ASSESSMENT OF CONTINUITY OF HEALTH SERVICES IN BHUTAN

Perceptions on access to essential health services during the COVID-19 pandemic

World Health Organization
Bhutan

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Abbreviations

ANC	Antenatal care
COVID-19	Coronavirus infectious disease-19
CSO	Civil Society Organization
CVD	Cardiovascular disease
DoPH	Department of Public Health
DTP	Diphtheria, tetanus, and pertussis
EHS	Essential Health Services
HIV	Human immunodeficiency virus
IEC	Information education and communication
IPC	Infection prevention and control
MCH	Maternal Child Health
MoH	Ministry of Health
MRI	Magnetic Resonance Imaging
NCD	Non-communicable diseases
NTD	Neglected Tropical Diseases
PCR	Polymerase chain reaction
PHC	Primary Health Centre
PPE	Personal Protective Equipment
RDT	Rapid diagnostic test
REBH	Research Ethics Board of Health
RRH	Regional Referral Hospital
SEARO	South East Asia Regional Office of WHO
TB	Tuberculosis
VHW	Village Health Worker
WHO	World Health Organization

Acknowledgements

This review was conducted jointly by the Ministry of Health and World Health Organization (WHO) Bhutan Office. The study coordinating team at the national level provided the overall guidance and administrative support for the conduct of the assessment. The study coordinating team would like to thank the district administration, District Health Officers, and facility in-charges or health workers of the selected facilities for their support and facilitating data collection. The team would also like to thank all participants and respondents for their time and providing vital information. We would also like to extend our acknowledgement to the WHO SEARO office for the technical guidance and support throughout the conduct of the assessment.

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FOREWORD

It is a great pleasure for me to bring out the report on the 'Assessment of continuity of health services and perceptions around access to essential health services during the COVID-19 pandemic in Bhutan'. The first part of the report talks about our preparedness plans to the pandemic, trends in key health indicators like morbidity patterns, coverage of maternal and child health services, vaccine coverage and so on. The second part of the report brings out accessibility and availability of essential health services and perceptions of the community on continuity of essential health services during the pandemic including the lockdowns.

Despite the services being available, data indicates a drop in health services utilization and the drop was more visible during the lockdowns. Lack of transportation facilities and fear of contracting COVID-19 were reported as some of the barriers in utilization of health services. There was a significant drop in number of ex-country patient referrals which can be attributed to the international travel restrictions and irregular flight schedules.

The report also describes the combined efforts from the Ministry of Health and relevant CSO's in provision of critical services like dialysis and chemotherapy services without interruption and our success in COVID-19 vaccine campaigns, which was a global limelight. The report ensures that our experiences in battling the pandemic are not forgotten and can be used as guidance in future in similar situations.

Pemba Wangchuk
Acting Secretary

Executive Summary

Background

Globally, the SARS-COV-2 (COVID-19) infection posed enormous challenges to health systems and threats to human lives. Health resources and workforce were diverted and some health services were compromised to respond to the pandemic.

Measures such as restricting movements and imposing lockdowns continue to be effective strategies to stop transmission in the absence of definitive treatment for COVID-19. However, such measures have not only severely affected economic activities and social wellbeing but also the delivery and use of essential health services (EHS).

Many people refrain from or reduce accessing health services due to the fear of contracting the infection. A decrease in access to and use of EHS can lead to greater morbidity and mortality in other diseases. Implementing measures to ensure the continuity of EHS by adapting service delivery models and settings can help avoid preventable loss of lives and excess morbidity.

Data on how the COVID-19 is affecting the use and availability of routine EHS is limited in Bhutan. This assessment was conducted to gain understanding of the capacities of health facilities to maintain the delivery of EHS, while also gathering perceptions of community health needs around access to EHS during the COVID-19 pandemic.

Methods

This was a cross-sectional study carried out from June to July 2021 aimed to generate nationally representative data on the delivery, use, needs and perceptions of EHS. The two survey-based modules namely, i) continuity of EHS: facility assessment tool, and ii) community needs, perceptions, and demand: community assessment tool, developed by the World Health Organization were adapted.

Seventy-two health facilities from seven districts were randomly selected as sentinel sites for the facility assessment. Around two community members (leaders/ village health workers) from the catchment areas of each identified facility were interviewed for the community assessment.

The facility assessment questionnaire was self-administered and the identified health workers of each facility collected data for the community assessment through face-to-face interviews.

