

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

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Executive Summary

Pakistan experienced three waves of COVID-19 between January 2020 and July 2021. During this time, case fatality – or the proportion of patients dying within 28 days of testing positive for COVID-19 – ranged between 2.13 and 2.7 and test-positivity rates ranged between 25% and less than 5% (1). Although the pandemic created new challenges for the population around disrupted access to health services, education and livelihoods, plus anxiety and mental health issues (2), Pakistan performed better during this period in terms of the impact of COVID-19 than its immediate neighbours and several other lower-middle-income countries. Indeed, despite being the world's fifth most populous country, Pakistan had the world's 27th highest COVID-19 death toll (21 106) and 29th highest number of confirmed COVID-19 cases (928 588) as at June 2021 (3). As such, a multicountry analysis of the COVID-19 response ranked Pakistan's performance relatively favourably at eighth out of 35 countries in 2020 (4).

Pakistan's COVID-19 response was mobilized quickly and delivered multisectorally in a heavily decentralized country context. Areas of relative success include the building up of clinical surge capacity, the use of digital data for pandemic response planning, the boosting of domestic supply and production, and public-private engagement; less successful areas include weak risk communication and screening, disruption of essential services and lack of formal structures to tackle future health crises.

Championship from the highest executive level brought unity of purpose across multiple sectors and strong steering across federal-provincial governments. The inclusion of private health experts for technical advisory support provided public credibility for the government response and encouraged buy-in across private and public health providers; the use of digitalized data aided operational planning and response. Multisector working also boosted and facilitated digital innovations, local supply chains, water and sanitation interventions, and social protection schemes to support affected families. A high level of voluntarism and established networks of nongovernmental organizations (NGOs) helped provide health and social care during the acute crisis. However, advisory support from clinicians was not matched with that from epidemiologists – attention was focused on hospital capacity and not public health measures. While formalized primary health care (PHC) systems exist in rural areas of the country, weak urban PHC systems made it challenging to provide disease management in crowded, low-income urban areas with high COVID-19 case rates. Disruption to essential services presented obstacles and the quality of community engagement was highly variable.

Although Pakistan demonstrated resilience and successful multisector collaboration during the acute crisis, the country lacked the governance mechanisms required to institutionalize pandemic preparedness and response. COVID-19 has provided important lessons for disease outbreak response and the continued delivery of PHC services under a health emergency. First,

Executive summary

emphasis needs to expand from clinical surge capacity to also include a deliberative focus on minimal disruption of PHC services. Second, investment is required in formal structures for health emergency preparedness and response to move from short-term ad hoc measures to long-term institutional capacity. Third, although community engagement during the pandemic benefited from local philanthropic volunteerism and United Nations (UN) supported humanitarian networks, a systematic strategy is needed that offers a common menu of actions and integration with PHC service delivery.

Introduction and national context

PHC framework and case study objective

Pandemic responses highlight the importance of political and economic determinants of health, as well as the importance of working with communities. Yet many, if not most, countries have not used a PHC approach to address COVID-19.

PHC is conceptualized in the Astana Declaration (5) with a focus on three critical components: i) primary care; (ii) multisectoral collaboration and iii) community engagement. A deeper focus and more integrated approach across these components could prove critical for addressing COVID-19 in the long term. Yet, integrating essential public health functions such as surveillance, health promotion, community engagement, and emergency preparedness and response is challenging and needs to be informed by country insights on opportunities and barriers.

This overarching study follows on from the Primary Health Care Systems (PRIMASYS) case studies conducted in 20 countries, including Pakistan, in 2015–2016 to examine primary care performance and pathways (6). PRIMASYS was commissioned by the Alliance for Health Policy and Systems Research – a World Health Organization (WHO) hosted partnership – which has since commissioned further case studies to examine PHC systems in the context of COVID-19. The intention is to identify people-centred PHC is being delivered in the context of the COVID-19 pandemic.

The study was conducted in Pakistan between May and August 2021. It reviews national performance between January 2020 and June 2021 across the three synergistic components of the Astana Declaration (5), drilled down under five thematic areas:

1. What has been the response in scaling up and managing critical emergency services (Component 1: people's needs)?
2. What has been the response in maintaining essential services (Component 1: people's needs)?
3. What has been the response in terms of managing referral systems to ensure appropriate distribution of service load (Component 1: people's needs)?
4. Has multisector working been established to address broader health determinants for improving health (Component 2: multisector engagement)?
5. Has there been effective community engagement and communication for leveraging community resources (Component 3: community engagement)?

The study draws on a review of key publicly available documents, official statistics and notifications and district health information system data.

National context

Pakistan is a lower-middle-income country with a population of 207 million in 2017, spread over its four provinces plus a small proportion residing in federally controlled territories (7). The country recorded a gross national income (GNI) per capita of US\$ 1410 in 2019 (8). Economic growth and improvement in human development indicators have occurred more slowly in Pakistan compared to other South Asian countries – Pakistan ranked 154 among 189 countries on the 2019 Human Development Index, with a life expectancy at birth of 67 years and a Multidimensional Poverty Index rating of 0.198 (9).

Over half of households (63%) are food secure – more so in urban areas (68%) than in rural areas (60%) – and 40% of children under 5 years are stunted (10). Noncommunicable diseases now constitute a significant disease burden, with Pakistan ranking seventh in the world for diabetes prevalence and with one in four adults over 18 years of age being hypertensive (11). Additionally, 10–16% of the population suffer from mental health disorders including mild to moderate psychiatric illness (12), which accounts for more than 4% of the total disease burden (13).

Three waves of COVID-19 were experienced in Pakistan between January 2020 and June 2021, with case fatality ranging between 2.13 and 2.7 and test-positivity rates ranging between 25% and less than 5%. Despite being the world's fifth most populous country (14), Pakistan had the world's 27th highest COVID-19 death toll (21 106) and 29th highest number of confirmed COVID-19 cases (928 588) as of June 2021 (3) (see Table 1). This translates into an estimated 4470 cases per 1 million population and 101 reported deaths per 1 million population. Case numbers reached a high of 6 127 per 1 million population at the peak of the epidemic in April 2021 (3), and studies indicate that up to 40% of the population had COVID-19 infection from prior exposure, with many infections likely to be asymptomatic (15).

Pakistan compared favourably in terms of case load and fatality against several other developing countries – for example, the neighbouring countries of the Islamic Republic of Iran and India had 724 and 114 deaths per 1 million population, respectively, as of June 2021 (1). Multicountry analysis of the COVID-19 response in 2020 ranks Pakistan's performance relatively well at eighteen out of 35 countries, compared to a score of 25 for neighbouring the Islamic Republic of Iran and 35 for India (4).

