Saudi Arabia: a primary health care case study in the context of the COVID-19 pandemic

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ISBN 978-92-4-008474-2 (print version)

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Acknowledgements

The primary health care (PHC) case studies in the Eastern Mediterranean Region were commissioned and overseen by the Alliance for Health Policy and Systems Research, a hosted partnership based at World Health Organization (WHO) headquarters, and the WHO Regional Office for the Eastern Mediterranean (EMRO). This study was authored by Noha A. Dashash. WHO EMRO, the WHO Country Office for Saudi Arabia, and a team of independent experts provided critical review and input. Special thanks go to Shehla Zaidi and Fadi El-Jardali for their helpful reviews, and Awad Mataria, Hassan Salah, Hagar Azab, Faraz Khalid, Robert Marten, Jeffrey Knezovich, Sonam Yangchen, Alexandra Edelman, Yasmine Yahoum, Ragaa Hassan Abdelwahed, Joanna Fottrell and David Lloyd for their support in the development of this publication.
Executive summary

This case study examines primary health care (PHC) in the Kingdom of Saudi Arabia (KSA) in the context of the COVID-19 pandemic between January 2020 and December 2022.

Health care services are provided free for all Saudis through the Ministry of Health (MoH) and other public providers. The private sector also has a share of health care provision and covers Saudis and non-Saudis working in the private sector, primarily through health insurance. The health system is currently undergoing an unprecedented transformation under its Vision 2030 strategy (1). Within this, the MoH recognizes empowerment of the PHC system as a major goal to deliver efficient, value-based and accessible health care.

The government took early preventive measures against COVID-19 at the outset of the pandemic. The initial response from the MoH was to activate a Command Control Centre (CCC), which took proactive measures and implemented several response initiatives to limit transmission in the country. Strict quarantine and curfew policies, combined with vaccination efforts, helped to reduce case numbers and disease severity. The CCC maintained constant contact with international organizations to support the response efforts. The Saudi disaster risk reduction system acted across three levels: strategic, operational and tactical.

A multisectoral approach to manage the pandemic was coordinated across key governmental organizations. The government provided a unified information source with data from the MoH and a high-level government spokesperson provided daily media reports to update the population. Several PHC clinics (PHCCs) were converted to COVID-19 clinics and primary care staff contributed to managing COVID-19 quarantine and vaccination centres. Yet maintaining essential services proved a challenge, including for the management of chronic diseases, cancer patients and elective surgeries.
Introduction and national context

Saudi Arabia is a high-income country in the Eastern Mediterranean region with a population of 34 million. Saudis represent the largest ethnic group, constituting 66% of the population. Most of the population are aged 15–64 years (64.8%), 32.4% are aged 0–14 years and 2.8% are aged 65 years or over (2).

The government provides free health care services to the general public through the MoH. Other governmental sectors, including military authorities and the Ministry of Education, provide free health care services to their employees and their dependents. The private sector has a large and significant share of health care provision, which is increasing due to insurance coverage among the large proportion of Saudis joining the private-sector workforce. The number of hospital beds per 1000 population stands at 2.2 (3, 4).

The government has taken major steps to invest in PHC. Figures for 2021 show that the MoH oversaw 2121 PHCCs that year, which were served by 8422 physicians, 2523 dentists and 18 234 nurses plus other health care workers and administrative staff (5). PHCCs are distributed across the country to facilitate accessibility for both rural and urban populations. They provide maternity and child services, health screening, vaccinations and curative services with great emphasis on chronic diseases. These services are available in all PHCCs; however, more advanced curative services are available in PHCCs in major cities, mainly due to the availability of specialized family physicians (5). Saudi Arabia’s development trajectory has contributed to migration from rural communities (where 17% of the population live) to cities, where 44% of PHCCs are located. Rural PHCCs face health workforce challenges - the majority of these health facilities are served by non-Saudi general physicians and nurses (6).