The identified health workers were trained on the study protocol and introduced to data collection tools and approaches. The overall technical guidance and administrative support were provided by a national study coordinating team.

The data was entered in EpiData software and weighted analysis was conducted using STATA version 14.0. The waiver for the need for ethical clearance was granted by the Research Ethics Board of Health.

Trend in key health indicators were assessed using data from routine reporting system (DHIS2) of the Ministry of Health. Data and reports were also requested from Dzongkhags, relevant agencies and Civil Society Organizations (CSO) and programs in the Ministry of Health.

Key findings

A total of seventy-two health facilities (three referral hospitals, 14 hospitals and 55 primary health centers) were included for this assessment. A majority of the facilities were located in rural areas and the eastern region.

For the community assessment, 80 community leaders (54 percent) and 60 village health workers (44 percent) were interviewed. Most of them were males (75 percent) and were from rural areas (96 percent).

Community assessment

Need and use of EHS

Except for planned elective surgery, mental health and recommended laboratory and imaging services, a majority (more than 80 percentof the respondents) reported that immunization, urgent medical care, contraception services, antenatal care (ANC) and assisted delivery were received by most people in the community during the past three months.

Barriers to seeking EHS

Domestic or household works was stated as the main reason for not receiving care before the COVID-19 pandemic, followed by a preference for traditional or folk medicines and lack of transportation to facilities.

Almost half of the respondents felt that people's experience in availing of health services was moderately or severely affected during the pandemic.

Fear of getting infected with COVID-19 at facilities, public messages to avoid facility visits, lockdowns or stay-at-home orders and disruption in public transport were cited as the main reasons. Health facilities and community health workers followed by religious figures, astrologers and local healers were the first point of contact for people in the community when unwell.

Around 29 percent reported that there were disadvantaged groups of people in their communities. Persons with disabilities, people in extreme poverty and isolated households with elderly persons were identified as disadvantaged groups.

Community assets and vulnerabilities

More than half (56 percent of the respondents felt that the impact of COVID-19 on the economy was moderate and 17 percent felt the impact was significant. Forty-four percent of the participants reported that socioeconomic and educational initiatives increased in the community.

Implementation of community-based or online learning, provision of free food items, tax relief incentives and cash transfer provided by the government/corporate/individuals were the most common initiatives reported. More than three-fourths also reported that health and environmental hygiene initiatives have increased.

The most common initiatives were health promotion activities including distribution of IEC materials, setting up of hand washing facilities, and provision of face masks and transportation for essential service providers and vulnerable groups.

Barriers to delivery of community-based services

Most (over 90 percent of the village health workers (VHWs) felt confident in COVID-19 knowledge and about 65 percent reported perceiving a moderate to very high risk of contracting COVID-19 at work. Contacting many people, inadequate face masks and the public flouting prevention guidelines were the main reasons reported for increase in risk of COVID-19.

A quarter of the VHWs felt stigmatised by the community members fearing they might transmit COVID-19. Almost 70 percent received some or little support needed to properly perform their work.

The most common support needed included training and information on COVID-19, personal protective equipment (PPEs), monetary incentives and support for communication and transport.

Generally, the delivery of key EHS such as immunization, disease prevention campaigns, mother and child health (MCH) services and home visits was thought to be unaffected during the non-lockdown periods compared with prior COVID-19 period.

The proportion reporting slightly or substantial drop in provision of these services was greater during the lock-down than non-lockdown periods.

The trend in the need and use of services, experience in availing health services and perceived economic impact were similar across regions and in the two southern districts.

Facility Assessment

Staffing and financing

None of the health workers of the 71 facilities, from where health workforce data was collected, were reported to have been diagnosed with COVID-19. Around 35 percent of the facilities had any staff on leave or absent in the previous three months.

The most common reasons were sick and personal leave. Nearly 45 percent of the facilities made changes to the way in which health workers were managed due to COVID-19. The most common changes were reassigning staff to different units or responsibilities and increasing overtime among staff.

While almost all facilities received training and/or supervision support related to PPEs and infection prevention and control (IPC), many did not receive specific training on COVID-19 and emergency conditions management, mental health and support and provision of remote care, including supportive supervision in these areas.

Of the total facilities, around 30 percent reported facing difficulties in delivering EHS due to inadequate and/or lack of funding, and a majority (85 percent) also reported not receiving additional funding to ensure continuity of EHS.

Service delivery and use

All facilities reported to have remained opened during COVID-19 outbreak. A little less than 25 percent reported not receiving a defined list of EHS to be delivered during the COVID-19 pandemic and around 40 percent did not have a defined list of EHS for emergencies before the pandemic.