In terms of geographical distribution, urban centres have been at the epicentre of the pandemic in Pakistan, with outbreaks catalyzed by international travel. The first wave was driven by a large number of pilgrims returning from the Islamic Republic of Iran in 2020, while later waves were triggered by diaspora visits that introduced the infectious Beta and Delta variants in 2021. The risks posed by international travel have heightened attention to the role of border security in Pakistan's response to COVID-19.

Pakistan largely avoided imposing movement restrictions between January 2020 and June 2021 due to the fear of an economic backlash and heightened vulnerability for the poor. A limited period of national movement restriction was implemented from 21 March to 14 April 2021, and only partial movement restrictions were implemented subsequently in COVID-19 hotspots. Domestic travel, routine business and workplaces largely continued to operate during these movement restrictions, and provinces had some authority to implement tailored approaches.

COVID-19 planning and response was a joint function across Pakistan's federal and provincial governments due to the devolved nature of the health system. Health is a constitutionally devolved sector with a small Ministry of National Health Service Regulation and Coordination (MoNHSRC) at the federal government level and large Departments of Health (DoH) in each of the provinces (see Figure 1).

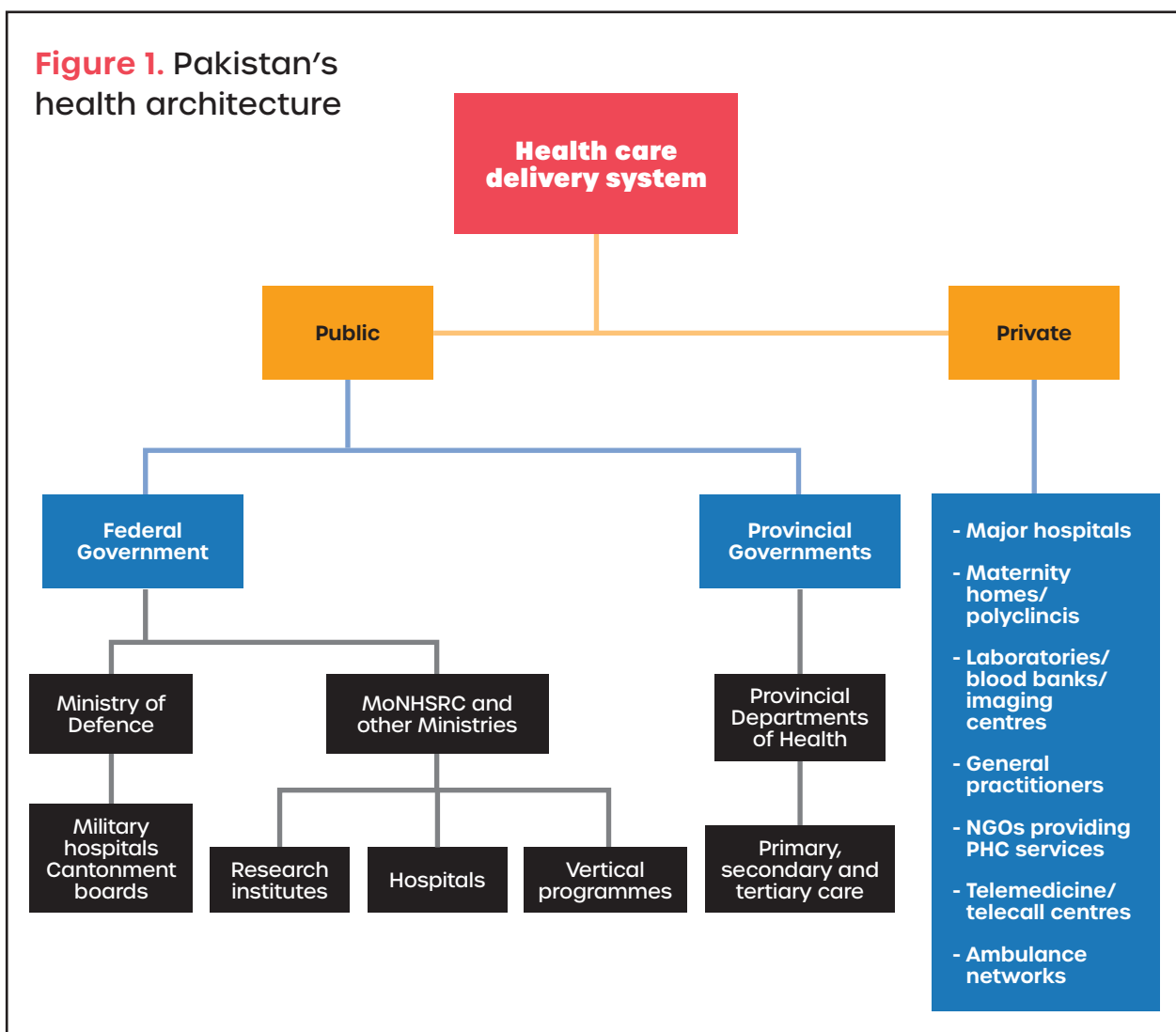
The MoNHSRC has a technical role and takes the lead in international health regulations (IHR), monitoring and surveillance, drug and technology licensing, export/import and standard setting. The provincial DoH are responsible for policy, planning, human resource management, service delivery, supply-chain management and operations monitoring. Pakistan has a mixed health system whereby the government is the largest institutional provider; however, there is a robust formal private sector with close to 77% of outpatient encounters taking place in the private sector (16). Although the government has large referral hospitals placed mainly in urban areas, its urban PHC infrastructure is scant. In rural areas, in contrast, the government has a large network of PHC and secondary facilities that are supported by community-based Lady Health Workers (LHWs) but weak functionality of public-sector hospitals (6).