The MOC (Model of Care) operates across six systems of care: chronic, preventive, palliative, planned and urgent care, in addition to safe birth, with a focus on maternal and child health. These systems of care are implemented through integrated layers of care, with a patient’s first contact with the health system being the PHCC. Primary care focuses on equity, accessibility and quality of care, with emphasis now placed on improving the efficiency of health care by enhancing PHC and ensuring an integrated system.

Governance of the COVID-19 response

The first confirmed case of COVID-19 was recorded on 4 March 2020. The country went on to record 826 954 confirmed cases and 9541 deaths up to 30 December 2022 (7).

The leadership recognized early on in the pandemic that the country’s management of COVID-19 would have a huge impact globally, as millions of Muslims from all over the world visit for the Islamic pilgrimages of Umrah.
Introduction and national context

and Hajj. This makes the country a potential hotspot for pandemics. Additionally, the country considers itself to be a vibrant travel destination due to business, international investments and tourism (3, 4).

As part of the initial response to the COVID-19 crisis in early 2020, the MoH activated the pre-existing CCC, which was established under the country’s national disaster preparedness plan. The CCC is led by the Minister of Health and the Deputy Minister for Public Health, supported by other deputy ministers and relevant department leaders. This high-level board met on a daily basis throughout 2020 and early 2021, sometimes meeting several times a day at the height of the pandemic. The CCC is responsible for making public health decisions and advising the government regarding curfews, movement restrictions, workplace closures and other national-level precautions. During the pandemic it worked closely with the Saudi Center for Disease Control (CDC) and the Saudi Food and Drug Authority (SFDA) (8).

The CDC was responsible for issuing and updating COVID-19 and infection control guidelines. During the pandemic’s early stages, vacant hotels (and later hostels and dormitories) were utilized to provide care for COVID-19 patients and their close contacts. Contact tracing and the quarantine of positive and suspected cases were employed to limit community transmission of the virus (9).

Every region activated pre-existing regional CCCs, led by the respective public health divisions. This ensured regional alignment and close monitoring of the pandemic. Led by health affairs directors, the regional CCCs were authorized to take public health decisions and allocate the required budgets according to the MoH plan to contain the spread of COVID-19. Key members of regional CCCs worked with governors and officials from the Ministry of Interior, reviewing and analysing data to facilitate high-level, shared decision-making (8, 9).

Health care transformation

At the time of writing in 2023, the entire health system is undergoing an unprecedented transformation project under the Crown Prince’s Vision 2030 strategy (1). Vision 2030 outlines three main goals: a vibrant society, a thriving economy and an ambitious nation.

Prior to this, the National Transformation Programme (NTP) was launched in June 2016 with health care transformation as one theme. It entails four aims: 1) improving the health of the population, 2) providing better care, 3) creating a value-based system (a health care strategy that aims to provide value for patients through improving health outcomes while lowering costs), and 4) increasing employee satisfaction (10, 11).

To mitigate risk during the reform process, the Health Holding Company (HHC) was established in Saudi Arabia to manage health care assets and oversee the transformation of the health system. Under the public health system, the MoH is responsible for fulfilling three primary roles: regulation, funding and the provision of care. The transformed health system separates these roles across: the MoH as
the regulator, the Center for National Health Insurance (CNHI) as the public health insurer and payer, and clusters/Accountable Care Organizations (ACOs) that are responsible for operating all health facilities previously under the MoH, including hospitals, PHCCs and other facilities (10).

The model to transform the health system seeks to achieve an integrated health care system where patient contact with a health service starts at a PHCC, continues through secondary/tertiary/home care and then resumes with primary care (11). As such, the NTP recognizes PHC empowerment as a major goal for the country to achieve efficient, value-based and accessible health care for the whole population; hence enhanced primary care (EPC) is a cross-cutting intervention of the MOC (12).