Changes to the service delivery approaches such as reduction in scope and volume of services, suspension of services, shifting consultation to digital platforms, etc., were mainly made during the lockdown periods.

Except for a slight decrease in the outpatient visits for diabetes and cancer screening, PNC and ANC, immunisation, family planning and contraception and care for sick children, most facilities reported no major changes in outpatient attendance, emergency unit visits and inpatient admissions.

A majority of the facilities providing community outreach services reported no substantial changes in provision of immunisation, mobile clinics and home visits. However, the proportion reporting reduction on some of these services was greater for the lockdown period than non-lockdown periods.

Nearly half the facilities reported they had not planned delivery of services for those who missed routine appointments that are unrelated to COVID-19 in the past months.

Around a quarter (24 percent) reported experiencing disruption in services provided by the facility and financing and human resources were thought to have contributed "moderately" to "a great deal" to the disruption.

A similar pattern in service use and delivery was observed when assessed by region, facility type and two southern red-zone districts.

COVID-19 infection prevention and control

Nearly 45 percent of the facilities did not have a designated IPC focal person and half did not have IPC guidelines for COVID-19 in the facility. Only some of the facilities had designated staff entrance for screening, clearly identified COVID-19 isolation place, and performed screening at a dedicated entrance.

Almost all facilities usually provided PPEs to health workers and key PPEs were available for "some" to "most" workers.

COVID-19 management capacity in PHCs

Around a third of the PHCs reported not having a focal point or a team for COVID-19 service coordination and 16 percent of them did not have standard operating procedures.

Of the total facilities that saw persons with COVID-19 symptoms (13 percent), although most followed the key IPC protocols, 35 percent reported that the patient consultation did not take place in a separate room and around 41 percent did not measure oxygen saturation.

A majority (65 percent)of the PHCs reported not having up-to-date COVID-19 guidelines, and around 28 percent reported not having designated facilities for referral of patients with suspected or confirmed COVID-19 cases.

A greater proportion of facilities (70 percent) also reported that the facility is not tasked with contact tracing, and 70 percent of the facilities performing contact tracing did not receive training on contact tracing.

Availability of selected key medicines and diagnostics

Almost all of the facilities reported the availability of key essential tracer therapeutics, vaccines, and other consumables. Around 93 percent of the facilities reported they did not face disruption in the capacity to provide services due to supply stock out.

Half of the facilities that collected specimens but did not perform diagnostic tests reported not having

a functioning specimen transport system for forwarding specimens to a referral laboratory/centre.

Essential diagnostic tests such as HIV, TB, haemoglobin, blood glucose, and urine tests were available in almost all hospitals and/or PHCs.

Trend of Key Health Indicators

Morbidity cases seen in the health facilities across the country dropped by 21.4 percent in 2020 as compared to 2019. There was a significant reduction in number of ex-country referrals during the pandemic period.

Slight variations were also observed in service uptake of RMNH services across the country and health camps and awareness programs could not be conducted as planned.

There was an increasing number of domestic violence cases during the pandemic. Chemotherapy and dialysis services were provided uninterrupted.

Key recommendations

The following recommendations are provided based on the findings from this assessment.

Service delivery and utilization

- Delivery of EHS generally, and for NCDs, MCH services, and partner violence, including access to public transport systems, especially during lockdowns, need to be strengthened. Adopting approaches and instituting systematic mechanisms and increasing awareness on availability and how to access EHS were deemed critical. The MoH needs to coordinate with other relevant sectors to ensure easy access to public transport systems during movement restrictions.
- There is a need to increase awareness on the availability of mental health services and helplines, especially in rural communities, and to build the capacity of community-based health workers on mental health and counselling and COVID-19 prevention. The MoH may collaborate with the Ministry of Education to engage their professional counsellors in the provision of mental health services.
- Since most of the affected during community outbreaks and lockdowns were the vulnerable groups – people with disabilities and those in poverty – access to health and other essential services needs to be enhanced for these groups. Local authorities can help list such groups in their communities, assess their needs and link these groups with public health services and welfare systems. The MoH can also collaborate with relevant local nongovernmental organisations in identifying vulnerable groups and provision of essential services during movement restrictions.
- All facilities should have a system in place to register and provide services for those missing routine appointments unrelated to COVID-19 during movement restrictions and lockdowns.
- The MoH needs to ensure the dissemination of the defined list of EHS for each level of the facility in the contingency plan to be delivered during the pandemic to all facilities. It should also ensure that all facilities have a defined list of EHS for health emergencies.