Table 1. COVID-19 pandemic in Pakistan, 1 January 2020–3 June 2021

COVID-19 data	Islamabad Capital Territory (ICT)	Punjab	Sindh	Khyber Pakhtunkhwa (KP)	Balochistan	Gilgit Baltistan (GB)	Azad Jammu Kashmir (AJK)	Pakistan
Confirmed cases	81 540	341 390	321 425	133 746	25 476	5623	19 388	928 588
Provincial % distribution of confirmed cases	8.78	36.76	34.61	14.40	2.74	0.60	2.08	100
Deaths	763	10 184	5089	4125	287	107	550	21105
Case fatality rate	0.93	2.98	1.58	3.08	1.12	1.90	2.83	2.27
Recovered	77 062	314 334	292 001	125 058	24 129	5399	18 022	856 005
Recovery rate (%)	94.40	92.07	90.84	93.50	94.71	96.00	92.95	92.18

Source: Pakistan cases details: <https://covid.gov.pk/stats/pakistan>

Figure 1. Pakistan's health architecture



Source: The authors

Funding flows for health mainly come from provincial budgets, although donor support is provided to both federal and provincial governments. Essential health resources have been reported at: 0.63 hospital beds, 0.9 doctors, 0.1 community health workers (CHWs), 0.5 nurses and midwives and 0.16 pharmacists per 1000 population, 6 specialist surgical workforce per 100 000 population, and 1 psychiatrist per 10 000 population suffering from mental health issues (12,17,18). The private sector comprises 35% of all physicians, 17–36.5% of hospital beds (6,19), 61.03% of blood banks, 73% of pharmacies and 60% of diagnostic facilities (20). Ambulatory outpatient care is mostly provided by individual general practitioner (GP) clinics, maternity homes, polyclinics, diagnostic centres, blood banks and NGOs. Ambulance services in some provinces are also operated by private providers.

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

Public health response

Governance

Pakistan ranked 105 out of 195 countries in the 2019 Global Health Security Index with a score of 35.5 (21). The country has scored reasonably well in terms of laboratory networks and digital capacity, but much lower in terms of legislation, regulation, planning in anticipation of health security threats, ensuing availability of emergency response teams, interoperable surveillance systems and simulation exercises (22-24).

Prior to the COVID-19 pandemic, initial steps had been made towards IHR but these had not translated into programming (25). IHR has since remained underfunded and requires coordinated federal-provincial implementation to achieve an expanded tiered public health laboratory system, pooled data reporting, legislation, human resource training and multisector communication. From time to time, focal disease outbreaks such as dengue have led to a localized public health response, with notable success in Punjab Province.

Pakistan's COVID-19 response between January 2020 and June 2021 relied on fast-paced crisis management. Critical elements included disease monitoring, building surge and testing capacity, emergency financing, infection prevention and control (IPC) guidelines, expansion and management of supply chains, human resource mobilization and training, and private-sector engagement (26).

A high-level cross-sectoral platform – the National Command and Control Centre (NCOC) – was set up to guide response planning across all sectors and to steer a coordinated effort from several public health functions across the devolved health network. The MoNHSRC and provincial DoH contributed real-time disease reporting, data modelling with assistance from international universities, and standard operating guidelines for health and other sectors. Clinical experts from private hospitals were also represented in the NCOC, and provided technical guidance. Data-driven decision-making and collaborative governance helped to advance the pandemic response in relation to surge capacity as well as procurement and response monitoring. Digitally reported caseload and bed occupancy data were fundamental for the NCOC and provincial COVID-19 Task Forces, as was digital modelling for decision-making on health systems surge capacity, procurement, domestic restrictions and international travel.

However, despite successive waves of COVID-19 in the country, institutionalized capacity for health emergencies has yet to be built within the MoNHSRC and provincial DoH. Sustained support is needed to create dedicated structures for responding to health emergencies, to upskill competencies and to build interoperable information systems.

Service delivery

COVID-19 inpatient admissions placed a strain on the health system, particularly in the first wave in 2020 when public-sector hospitals bore the brunt of admissions. Private hospitals – which account for 17-36.5% of hospital beds (6,19) – were initially reluctant to admit COVID-19 patients for fear of infection and disruption to routine inpatient procedures (6,27). However, as a result of proactive government negotiations with private providers, seen in the Sindh and Punjab where the formal private sector is mainly located, tertiary private hospitals opened up to provide supplementary treatment and enable public-sector hospitals to function at threshold levels.

For both public and private hospitals, referral capacity was concentrated in a few major cities. Secondary cities faced weak health infrastructure, insufficiently skilled staff and a lack of patient transportation to move patients to major urban centres. Secondary hospitals in the government network were provided with personal protective equipment (PPE), plus additional equipment, training and standard operating procedures (SoPs) in handling COVID-19 cases, but they received no longer-term support to build up an adequate treatment and referral chain.

The COVID-19 response successfully drew in public- and private-sector laboratories to improve testing capacity (28). By June 2021, the number of biosafety laboratories had increased from 20 to 200, which included 58 public, 124 private, seven public-private and 11 military laboratories throughout the country. Laboratories are mainly concentrated in major urban centres and have a sample collection network that reaches rural districts (28,29). In less developed areas, such as the province of Baluchistan, laboratory capacity was sparse until a boost in the wake of the pandemic with the rapid introduction of sentinel and mobile laboratories. Case reporting was quicker by private laboratories that rely on digital systems compared with slower manual reporting by public-sector sentinel laboratories. A persistent issue was finding sufficient skilled human resources – particularly virologists and technicians – for public-sector laboratories located outside major urban centres, as well as the creation of permanent posts for staff appointed in temporary roles.

Despite the relatively well-developed laboratory networks, however, testing volumes in Pakistan remained lower than required and were a major cause for concern in monitoring the pandemic. For example, by April 2021 Pakistan was conducting 42 564 tests per 1 million population as compared to the Islamic Republic of Iran's 139 018 per 1 million population and India's 1 632 000 per million population (30). This was due to hesitancy among the Pakistani population around COVID-19 testing, as well as weak government enforcement.

Surveillance systems

The Public Health Surveillance and Response Act of 2010 provides the legal basis for mandatory surveillance and reporting of identified diseases in Pakistan. However, case reporting is fed through parallel disease reporting systems of different programmes (such as the Polio Expanded Programme on Immunization

(EPI), tuberculosis (TB), HIV and dengue), and reporting is paper-based and therefore slow. Prior to the pandemic, private-sector laboratories were not involved in disease reporting.

For COVID-19 surveillance, a network of designated public and private laboratories was quickly established for rapid reporting of cases, building upon the monitoring resources provided by the Global Polio Eradication Initiative (GPEI) (31). Data were collated digitally and fed into official dashboards that provided statistics on COVID-19 testing as well as bed occupancy. Digital data management capability varied across provinces.

A key challenge is that surveillance is laboratory-based not population-based, due to a failed track and trace system that had very low population uptake. There have been concerns in terms of quality-assured laboratory data and standardized tests being used for diagnosis, alongside issues of so-called ghost reporting and the absence of an interoperable laboratory management information system for reporting COVID-19 and other diseases.

Risk communication

The COVID-19 pandemic triggered a shift towards the use of digital technology for risk communication, telemedicine support and virtual triaging platforms.