A 2017 review of PHC services undertaken as part of Vision 2030 highlighted the need for reform, highlighting opportunities to meet international standards, gain people’s trust and respond to the growing burden of noncommunicable diseases (NCDs). Primary care is exemplified as an integrated, family-centred approach to health, marked by investments in technology, capacity-building and enhanced access to services. New clinical pathways have been introduced that include (but are not limited to) chronic disease screening and primary care mental health services (6). Quality accreditation of all PHCCs is supported and monitored by high-level leadership. (13).

At a broad level, the PHC reforms in Saudi Arabia have been designed to address quality, increased costs, structure, infrastructure, finance, increased demand, the health workforce, inequitable access to services, the growing burden of disease, the safety of services, information systems, management and leadership, and the referral system (14).

Vision 2030 and the NTP provided a critical backdrop to the COVID-19 response in Saudi Arabia and the role of PHC within this. They emphasize the utilization of primary care through family practice, with the country’s leadership acknowledging that this approach involves lower costs and better outcomes (1). The transformation agenda underlines the importance of bridging the gap in access to health services and universal health coverage and aims to establish PHC as a patient-centred model of care.

An infrastructure project has already been launched in Saudi Arabia to rebuild, refurbish and replace rented PHCCs through a private-sector participation (PSP) programme within the HHC (6). However, while PHC empowerment is emphasized by both the MoH and HHC leadership, stakeholders consulted for this case study highlighted the ongoing challenge of low budgets for primary care. There are no official separate budgets for PHC, but key stakeholders suggested that PHC is allocated less than 8% of the operational health care budget. If this is the case, reforms are likely to be needed to increase and reallocate PHC budgets in health clusters. An additional consideration is the financial burden faced by communities due to out-of-pocket payments, especially to access services for chronic diseases.
Methodology

This case study examines PHC in the context of the COVID-19 pandemic between January 2020 and December 2022. A literature search was conducted in PubMed, Google Scholar and CINAHL using the following search terms: COVID-19, novel coronavirus, SARS-CoV-2, primary care, primary health care, primary care centers, Saudi Arabia, Saudi, digital. Grey literature and published data were sourced from WHO, the World Bank and KSA MoH databases. Additional literature was sourced through snowballing and from media content including articles published in local newspapers.

Stakeholder consultations were also conducted to contribute insights and lessons learned. Stakeholders included representatives from the MoH; leaders from private-sector PHC facilities, public and private hospitals, and vaccination centres; patient relations workers; CCC members; and clinicians.

Consultations focused on the role of primary care and public health in the COVID-19 pandemic, political support, community involvement and lessons learned. The three core components of the Astana Declaration were considered during the stakeholder consultations (primary care and essential public health functions, multisectoral collaboration, and community engagement) (15).

How primary care and essential public health functions are responding to COVID-19

PHC played a pivotal role in the COVID-19 response between early 2020 and December 2022.

PHCCs that had previously implemented the urgent system of care had already trained staff in dealing with emergencies. This proved beneficial during the pandemic. Stakeholders implied that all PHC medical staff received infection control training in accordance with guidelines issued by the Saudi CDC prior to being assigned to work in quarantine and vaccination centres. All patients attending PHCCs were screened and triaged – suspected cases of COVID-19 were referred immediately to a specific PHCC that had been modified to function as a COVID-19 centre. These PHCCs were named Tetamman clinics. They were staffed by trained personnel and provided necessary medication, laboratory investigations and equipment to deal with positive cases. The cumulative number of visits to these clinics reached more than 5.5 million between March 2020 and March 2022, with 2% of visits leading to hospital referrals. Across more than 230 Tetamman clinics, 4.2 million swabs were taken during this period to test for COVID-19 (16). In addition, so-called Takkad (get confirmed, in Arabic) screening centres were launched as a free public service devoted to caring for patients who were asymptomatic or experiencing mild symptoms (17).

The demand for health care services grew during the pandemic, and this placed pressure on PHCCs and hospitals. PHC virtual clinics became a cornerstone
of the response and were highly appreciated by the community who were able to access their family physicians online via the Sehaty application. Innovations such as this enabled people to seek health care services from their homes and to arrange for their medication to be delivered from their PHCC to their home during curfew periods (18).