- Given the crucial role VHWs play in the delivery of EHS, the roles and responsibilities of VHWs may be strengthened with clear terms of reference and through incentives.
- Assessments to determine funding needs for facilities to maintain the continuity of EHS and strengthen COVID-19 management would be useful.

Barriers to delivery of health services

- Awareness and programs aimed to increase awareness on COVID-19 prevention, build community trust and reduce stigma associated with COVID-19 need to be implemented and/or scaled up. Better aware, people would continue seeking health care when needed and follow public health advice.
- Key community members such as astrologers, religious figures and local healers, who are preferred contacts for people in the community when ill, may be involved in COVID-19 response by building their capacity on COVID-19 prevention, risk communication, and provision of mental health support.

Infection control and PPEs

- All facilities should have IPC guidelines and a trained designated IPC focal person who can coordinate the implementation of IPC guidelines and activities in the facilities as appropriate.
- A continuous and adequate resupply of essential health commodities and supplies that include PPEs, essential diagnostic tests and tracer medicines, vaccines and related supplies at all times should be ensured. PPEs need to be made available to VHWs when performing their duties.

Capacity to manage COVID-19

- The MoH needs to ensure that all PHCs have adequate capacity to, not only deliver EHS, but also to provide primary COVID-19 services, which include identifying symptomatic patients and isolating and referring suspects. Performing rapid diagnostics, collecting and transporting specimen, referring cases, implementing IPC measures, performing contact tracing and providing mental health support and home-based management of mild COVID-19 cases are other services.

- Up-to-date COVID-19 guidelines and SOPs need to be made available to all facilities as appropriate and health workers should be trained on the latest guidelines. Facilities must be orientated on the protocols for referral of those with COVID-19 symptoms for diagnosis and management.
- Supportive supervision visits from the national level on different aspects of COVID-19 such as IPC and case management at each level of the health system should be conducted regularly.
- The MoH should ensure all facilities that collect specimens for the diagnosis of COVID-19 have access to an efficient transportation system for samples to reach higher/ referral centres, which can also be activated during mass testing.
- Capacity building of dzongkhag teams in outbreak investigation and surveillance.
- Proper planning involving other sectors such as Royal Bhutan Police, Desuung and Dzongkhags for better ground coordination.

Conclusions

Overall, the findings from this assessment indicate a minimal disruption in the delivery and use of essential services during lockdowns and community members could generally avail of most health services when needed.

This suggests a resilient primary health care structure and a well-functioning and prepared health system in Bhutan. The results also demonstrate satisfactory implementation of and adherence to IPC and safety measures in the health facilities.

The delivery of EHS can be further strengthened by improving access to mental health, non-communicable diseases (NCDs), domestic violence and sexual and reproductive health services. It could also ensure adequate resupply of key medicine and health products and scale up programs to reduce stigma. Programs to increase awareness of COVID-19 prevention and availability of EHS services and improving access to public transport, mainly to meet the needs during lockdown periods, can also be beneficial.

Provision of EHS should be inclusive of people living with disabilities, the elderly population, those from poor socioeconomic backgrounds and others living in rural areas. Engaging religious figures, astrologers and local healers in the COVID-19 response may help bolster prevention efforts.

The capacity of PHCs to deliver primary COVID-19 services may be enhanced and all facilities should have a defined list of EHS for health emergencies. Delivery of EHS needs to be monitored continuously and studies to assess the likely impact of COVID-19 on mortality and morbidity from causes other than COVID-19 are needed.

Introduction

Background

The COVID-19 pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-COV-2) affected health services globally and is continuing to do so. The rapid rise of cases and fatalities and the need for special precautions were overburdening the earlier established health service delivery setups.

The health care systems have been challenged by the overwhelming demands on the health workforce, hospital beds, critical care equipment and essential drugs. The milestones achieved in the field of primary care and essential health services (EHS) can be potentially obliterated due to the pandemic, as was shown previously during the Ebola outbreak. (1)

Disruptions in the delivery of EHS from the pandemic can have serious consequences on health, especially of specific sub-populations like the elderly, pregnant women, children and people living with chronic conditions. (2) Both direct mortality from an outbreak and indirect mortality from treatable conditions can increase abruptly due to restricted access to/and use of health services. (3) Maternal and neonatal deaths (4) and mental conditions (5) are shown to have increased during the current pandemic in Nepal. Strengthening primary health and ensuring continuity of EHS, that is people-centered and resilient, to such health emergencies is, therefore, paramount.