Telecall helplines supported by virtual triage and telemedicine services were established and supported by ambulance services, while private providers established telemedicine centres for home-based advice and referrals support. These measures represent important innovations for future pandemic and emergency response.

A number of COVID-19 related applications were also rolled out by the government, academic institutions and NGOs, with mixed success (22,23). This includes cell phone tracking systems for contact tracing, risk assessment and referrals, but they have seen varying levels of uptake among the population due to fear of quarantine and stigmatization. Private mobile networks partnered with UN agencies, the government and NGOs for public messaging on COVID-19 issues, with several million users engaging via Facebook, Twitter and the digital apps. Pakistan's robust small and medium enterprises (SME) sector also provided digital technology to support the COVID-19 response; however, the role of SMEs needs consolidation for future health emergencies (32).

Essential health service delivery

Disruptions to service delivery

Utilization of essential health services dipped sharply in the first wave of COVID-19 in 2020; however, the dip was less pronounced in subsequent waves as patients and health providers became fatigued with COVID-19 safety guidelines. Disruptions were seen across all essential health services during the period under review, including general outpatient services (OPD), maternity care, outreach immunization and preventive care services (see Figure 2). Collectively, health-provider hesitancy to provide services, government movement restrictions and patients' fear of contracting COVID-19 at health facilities contributed to disruptions in PHC delivery between January 2020 and June 2021.

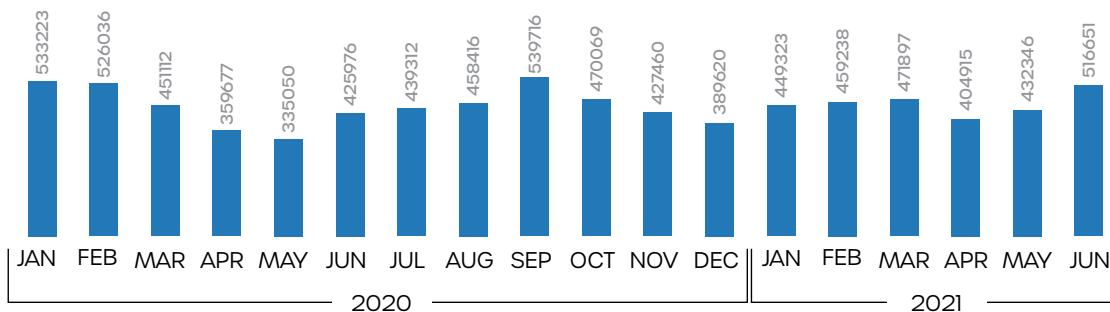
Deaths of doctors and paramedics from COVID-19 in the initial weeks of the pandemic raised alarm among health care providers, with private providers being the first to close GP clinics, hospital outpatient services and elective cases, followed by the suspension of OPDs in the public sector. Some patients chose not to visit health facilities due to their fear of catching COVID-19 from other patients and from health staff, while other patients with fever were afraid of being forcibly quarantined. To improve health service volumes during the pandemic, some of the larger hospitals introduced virtual clinics through tele and video consultation and many smaller facilities operated OPD clinics for shorter durations. The latter led to overcrowding, however, and created challenges around managing patient needs while balancing social-distancing and IPC measures.

Maternal care and other reproductive health service volumes also fell during January 2020 to June 2021 (33), due to the reassignment of doctors and paramedics to COVID-19 treatment and restrictions on public transport that made it difficult to access services. The suspension of services by private hospitals and limited PPE further constrained access (34). In response, the Forum for Motherhood – a coalition of health practitioners, UN agencies and development partners working in reproductive, maternal, newborn and child health (RMNCH) – was instrumental in the protected opening up of public and private RMNCH services and in the provision of PPE, training and SoPs support to RMNCH staff.

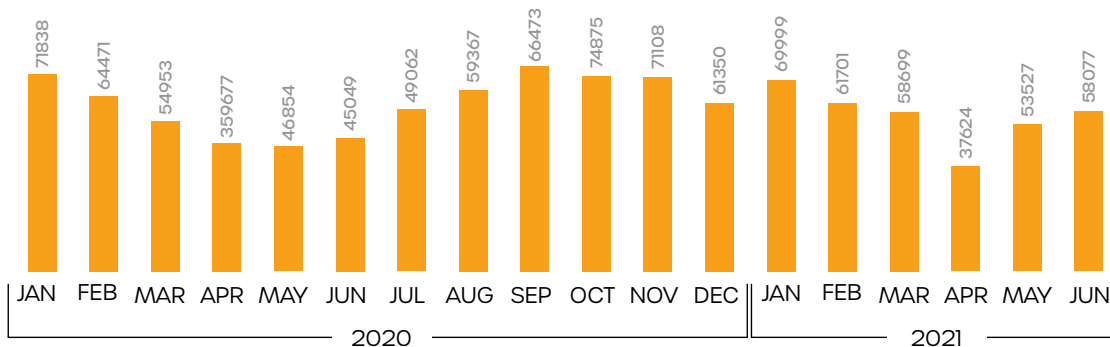
The number of non-immunized children also increased markedly during the period under review, with daily immunization visits falling by half during government-imposed movement restrictions (35). EPI programmes initially suspended all outreach activities, while caregivers were fearful of acquiring COVID-19 when accessing facility-based immunization services. Although EPI programmes subsequently resumed their services, ongoing challenges included training on managing COVID-19 risks during outreach visits and the provision of sufficient PPE to health workers. Similarly, the delivery of preventive services by LHWs in the community was disrupted at first through movement restriction and later due to the continuing need to balance social distancing with community-based household visits.