Health care workers received updated guidelines via emails, while on-the-job training and virtual training enhanced knowledge on COVID-19 prevention, diagnosis, management and infection control.

The MoH made COVID-19 vaccines available within all health facilities. This included MoH-run PHCCs and hospitals, private hospitals and clinics, large public pharmacies and other non-MoH governmental facilities. This enhanced the vaccine rollout and coverage in Saudi Arabia. Health care workers were given access to an electronic COVID-19 vaccination training platform that was developed to share training materials, standardized operating procedures and an assessment that vaccinators had to pass to be eligible to administer vaccines. Certification from the Saudi Commission for Health Specialty (SCFHS) was provided to those who passed the vaccine-specific test. Tools such as audit checklists, adverse reaction reports and incident reports were also developed and used (19).

**Continuing essential services**

Saudi Arabia’s health care workforce was seriously impacted during the pandemic. For example, the country faced a shortage of medical and nursing practitioners at the peak of COVID-19 from June 2020 to July 2020. This was due, on the one hand, to the significant rise in demand for care from COVID-19 patients and, on the other hand, because some health workers were infected with the virus. Solutions included task shifting, recruiting volunteers and outsourcing to other cadres. Dentists were trained to work in vaccination centres and the MoH outsourced intensive care units (ICU) to expand the number of hospital beds available (20).

PHC workers continued to provide basic primary care services virtually in periods when curfews and movement restrictions were in place for the general public. However, the implementation of MOC initiatives and some PHC programmes was affected during this time, including a health coaching programme, enhanced primary care interventions and screening programmes. These activities all resumed as COVID-19 case numbers settled, especially once the government implemented a strict COVID-19 vaccination policy (21).

Chronic disease patients were followed virtually and medications were delivered to their homes; yet evidence suggests that disease control was negatively affected during the pandemic (22). Other challenges were faced with regard to the postponement of elective surgeries. Patient waiting lists grew and the MoH was required to launch several initiatives to address this; these included private sector partnerships and allocating budgets to operate on weekends (23). Child immunization programmes were delayed, too, as a consequence of COVID-19,
largely due to parental hesitation about bringing their children to clinics for fear of infection. Catch-up programmes helped to improve immunization coverage at a later stage (24).

Stakeholders consulted for this study highlighted that, as part of the health system transformation programme, primary care teams now include case coordinators who are trained to facilitate patient journeys, and also health coaches who have an important role in chronic disease management. Furthermore, new educational programmes have been rolled out to aid in the upgrading of primary care services.

Delays in essential but non-urgent services – including basic immunization, chronic disease care, elective surgeries, endoscopy, oncology and cardiac services – had enormous consequences. This is reflected in the raised cost of health care, but it is most striking in the significantly higher mortality rates in the country (25). In the case of a future pandemic, crisis management leaders should include stakeholders who are tasked with planning to reduce delays in essential non-emergency services.

Collaboration with the private health sector and with governmental agencies beyond the MoH can add great value in improving access to services and in ensuring timely referrals. Stakeholders described the emergency referrals during the pandemic to be very efficient, with direct referrals supported by high-level health leaders who met regularly to prevent delays. However, this changed post-pandemic, probably due to a return to traditional models of siloed working and the absence of a regular coordination mechanism. Under the health care transformation programme, the application of public–private partnerships is expected to increase.

How multisectoral policy and action are supporting COVID-19 responses

WHO predicted that the impact of COVID-19 would expand beyond the health sector and recommended a holistic, coordinated response to the pandemic. In February 2020, the WHO Director-General requested the activation of the United Nations (UN) Crisis Management Policy by the UN Secretary-General, to elevate operations at the country-level for public health, broader socioeconomic issues, and travel and trade (26).

