through the COVID-19 Fund, which had a multisectoral composition drawing on private firms from sectors across commercial services, ICT and manufacturing. The government partnered with the Safaricom mobile network to set up a COVID-19 call centre, while additional partnerships were established with technology firms to support the response. Local businesses provided handwashing facilities.

The media played an important role in the multisectoral response by disseminating information. As over 40% of Kenyans have access to a television, the government used this medium to provide daily updates (Kenya National Bureau of Statistics, 2019). Social media played a role too; however, this platform contributed to a COVID-19 infodemic, with sections of the community downplaying the seriousness of the virus. The infodemic partly explains why mass testing drives had a poor turnout in 2020 (Badurdeen, 2020). Manufacturers helped to expand local capacity to produce supplies, and partnerships were established between the government, universities and other industries (Kavanagh et al., 2020). NGOs supported the government in various initiatives around messaging on COVID-19 prevention through community engagement, plus the provision of PPE to CHVs, handwashing stations in informal settlements and cash transfers to vulnerable groups (Africa Center for Strategic Studies, 2020).

Implications for national policy

While examples were identified of effective multisectoral action, there was considerable fragmentation in how determinants of health were linked to primary care and the health system more broadly. This may be a result of vertical planning and financing models that emphasize line-item spending at the expense of multisectoral planning and execution. Consequently, the country failed to reap the benefits of more organic inclusion of, and multisectoral collaboration with, sectors such as education and security in mounting an effective response.
How communities are responding to COVID-19

The Kenya Community Health Strategy (2020–2025) is intended to empower communities to take charge of their health. However, only about two thirds of the country had active Community Health Units (CHUs) in 2020 (MoH, 2020b). The use of CHVs as part of the pandemic response has varied, with most counties reportedly struggling to secure their strong involvement.

Beyond the involvement of CHVs, COVID-19 affected household use of health facilities, especially non-emergency services. In one county, a 50% drop was reported in enrolment of HIV patients in certain key services, with reasons cited that include fear of COVID-19 infection, increased transport costs following reduced carrying capacity of public vehicles and reduced household incomes (Lagat et al., 2020). Access to maternity services are reported as having been affected for similar reasons.

Other concerns raised by communities included mandatory quarantine at uncomfortable and costly facilities; reduced incomes due to fewer business opportunities; excessive enforcement of curfews; the impracticality of physical distancing within informal settlements; and poor access to water (prices were reported to have increased by 172% in some areas, with women being the worst affected (Gikandi, 2020)). There were also reports of stigmatization and scapegoating of persons believed to have been infected, which reduced willingness to seek early treatment, and of mismanagement of COVID-19 funds, which reduced public trust in the health system (Okereke et al., 2021).

Innovative strategies to strengthen community practices

Health messaging through music and art

Communities used music and art to relay COVID-19 prevention messages. For example, in urban areas like Mombasa, wall murals communicated prevention messages; one youth leader used poetry to create feelings of hope within the community (Badurdeen, 2020).

Local artists also created digital content in response to COVID-19 that was shared widely. Over time, the messages within this content changed, reflecting community understanding and levels of awareness. While earlier messages depicted skepticism and urged people not to fear the virus, later messages shared more accurate information but also critiqued some aspects of the government response (Mulemi, 2020).

Health information through public campaigns and media activism

Local leaders in some areas established WhatsApp groups to facilitate communication. For instance, in Kibera (East Africa’s largest slum), over 130 000 inhabitants subscribed to a WhatsApp group that provided regular information
on COVID-19 (Africa Center for Strategic Studies, 2020). CHVs and health facilities disseminated COVID-19 prevention messaging in partnership with local NGOs and community leaders. In urban areas, greater access to the internet and smartphones enabled the MoH to utilize social media platforms such as Facebook, Twitter and WhatsApp to communicate with the population alongside mainstream national media channels.

**Innovation to support referral and ambulance services**

In Kakamega, the county government set up an emergency number so that mothers in labour could access transport during curfew hours. The women were linked directly to licensed boda boda riders (motorcycle taxis), who would trace the women’s location, transport them to a health facility and receive compensation from the government (Wangamati & Sundby, 2020).

**An expanded role for communities in supporting the health system**

While the pandemic brought many challenges, local industry demonstrated unprecedented agility. There was local production of medical equipment, supplies and devices. Notable examples include the production of hospital beds, PPE, liquid hand sanitizer and oxygen. These items were mainly produced by small and medium-sized enterprises.
Conclusion and lessons learned

The pandemic exposed inadequacies in primary care and the country's preparedness to respond to public health emergencies. At the same time, Kenya witnessed renewed agility and innovation. These innovations can be characterized as two types: 1) provider-facing innovations intended to strengthen the service delivery function, and 2) consumer-facing innovations intended to improve access and coverage of essential services within and outside of the formal health system.

Provider-facing solutions

Reorganization of health services

Although not pre-planned, Kenya’s pandemic response saw a reorganization of health care facilities to improve safety and efficiency. This started at the top with the designation of one national referral hospital as the main COVID-19 hospital, thus allowing smart use of resources and specialization. Lower down the system, facilities became more aware of the risk of spreading the virus, designating special zones for COVID-19 patient management and reorganizing patient flows. There is an opportunity for the country to be more deliberate about assigning facilities to match current needs and cater for emergencies.