Figure 2. Delivery of essential health services in Pakistan, January 2020–June 2021

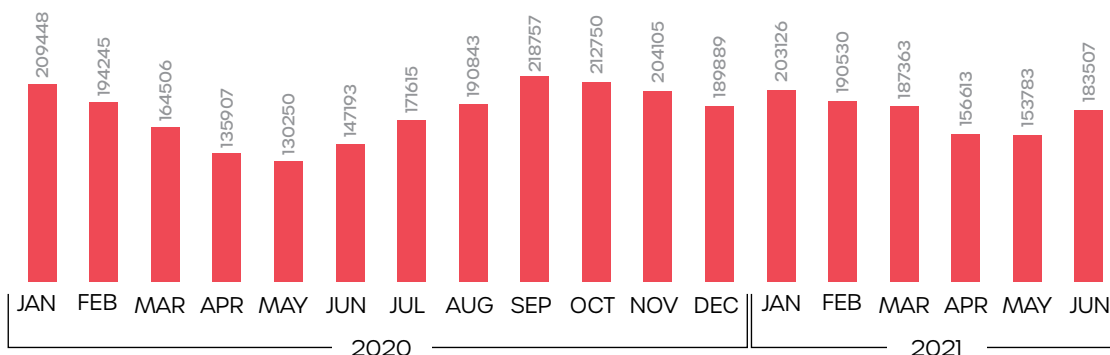
Antenatal care (ANC) service provision



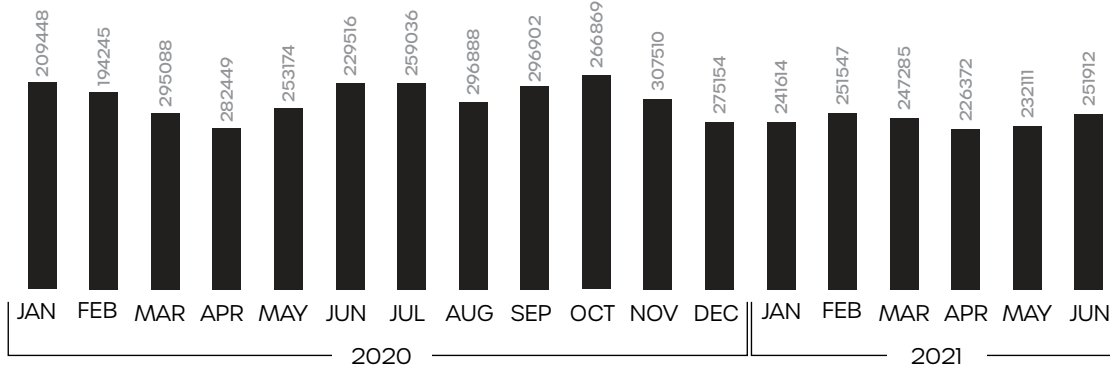
Facility births



Postnatal care (PNC) for women



Fully immunized child (FIC)



The health workforce

Throughout January 2020–June 2021 COVID-19 placed new demands on medical and allied health staff in terms of the provision of treatment, IPC management and the rapid upscaling of emergency planning and response. A safe hospital environment, adequate training, information-sharing and supportive management were key factors for health care providers, with the provision of a risk allowance for staff and a back-up health workforce demanded by some (36).

Several COVID-19 SoPs were developed, and while training was given to public and private hospitals as well as provincial DoH, this presented an immediate challenge in terms of handling and enforcing too many procedures. During the period under review, supplementary staff were mobilized, comprising doctors to provide home-based telehealth services, mental health specialists for counselling services, and medical students for COVID-19 duties in hospitals as well as for airport passenger screening. Much of this was based on voluntary time contributions, however, and momentum was lost over successive waves of COVID-19. Pakistan also drew on a fairly extensive network of field epidemiology fellows attached to government health offices for district response management, although this critical resource pool played a marginal role in planning and response which relied more heavily on senior clinicians.

Based on lessons learnt from the first wave of COVID-19 in early 2020, a deliberate strategy was followed by the public sector in subsequent waves to separate COVID-19 response staff from routine services staff in an effort to minimize disruption to PHC services. Health care workers remained poorly equipped to deliver essential health services, however. PPE procurement and provision was prioritized for health staff engaged with COVID-19 treatment, leaving routine health workers with sparse access to PPE. For example, there were reported instances of transmission of COVID-19 by physicians and paramedics during maternal delivery due to lack of safety and screening mechanisms (37), while some health care providers – particularly female workers – became fearful of infection and transmission to family members and were therefore reluctant to attend to patients and report to duty (34).

IPC training for public-sector health care workers was delivered to hospital staff, but it was more challenging to physically reach the extensive health workforce, including community-based health workers, employed in the public sector. A proportion of the extensive health workforce remained unclear on IPC (38).

Counselling and communication competencies are traditionally weak among health workers (39) and generally these remained a weak point for essential service delivery throughout 2020 and the first half of 2021. Equipping individual private providers for essential health service delivery was largely overlooked, although private hospitals were quick to introduce SoPs. The Pakistan Medical Association and the provincial DoH contributed to efforts around developing SoPs for general practitioners (GPs) and provided a platform for SoP communication to GPs, while psychosocial support provided by the medical association, medical fraternity and the political leadership helped health staff deal with the continued long hours of work required as part of the COVID-19 response effort. Instances

of innovative telemedicine approaches include female GPs providing online services to female clients via digital non-profit outfits and academic institutions tapping into self-employed private providers.

Finally, the COVID-19 pandemic also resulted in financial inequities across the public and private health workforce. While public-sector staff received increased pay or salary rewards to compensate for the added pressure of COVID-19 between January 2020 and June 2021, private-sector institutions suffered a loss in revenue and staff pay cuts, and individual GPs suffered loss of livelihood.

How multisectoral policy and action are responding to COVID-19

Multisector governance architecture

As discussed previously, Pakistan faces a governance vacuum in preparing for and responding to health emergencies including disease outbreaks and natural disasters (30).

The COVID-19 pandemic galvanized a multisector response between January 2020 and June 2021 that was led by the executive leadership, security agencies and several ministries. The NCOC was established, championed by the Prime Minister, and provincial Task Forces were set up, led by the respective provincial Chief Ministers. The primary focus of the NCOC was on managing the public health response to the pandemic, protecting the national economy, maintaining essential social services, mobilizing social protection and regulating travel. Hence, the NCOC had high-level representation from agencies including the Planning Ministry, Armed Forces, the Interior Ministry and provincial Home Departments, National and Provincial Disaster Management Agencies, the MoNHSRC, provincial DoH, the National Institute of Health (NIH), the Drug Regulatory Authority of Pakistan (DRAP) and liquid oxygen producers. The role of the NCOC has since expanded to oversee the COVID-19 vaccination rollout and compliance with national COVID-19 regulations.

The high-level leadership and political championing of the NCOC led to a quick pandemic response based on joined-up action across multiple sectors as well as national-provincial coordination. Examples of key multisector responses include:

- Movement restriction, focal movement restriction and regulation of business/ routine activities – decisions were taken by the NCOC and provincial Task Forces and implemented by Interior and Home Departments, with technical advice from the MoNHSRC and provincial DoH.
- The setting up of import supply chains and domestic production lines for essential goods and equipment – regulatory permission was given by the MoNHSRC, and the import process and reduction in levies was fast-tracked by the Ministry of Commerce and Ministry of Industries and Production.