In emergency risk management, WHO emphasizes that all relevant stakeholders must contribute. This includes the public and private sectors, individuals, families and communities, the media, academia, research bodies and voluntary associations. But multisectoral collaboration in health emergencies is challenging. Three components of the UN response to COVID-19 proved critical: the Strategic Preparedness and Response Plan, the COVID-19 Global Humanitarian Response Plan, and the UN framework for the immediate socioeconomic response to COVID-19. In its 2020 annual report, the Global Preparedness Monitoring Board expressed that the impact of the COVID-19 pandemic demonstrated
Figure 1. Saudi government risk reduction management levels in the COVID-19 response

Source: Jaziri & Miralam (2021) (20)

The importance of protecting lives and livelihoods and of widening preparedness efforts to make the education, social and economic sectors pandemic proof (27, 28).

The government implemented various measures and strategies to limit the spread of the virus and to save lives. Financial support to the health sector increased by 47 billion Riyals (approximately US$ 12.5 billion), with the aim to improve readiness, secure medicines and medical supplies, and to increase bed capacity (20).

In alignment with WHO’s disaster framework (26), the disaster risk reduction system (DRRS) acted on three levels. At the strategic level, the risk reduction framework was led by the highest authority in the country, the Council of Ministers. The operational level was led by the MoH, supported by the Saudi Arabian Monetary Authority, which gave the MoH access to immediate funds.
How multisectoral policy and action are supporting COVID-19 responses

Table 1. Multisectoral initiatives to respond to COVID-19

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<th>Governmental body</th>
<th>Initiatives and measures</th>
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<tr>
<td>Council of Ministers</td>
<td>Rapid activation of Cabinet Resolution No. 649 to compel companies owned mainly by the government to offer business and purchases to local enterprises</td>
</tr>
<tr>
<td>Saudi Arabian Monetary Agency</td>
<td>SR 50 billion (approximately US$ 13.3 billion) allocated to support the private sector to promote economic growth</td>
</tr>
<tr>
<td>Ministry of Health</td>
<td>The provision of free treatment for COVID-19 for all citizens, residents and violators of residency regulations</td>
</tr>
<tr>
<td>Ministry of Municipal and Rural Affairs</td>
<td>Postponement of the collection of fees for municipal services</td>
</tr>
<tr>
<td>Ministry of Commerce</td>
<td>Postponement of the payment of fees</td>
</tr>
<tr>
<td>Ministry of Human Resources and Social Development</td>
<td>Lifting the suspensions (e.g., religious, sports, recreational and commercial gatherings)</td>
</tr>
<tr>
<td>Ministry of Energy, Industry and Mineral Resources</td>
<td>30% discount on household electricity bills</td>
</tr>
<tr>
<td></td>
<td>Allowance for subscribers in the commercial sector to pay 50% of the value of their bill in instalments</td>
</tr>
<tr>
<td>Human Resources Development Fund (Hadaf)</td>
<td>SR 5.3 billion (approximately US$ 1.4 billion) allocated to support the private sector</td>
</tr>
<tr>
<td>Social Development Bank</td>
<td>A subsidy of SR 12 billion (approximately US$ 3.2 billion) to support citizens</td>
</tr>
<tr>
<td>General Authority of Transport</td>
<td>Salaries paid to individuals working in passenger transport</td>
</tr>
<tr>
<td>General Authority for Small and Medium Enterprises</td>
<td>Postponed loan payments</td>
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Source: Jaziri & Miralam (2021) (20)
to manage the crisis. It was also aided by governorates, which are the highest
government authorities at the regional level, enabling the prompt implementation
of policies. The tactical level operated through a multisectoral approach involving
sectors across government as well as private-sector entities that were directly
involved in crisis management and infection prevention along with essential
supportive sectors. The regional health directorates led the response officially,
supported by the private sector (see Fig. 1) (20).

In addition to multisectoral action to manage the health response to COVID-19,
Saudi government bodies also launched initiatives to mitigate the economic
consequences of the pandemic, which indirectly affected the health of the population. Table 1. summarizes different governmental initiatives.