The pulse survey on the continuity of EHS during the COVID-19 pandemic showed that nearly all 105 included countries reported disruptions in half of the tracer EHS, with greater disruption in low- and middle-income than in higher-income countries. (6) This denotes that the pandemic is causing more damage to countries with weaker health systems.

Drop in outpatient attendance, access and financial difficulties during lockdowns, cancellation of elective services, staff redeployment for COVID-19, service unavailability due to health facility closure and interruptions in the supply of medical supplies were documented to be the causes. Countries are faced with the challenge of balancing response to the outbreak, maintaining essential service delivery, and mitigating the risk of health system collapse during such times.

Restriction on movements to prevent spread of the virus can result in people staying away from facilities from fear of getting infected. The fears may be exacerbated by misinformation. Likewise, patients with other

illnesses can face difficulties in accessing health services due to movement restrictions and diversion of all resources towards managing the pandemic.

An increase in morbidity and mortality in other diseases (e.g., malaria, TB, HIV/AIDS, measles) was documented during the Ebola outbreak in West Africa that was attributable to restricted access to healthcare capacity. (7) The COVID-19 pandemic was no different from Ebola in disrupting EHS but on an unprecedented global scale.

Despite limited resources and topographical challenges, Bhutan was able to make good progress in improving the health of its population. Bhutan averted the devastating impact of the COVID-19 pandemic, at least so far. The cumulative number of confirmed cases as of 11th July 2022 stands at 59,940 with 21 deaths since the detection of the first case on March 6, 2020.

Bhutan witnessed three nationwide lockdowns, a few sub-national lockdowns and other restrictions aimed to contain spread since the early phases of the pandemic. (8)Considering the importance of ensuring the continued delivery of EHS,

Bhutan developed Contingency Plan to Ensure Provision of EHS in the Worst-Case COVID-19 Pandemic Scenario in Bhutan. (9) The plan details the type of services and strategies to deliver EHS during different stages of transmission and during lockdowns. Prevention services including vaccination for communicable diseases, RH services, care for vulnerable populations, provision of medication for chronic conditions, critical inpatient services, emergency health conditions and ancillary services constituted EHS.

Teleconsultations, changes in medicine dispensing procedures, frequent health education aired on television and the institution of mechanisms to provide emergency care were some adaptations made to deliver health services during movement restrictions.

Flu clinics were established in various locations across the country, which also provided services for other respiratory illnesses like TB.

Nonetheless, like many other countries, the present pandemic has put enormous strain on the already constrained health resources and delivery of EHS. The extent of disruption in the delivery and use of EHS, health needs and perceptions on the use of health services need adequate knowledge.

The present pandemic brought into focus our existing health care delivery systems, highlighting the importance of monitoring key health services. Assessing the delivery and use of EHS can help understand and identify the health system's bottlenecks and challenges in maintaining the delivery of these services. It is crucial for informing decisions and strategies to mitigate disruptions and ensuring continuity of EHS.

Objectives

The objectives of this assessment were to;

- Rapidly assess the capacities of health facilities to maintain the provision of essential health services during the COVID-19 pandemic.
- Conduct a rapid pulse survey of community health needs and perceptions around access to essential health services during the COVID-19 pandemic.
- To study the impact of COVID-19 on the use of health services.
- To document challenges, lessons learned and best practices for future preparedness.

Methods

Study design

A national cross-sectional study was conducted to obtain nationally representative data on the EHS delivery capacity, its use, needs and perceptions around the use of EHS.

Administrative data maintained with the routine data management system of the Ministry of Health (DHIS2) were also analysed to generate trends in key health indicators.

Review of annual health bulletin, program reports, including those submitted by various organisations, Dzongkhags and civil society organisations that served during the pandemic and lockdowns was also done to make the report comprehensive.

Sampling and sample size

Adequate number of health facilities, both hospitals and Primary Health Centres (PHC) level in the three regions were randomly sampled to generate national estimates.

The complete list of health facilities provided in the most recent annual health bulletin was the main sampling frame for this assessment. (10) Using the finite population formula with 95 percent confidence interval, the assumption that 50 percent of health facilities might have faced disruptions in the delivery of EHS,(11) and a 10 percent margin of error (although 15 percent is also recommended for facility-based assessments),(12) the number of sample facilities is 69. A non-response rate of 10 percent was considered.