- Supplies procurement – led by the National Disaster Management Agency, with supplies identified by the MoNHSRC and provincial DoH, and distributed by Provincial Disaster Management Agencies.
- International and domestic travel control – decisions were made by the NCOC, with technical guidelines from the MoNHSRC and implementation by Civil Aviation Authorities.
- Risk communication – technical content was provided by the MoNHSRC and communicated by the NCOC with digital streaming by Digital Ventures Pakistan.
- Trace and track measures – digital product development was led by Digital Ventures Pakistan, with implementation by the National and Provincial Disaster Management Agencies and technical guidelines from the MoNHSRC.
- Delivery of primary, secondary and higher education – decisions on the closure of institutions and face-to-face versus online education were taken by the NCOC, with implementation by the Ministry of Education and provincial Education Departments and technical guidance from the MoNHSRC and provincial DoH.
- Economic relief – measures were designed by the Ministry of Industries and production, Ministry of Commerce and the State Bank of Pakistan, with technical guidance from the Ministry of Planning and Economic Affairs.

Addressing social determinants of health

The pandemic has highlighted the critical role of broader social determinants of health on the secondary impacts of COVID-19. The following section outlines key health determinants and to what extent these were addressed in Pakistan through multisector collaboration during the period January 2020 to June 2021.

Poverty

Poverty incidence is estimated to have increased in Pakistan as a result of the pandemic from 4.4% of the population to 5.4% – equating to more than 2 million people falling below the international poverty line of \$1.90 per day (40). Movement restrictions and other measures to curb and contain COVID-19 led to an estimated contraction of 1.5% in growth in gross domestic product (GDP) in the 2020/21 financial year (40). This had severe impacts, with half of the working population facing job losses or a reduction in income, and informal and low-skilled workers - facing the largest losses.

To mitigate adverse economic impacts, the government followed a deliberate policy of avoiding movement restrictions. It imposed only partial rather than complete movement restrictions when possible and was geographically selective rather than enforcing blanket restrictions. This approach was well-articulated by the political leadership, who framed Pakistan's response as one of contextualized solutions to avoid hunger and poverty compared with broad

movement restrictions implemented by richer nations with social protection systems in place. Some level of mitigation was attempted via Pakistan's long-standing cash transfer programme – previously known as the Benazir Income Support Programme and later renamed the Ehsaas Programme – which provided emergency cash payments of US\$ 75 per month to 12 million households. This included existing beneficiaries plus those newly identified as vulnerable such as informal workers whose livelihoods had been affected. The programme covered 56% of estimated income losses during the 46-day general movement restriction, which was sufficient to cover 20% of food expenditure (41,42).

Wider fiscal policies were also applied such as reduced interest rates, credit facilities to support the payment of salaries by the private sector and soft loans to help protect small enterprises (2958 firms at a cost of PKR 238 billion) (30). As mentioned previously, public-sector health staff were awarded salary increments in recognition of their extra duties; however, private health providers were negatively impacted as a result of the reduced demand for elective procedures and outpatient volumes, which translated into salary reductions for formal employees and loss of livelihoods for self-employed health providers (22,23).

Mental health and well-being

The pandemic also had repercussions on mental health and social well-being, with reported increases in instances of anxiety, domestic violence and substance abuse (29,43). Loss of livelihood, disruption to education, reduced access to health care, social isolation and bereavement were common stressors reported during the pandemic. Mental stress was also reported by health workers as a result of overwork and the fear of COVID-19 transmission from patients, and this negatively affected the performance of doctors and other health workers. Further, due to the closure of routine medical services, health workers themselves delayed seeking care for anxiety and depression (44).

Mental health is traditionally overlooked in the policy agenda and associated health services are underutilized. However, mental health has received increased attention during the pandemic with the issue picked up by local NGOs, human rights groups, digital SMEs, universities and professionals. In the period under review, telecall centres and digital online support services were set up to connect mental health practitioners across the public and private sectors with households – particularly housewives – for screening, referral and support. These tele-helplines were maintained by diverse stakeholders including the mental health authority in Sindh, psychology departments of universities in Punjab, and humanitarian NGOs in Khyber Pakhtunkhwa. Additionally, skilled mental health professionals from the public and private sectors were brought together with PHC staff and social care volunteers to provide counselling services through a digital health hotline, community support centres and focal outreach activities, supported by small amounts of seed funding and volunteer time. The tele-centres faced a decline in call volumes over time, however, while funding dried up and fatigue set in among volunteers. Although large hospitals and digital SMEs were able to continue to provide mental health support by piggybacking on existing PHC service portfolios, the sustainability of the multisector response for mental health remains highly questionable.

Undernutrition

In Pakistan, undernutrition and food security are longstanding policy concerns that are supported by a multisector Scaling Up Nutrition (SUN) secretariat that draws representation from the health, agriculture, livestock, WASH, education and social protection sectors. National and Provincial Action plans are in place and a coalition of nutrition stakeholders exists across different ministries, CSOs and technical experts.

Nutrition services that were typically provided through health facilities and community-based counselling were adapted to meet the new demands brought about by the pandemic. For example, Nutrition Outpatient Therapeutic Programme (OTP) sites were made compliant with COVID-19 SoPs to ensure continued provision of therapeutic foods to stunted children and micronutrients to children under 5 years (41). Community counselling services to promote breastfeeding and infant and young child feeding (IYCF) practices were more severely disrupted, therefore digital media platforms were used to roll out IYCF messages to the population. Although 50 million users were reached through such efforts by May 2021, much less is known about community uptake of the messaging, particularly among those most in need (41).

At a general level, food insecurity increased substantially from January 2020 to June 2021 as the pandemic affected the livelihoods of nearly 7.15 million people through either work and travel restrictions or job losses due to the contraction of the economy (29). Pakistan's philanthropic sector spearheaded the humanitarian response with local charities, NGOs, citizens and business outfits in major urban centres providing food supplements and setting up soup kitchens, and the government's Ehsaas cash transfer programme also provided food supplements and cash subsidies to a more targeted population (45). These efforts were not guided by a deliberative strategy, however, meaning that hunger mitigation efforts between government, philanthropic and development partners remained largely uncoordinated during the period under review.

Water, sanitation and hygiene (WASH) for disease control

WASH activities are of fundamental importance for disease control but they are often overlooked in health care planning and delivery.