Training and capacity-building for staff

Emergency preparedness capacity was low overall. In response, the MoH introduced and scaled up various online training resources for personnel, in partnership with local institutions and professional associations. The MoH developed a curriculum for COVID-19 case management and trained a pool of trainers drawn from all health cadres. These trainers then helped to cascade the curriculum to counties, going down to the community level. Moving forward, there is an opportunity for the MOH and partners to encourage continuous online in-service training that covers both emergency and non-emergency areas.

Innovative use of the capacity of non-health care industries

The government encouraged different industries to repurpose their production capacity towards health care equipment, supplies and materials. This resulted in textile firms making PPE, metal workshops making hospital beds, and chemical plants making hand sanitizer and soap, among other examples. Prior to the pandemic, most of these commodities were imported. There may be an opportunity to continue using local capacities to service health sector needs.

Collaboration across government agencies and levels

Poor coordination between the two levels of government is a major challenge. While the MoH set up the national-level KPHEOC to manage emergencies and counties were supported to establish similar EOCs to mirror the national one, these were yet to be implemented in all counties at the time of writing. In the absence of EOCs, county public health and epidemiology departments were responsible for emergency response activities, with little involvement of the PHC system. Although some counties found ways to address this gap by establishing local EOCs and
introducing toll-free emergency numbers, there is potential to grow these to strengthen emergency response and improve health care outcomes.

**Collaboration between government and nonstate actors**

Multiple organizations willingly stepped up to support the government effort across multiple dimensions, including raising funds and manufacturing. In addition, the media played a considerable role in relaying credible information to the public on COVID-19 prevention and response in partnership with the MoH. However, this collaboration largely occurred at the national level. Multisectoral collaboration at subnational level is an area that could be improved in the future.

**Consumer-facing innovations**

**Community collaboration to improve health outcomes**

Kenya saw unprecedented collaboration during the period under review aimed at promoting healthy lifestyles and keeping disease at bay. Temperature checks at public places demystified the concept of screening. Public policy could build on this new culture to expand screening and messaging for other diseases, most notably noncommunicable diseases (NCDs) like hypertension and diabetes. Efforts could be made to take these activities closer to households via small drug shops, general shops and markets, and by utilizing places of worship and sports facilities. Further to this, lessons can be learned from locations where CHV support for home isolation worked well, as this may help to reduce demand at health care facilities whilst guaranteeing service continuity.

**Mobile technology to support patients at home**

Technological innovations such as mobile phone apps were introduced in Kenya to support home-based health care. Study findings highlight the potential of these types of innovations to support home-based care, considering Kenya’s high mobile phone coverage. Simple messaging to assess recovery and adherence to instructions using the Jitenge app could enable the provision of a whole range of other services at scale. Similarly, the Chanjo app used for tracking and messaging recipients of the COVID-19 vaccine could be expanded to digitize childhood vaccinations, making it easier to reach parents, to identify those who may have dropped out of the immunization programme and to allow better data management.

**Collaboration to improve screening**

A major barrier to health services is low diagnostic capacity. Use of specimen transportation allowed COVID-19 testing to proceed outside of the major cities. There is opportunity to build on this, thereby expanding access and allowing optimal use of testing capacity across the health system.

Public–private collaboration allowed resources to be harnessed from the private sector to augment government efforts. The private sector provided technological innovations such as the Jitenge app, financial resources and increased local manufacturing. These gains should be utilized to harness resources to solve future
health challenges. Additionally, partnerships with nonhealth actors such as the media, manufacturers and those from the education sector proved beneficial and could be further nurtured.

The utilization of markets and places of worship for screening and health promotion activities allowed more effective community engagement, replacing ad hoc medical camps. These avenues for community engagement and screening could be incorporated into future emergency preparedness efforts.

Communities participated actively in the COVID-19 response in various ways. Community surveillance made the public more aware of visitors and/or health concerns, which, in turn, improved the speed of reporting for COVID-19 and contact tracing. However, there is no clear data or information on the involvement of CHUs. Differences in engagement between rural and urban communities should be considered in pandemic preparedness plans.

**Creative messaging through music and art**

Music and art were utilized to communicate COVID-19 prevention messages. There are opportunities to continue to support local artists to cascade health promotion messages to improve ownership of health issues by communities while ensuring that messaging is culturally sensitive.

**Innovative referral support strategies using local riders**

Barriers to accessing health services include lack of transport either due to poor road infrastructure or affordability. One county used local motorbike taxis to improve access to maternity services during curfew hours. This innovation could be cascaded elsewhere in the country to enable emergency access in rural areas and for cases where an ambulance is not needed.
References


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in the context of the COVID-19 pandemic


This case study was developed by the Alliance for Health Policy and Systems Research, an international partnership hosted by the World Health Organization. In 2015, the Alliance commissioned the Primary Health Care Systems (PRIMASYS) case studies in twenty low- and middle-income countries (LMICs) across WHO regions. This case study builds on and expands these previous studies in the context of the COVID-19 pandemic, applying the Astana PHC framework considering integrated health services, multisectoral policy and action and people and communities. This case study aims to advance the science and lay a groundwork for improved policy efforts to advance primary health care in LMICs.