Studies on the psychological impact of the COVID-19 outbreak reveal that
25%–35% of the sampled general population experienced moderate to severe
psychological effects and 20% experienced mild psychological effects (29, 30).
The studies show a significant association between psychological impacts of
COVID-19 and socioeconomic factors such as low monthly income, male gender,
operating a private business, living in apartments/residential complexes, as
well as poor general health status, a hospital visit in the past three months,
the presence of chronic disease, contact with people diagnosed with or
suspected of having COVID-19, contact with contaminated tools/surfaces, being
quarantined or screened for COVID-19, and exposure to COVID-19 news about
the number of people infected with and having died from the virus (29, 30). This
demonstrates the need for a multisectoral response to health emergencies such
as the COVID-19 pandemic.

How communities are responding to COVID-19

The public health infrastructure (screening, control, containment and quarantine)
underpinned community action and hospital preparedness during the pandemic.

The government acted quickly to suspend religious, sports, recreational and
commercial gatherings and thereafter to introduce public transport regulations,
thus leading to a partial curfew. Restrictions were also enforced on inter-regional,
national and international travel, and local curfews were introduced according
to daily reports on COVID-19 case numbers. Control measures were lifted slowly,
depending on the geographic spread and volume of cases. By September 2021,
almost all control measures had been withdrawn (21).

The MoH appointed a spokesperson to deliver daily updates on the COVID-19
situation via television and on social media. The types of messages issued by
the MoH differed greatly across the various phases of the outbreak, although
messages designed to reduce uncertainty and reassure the population
remained prevalent during all stages. The literature indicates that message
content, media type and crisis stage influenced the level of public engagement
in the pandemic response (31). A study evaluating community utilization of the
937 hotline – an MoH-run free and confidential telephone service to provide 24-hour medical and administrative health care services – before and after the COVID-19 pandemic found a significant increase in both awareness of the hotline and utilization levels (46% versus 78% awareness pre- and post-pandemic, and 42% vs 48% utilization pre- and post-pandemic) (32, 33).

Digital platforms served as the main channel for community engagement. Indeed, the pandemic catalysed government investment in digitalization, building on digital transformation efforts that had begun in 2018 (34). At that time, the goal was to develop digital health technology platforms (DHTPs) to improve access to health care. Strong financial and logistical support from the MoH facilitated the rollout of various DHTPs in a short period of time, but optimising the functionality and uptake of them was challenging (35). The most widely used platforms among the general public immediately before and during the pandemic were Mawid, Sehha, Sehhaty, Tawakkalna, Tetamman and Tabaud (36), which facilitated the monitoring, management and delivery of medical services. The MoH ensured user-friendliness, which resulted in a high community acceptance rate (33, 37, 38).

In addition to risk communication efforts, communities were engaged directly in particular aspects of the COVID-19 response. For example, community voluntary groups were mobilized via a volunteer platform, with volunteers assigned to tasks and regions according to needs. They were trained to organize admissions to quarantine centres, as well as to undertake health education activities, screening support, data collection and report generation. All volunteers received basic infection control training.
Conclusions and lessons learned

A well-organized, collaborative approach was a key enabler of the pandemic response. The CCCs, in particular, played a central role in coordinating efforts by meeting daily, both at the regional and central levels. Efforts to engage the private sector and to encourage the active participation of the population also supported the COVID-19 response.

Although maintaining essential primary care services during the pandemic response proved challenging, access to health care was enabled by technology and virtual care models. Primary care staff were critical in supporting the delivery of digital care, in supplying medication to patients at home and in the running of quarantine facilities.

A unified source of COVID-19 guidelines for the country also helped to ensure standardized care. The CDC continuously updated infection control and COVID-19 guidelines based on WHO advice as well as emerging national and international research and evidence. Both public and private health care facilities followed these guidelines.

COVID-19 revealed some key gaps in public health preparedness, however. Although primary care workers were among the core personnel operating in quarantine facilities and later in vaccine centres, they required crisis response training. In addition, the infrastructure and equipment of PHCCs lacked emergency response capability.


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.