In Pakistan, a multisector, UN-supported WASH cluster is in place and the National WASH strategy and existing resources were re-aligned throughout 2020 and 2021 as part of the COVID-19 response. WASH NGOs supported government health care facilities in implementing IPC practices through the use of disinfectants for surfaces and toilets, as well as the setting up of handwashing stations in strategic locations in cities and communities. Similarly, WASH communication and hygiene risk activities gained momentum in schools with support provided by NGOs. Innovations were introduced such as paddle- and elbow-operated handwashing facilities to prevent infection and water conservation drums were mounted on trucks and rickshaws to provide quick access to WASH facilities throughout the country. Digital pilots were also introduced, such as web-based monitoring of WASH interventions. Increased

consumption of hand sanitizers and improved hand hygiene practices were observed during the pandemic, with at least one study reporting an indicative reduction in hospital-acquired infections (46).

While WASH innovations proliferated in response to COVID-19, effort is required to mainstream WASH in Pakistan's future pandemic response. The WASH strategy could be enhanced to include specific efforts around disease outbreak preparedness and response, accompanied by specific resource allocation. Furthermore, policy sensitization may be needed within the health sector so that WASH becomes integral to pandemic planning alongside joined-up efforts with the WASH community. Stakeholders were of the view that resources can be shared across the WASH, health and education sectors to prevent COVID-19 infections in communities, schools and health facilities.

How communities are responding to COVID-19

Community needs and perceptions

COVID-19 has created new community-related challenges in terms of disrupted access to health care, education and livelihoods, and hesitancy in utilizing health services.

Fear of COVID-19 infection led to a reluctance to seek health care during the period under study, while those seeking care had reduced access to health facilities due to movement restrictions. Another issue was reduced household income as a consequence of government restrictions and workplace closures, which limited people's ability to pay for health services (47). Suspension of community-based programmes and outreach by community health workers also contributed to decreased access to care, while patients reportedly reduced the dosage of their medication in an effort to make it last longer (47).

Variation was seen in community responses to the pandemic, however more affluent and educated populations tended to stay at home and comply with COVID-19 guidance and restrictions, while daily-wagers and those living in overcrowded housing conditions generally did not follow the government guidelines due to the immediate economic pressures they faced and their general mistrust of official information as propaganda (48). Community cooperation with government agencies was constrained by lack of knowledge and later due to widespread miscommunication, which made it difficult to manage the public health response and to encourage continued uptake of essential health services (49).

There was a window of opportunity during the early part of the first wave in 2020 for proactive and responsible risk messaging to communities, yet health authorities and practitioners were themselves not convinced of the severity and degree of contagion of COVID-19 at the time. This left a gap in communication from the state and responsible organizations, which was soon filled with fake news via social media. Indeed, there was a common perception among

stakeholders that social media played a hugely detrimental role in controlling transmission of COVID-19 and later for vaccine rollout as a result of various conspiracy theories (50,51).

Risk communication

Risk communication and community engagement (RCCE) in public health emergencies establishes dialogue between the health authorities and at-risk populations for risk management (52).

In Pakistan, an RCCE Taskforce for COVID-19 was set up by the MoNHSRC with membership from UN partners to establish a single technical source of scientific communication and guidelines (53). Importantly, the Taskforce also includes technology partners such as the public-sector initiative Digital Ventures Pakistan, the mobile company Zong4G and the online sales platform Daraz.pk, as well as some national NGOs (41). However, most community engagement occurs in the provinces and there remains a disconnect between the national RCCE effort and community engagement on the ground.

Diverse modes of communication were used in Pakistan but with a strong shift towards digital platforms for the general public and face-to-face engagement by NGOs in targeted communities. Mass media and social media were used extensively by the public sector, national celebrities, medical associations and political parties during the three COVID-19 waves to give targeted messages, while radio announcements, mosque announcements, banners and pamphlets were used by NGOs in underserved communities (54). Innovative solutions such as mobilizing community-based volunteers from the polio network, engaging religious leaders for incorporating COVID-19 risks and preventative measures into religious sermons and youth groups for peer-to-peer awareness were also used to promote public awareness of COVID-19, alongside helplines to inform callers about testing and tracing cases and to obtain feedback (41). While television and radio were key channels for mass media engagement, social media outreach increased during the pandemic. Over 40 million page views and over 1.4 million pandemic-related social media interactions were recorded in May 2021; however, due to the publishing of unregulated content, stakeholders were critical of social media for spreading misinformation, for disregard of COVID-19 SoPs and for causing vaccine hesitancy (41).

Direct community engagement was largely undertaken by NGOs that had existing networks in place to support polio control immunization or food supplementation activities in Pakistan. During shocks such as natural disasters, NGO activities are coordinated through a health cluster set up by UN agencies, which was also utilized for the COVID-19 response. NGOs were either subcontracted by UN agencies to provide community engagement activities through their established networks or organizations undertook self-funded philanthropic activities. Coordination and coherence between NGO activities and state activities was variable during the period under review, however, and coordination proved challenging too between different government departments providing community support activities (55). Finally, stakeholders

held divided opinions on community engagement by NGOs: some were of the view that NGOs shifted their focus according to donor funding opportunities rather than being true community agents, while others were of the view that NGOs provided a much-needed interface with communities for risk communication and behaviour change.

Community preparedness and resources

Considerable community volunteerism was seen during the initial response to COVID-19 in major urban centres across Pakistan where cases were largely concentrated. Non-profit outfits and medical charities in urban centers have historically provided food, social care and health services to the growing low-income populations within cities, drawing on philanthropic funding, the religious social welfare *zakat* tax and voluntary support. These efforts are distinct from those by UN-funded humanitarian agencies working in focal districts affected by natural disasters or refugee districts.

The COVID-19 pandemic triggered a philanthropic response by urban charities with the provision of food, ambulance services and hospitalization support for low-income families affected by the crisis. These philanthropic groups were joined by medical associations, doctors, social activists and ordinary citizens who together created a large community volunteer movement providing in-kind and cash support. Industries also contributed as part of their corporate social responsibility mandates and by providing financial support to individual philanthropies for both general relief efforts as well as targeted measures such as WASH stations or sample collection centres in disadvantaged areas. Charities and other philanthropic organizations struggled to maintain their efforts beyond the immediate pandemic response phase, however, having seen a depletion in donations and voluntary support.

Local governments at the district and union council level also proved to be important in the pandemic response, although preparedness and resource planning efforts tended to be centralized at the federal and provincial levels. NGOs, CSOs and outreach health programmes found local *nazims* and councillors to be receptive to new ideas for community well-being, technical guidance, and leveraging community resources and networks for community-based activities. At the same time, however, these groups lacked technical guidance on response planning with local communities. Although they provided important resources for community preparedness, local government stakeholders need to be involved more systematically in community response activities.

Youth groups supported by the Youth Affairs Section of the Ministry of Planning Development and Special Initiatives recently gained recognition in Pakistan as a new constituency, supported by the regime's focus on youth involvement in economic development and well-being activities. Relatedly, youth groups were perceived as community change agents during the pandemic response, with their digital literacy helping to accelerate COVID-19 RCCE which would otherwise rely on community sensitization activities to raise health awareness among community leaders, married women and child care providers.

Community-based religious leaders are another distinctive group of stakeholders that were targeted by NGOs and the government for COVID-19 RCCE between January 2020 and June 2021, particularly in rural areas of Pakistan. These figures were supported as community agents to mainstream risk-awareness messages through mosques and their networks of followers. Close to 65 649 religious leaders were mobilized during the period in question to engage with communities on the risks of COVID-19, to emphasize the importance of handwashing, masks and physical distancing during Friday sermons, and to announce key preventive messages (41).

Community engagement within the context of tribal and feudal communities in Pakistan – such as in parts of Khyber Pakhtunkhwa, Baluchistan and upper Sindh – required engagement with tribal power structures and chieftains to gain access to communities, especially women. Considerable time was required to build engagement pathways in such cases, with successful examples relying on local constructs of COVID-19 and PHC messaging to highlight the benefits and risks for local communities (29).

Conclusion and lessons learned

In Pakistan the COVID-19 response was mobilized quickly and delivered using a multisectoral approach within a heavily decentralized context. Areas of relative success include building up clinical surge capacity, public-private engagement and using digital data for decision-making and boosting local production and supply chains. Less successful areas of the pandemic response include weak risk communication and screening, continued disruption of essential health services, and lack of formal structures for pandemic and health emergency planning. The COVID-19 pandemic has provided important lessons for disease outbreak response and the continued delivery of primary health services under a health emergency.

Public health response and continuation of essential services: The public health response between January 2020 and June 2021 was largely based on clinical interventions with less attention given to disease prevention and control. Championship at the executive level brought unity of purpose across multiple sectors to build up testing and clinical capacity, with strong steering across federal-provincial governments. The inclusion of private health experts for technical advisory support increased public credibility and helped to secure buy-in from private and public health providers. The use of digital data systems, developed through the Polio Eradication Initiative, provided rapid and comprehensive data analytics for policy-makers to undertake evidence-based planning. Meanwhile, service delivery was enhanced by government stewardship of private health providers to meet surge inpatient and testing capacity in an effort to prevent the public health system from being overwhelmed. This involved a mix of new private-provider engagement mechanisms from strategic coordination for data sharing and cross-referrals for ambulance support, to the designation of private laboratories as testing centres and the procurement of hospital-based services. The pandemic response also accelerated the use of digital media for health communication and consultations, with a proliferation of telemedicine and risk communication applications observed.

At the same time, there were key gaps in the pandemic response, most notably with regards to insufficient testing despite reasonable laboratory capacity, continued disruption of essential health services and lack of formal structures to tackle outbreaks. The low demand for laboratory testing was a result of stigma and fear among the general population, aggravated by conflicting social media messages and lack of enforcement of test and trace systems. Service volumes across curative, preventive and promotive PHC services were impacted across all three waves of COVID-19 between January 2020 and June 2021 and require a sustained response.

While short-term measures were taken to revive PHC services, including telemedicine innovations, Pakistan lacks a concerted preparedness strategy to ensure the uninterrupted delivery of PHC services in an emergency context. Management, task-shifting and training of health workers for continued health

service delivery and risk communication capacity remain as outstanding needs and pose new challenges in transitioning from physical to digital training and performance monitoring. Moreover, the integration of GPs into the PHC response was largely overlooked as a result of the focus on tertiary hospitals – and their inclusion is critical for screening, referrals, patient counselling, quarantine and risk communication as part of local district-based responses.

The most pressing gap, however, was the lack of institutionalization of the COVID-19 response for future outbreaks and health emergencies. Existing IHR structures, disease surveillance units and health emergency networks provide important opportunities for institutionalization of the pandemic response, yet these have not been buttressed with role specification, governance and legislative support, resourcing and skilled staffing for outbreak preparedness and response. By default, the COVID-19 response between January 2020 and June 2021 was largely driven at the executive level and by non-health stakeholders, without investment in building dedicated leadership and response centres within the health sector.

Community engagement and response: COVID-19 disrupted access to health services, education and livelihoods, and created hesitancy in availing PHC services during the period under review. Community engagement and response efforts were delivered through diverse channels from humanitarian NGOs in rural areas, philanthropic local charities in urban areas and disaster management agencies that often relied on high levels of volunteerism for health and social care support. However, engagement was ad hoc, lacked common messaging for risk communication and service referrals, was insufficiently resourced to sustain support beyond the immediate crisis phase, and lacked planning for integration with PHC service delivery. Local government was a particularly weak link in the systems response for community engagement that needs to be strengthened systematically.

Multisector response and addressing health determinants: The pandemic response between January 2020 and June 2021 successfully drew on multisectoral action for mitigation and response, with public communications, border control, education delivery, transport and travel all grounded in health and safety considerations. At the same time, a multisector approach was used for digital innovations, the boosting of local production and supply chains, WASH interventions to support health care facilities and the upscaling of social protection schemes to support affected families.

A key enabling feature of the multisector response was the overarching leadership and legitimacy provided by the NCOC and its chairs, the Minister of Planning and Development and Provincial Chief Executives. Beneath this, the health sector provided critical technical advice, data and guidelines to shape the multisector response; decentralized funding across sectors enabled an agile response; and data sharing and visual data analytics helped particularly with clinical procurement and local supply and production. Volunteerism by charities,

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individual health providers and development NGOs mitigated the impacts of the pandemic on mental health, anxiety, food security and livelihoods to some extent, but a coordinated, longer-term strategy is needed to sustain such efforts beyond the initial emergency phase when voluntary capital is depleted.

In conclusion, Pakistan's response to COVID-19 during the acute crisis between January 2020 and June 2021 was one of resilience and successful multisector collaboration. However, the country lacks the governance mechanisms to institutionalize pandemic preparedness and response. Emphasis needs to move from clinical surge capacity to a deliberative focus on minimal disruption of PHC services as an essential feature of emergency response. At the same time, while local philanthropic volunteerism and UN-supported humanitarian networks offered important opportunities for community engagement, a systematic strategy could capitalize on this for a sustained response and effective integration with PHC service delivery.

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**World Health
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Alliance
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Pakistan: a primary health care case study 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 collaboration with the WHO Regional Office for the Eastern Mediterranean (EMRO) and WHO country offices. 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.



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