Districts were initially selected using the probability proportional to size sampling, i.e., the probability of selecting a district is proportionate to its size (the number of health facilities).

Based on the total number of health facilities (235), the average number of health facilities in each district is 12. Thus, the optimal number of clusters or districts to be selected was seven.

The number of districts to be sampled in each region was determined proportionately by the total number of districts in each of the regions.

Given that the western region is seemingly more developed with better access to public services, including health, only two districts were sampled in the western region although an equal number of health facilities needs to be sampled in both western and central regions.

Table 1: Summary of sampling methods, sampling units and sample size

Sample size (10% non-response)	No of clusters / districts	No of clusters in each region	Sampling method for health facilities
76	7	Central = 3 Eastern = 2 Western = 2	Simple random sampling Hospitals = 16 PHCs = 60

Thereafter, health facilities were selected using simple random sampling. The number of facilities to be sampled in each district was determined proportionately to the total number of facilities. The national referral hospital was purposively sampled as a sentinel site. A summary of the sampling approach that was used is provided in Table 1. The final list of facilities included in the assessment is provided in Appendix 1.

For the community pulse assessment, at least two community members, that include one village health worker (VHW) and a community leader (gup, mangmi, tshogpa) of the selected health facilities were included to participate in the assessment.

Assessment coordinating team

A technical and coordinating team was formed at the national level to provide guidance and administrative support, besides coordinating and overseeing the conduct of the assessment. The

group was involved right from the design and proposal development, planning, and implementation till the finalization of the assessment report.

The core group included representatives from the Department of Public Health (DoPH) and Policy and Planning Division of the MoH and WHO Bhutan Office (please see the list in the acknowledgements). Programme officer of the National Mental Health Program, Non-communicable Disease Division under the DoPH was identified as the focal officer for the assessment.

Data collection tools/ questionnaire

Data was collected using the following survey-based modules developed by World Health Organization (WHO). The tools that can be used from the early stages of an emergency to recovery and continuity after recovery were adapted to reflect the needs and specificities of Bhutan's health system.

- Continuity of essential health services: facility assessment tool (13) – This module is designed to assess the capacities of PHCs and hospitals to deliver EHS, especially health care worker availability, infection control, isolation and triage facilities. It also helps in tracking changes in EHS use. The module is also referred to as facility assessment in this report.
- Community needs, perceptions and demand: community assessment tool (14) – This module aims to collect information on unmet health needs, changes in health-seeking behaviours and barriers to EHS. The module is also referred to as community assessment in this report.

The data collection tools are provided as Appendix 2 "a" and "b".

Data collection

Although data collectors were recruited and trained to gather information through face-to-face interviews in April 2021, they could not be sent to the field for the purpose. The survey team was instructed to refrain for the field activity owing to surge in COVID-19 cases starting that month.

The survey team was then directed to engage health workers from respective facilities for data collection.

Accordingly, one health facility manager (Chief Medical Officer/ Medical Superintendent/Facility-in-charge) from each sentinel facility from selected districts was identified by MoH.

The questionnaire for the facility assessment was self-administered. For the community assessment, at

least two eligible key informants like community leaders (gups/ mangmis/tshogpas [1]) and VHWs from the area of the sentinel facilities who could provide community perspective, were contacted and interviewed in person by the health workers of the catchment area.

However, for Phuentsholing currently under lockdown, and a few other areas where face-to-face interviews were hindered, data was collected through telephone interviews. Similarly, in catchment areas without a VHW or a community leader, community elders and members, who served as leaders in the past, were interviewed.

The data collectors were provided remuneration to facilitate participation in the training and to support data collection. The data were collected mainly in June 2021.

Trend of Key Health Indicators

Data was also extracted from the routine reporting system (DHIS2) of the Ministry of Health. DHIS2 collects morbidity data from health facilities across the country. Data and reports were also requested from Dzongkhags, relevant agencies and Civil Society Organizations (CSO) and programs within the MoH. Relevant government reports and documents were also reviewed and referred to as a part of the assessment.

Data quality

A consultative meeting was convened with members of the coordinating team and relevant national programs to review and adapt the tools and to finalise the protocol from April 13-14, 2021. The community and facility assessment questionnaires were then pilot-tested at the Motithang Satellite Clinic in Thimphu for consistency, clarity and note the time required to complete the questionnaire.

Health personnel identified in each facility as data collectors were trained virtually on the study protocol, data collection tools and procedures and interviewing techniques from June 5-6, 2021. The survey information, consent sheet and questions for the community assessment were translated into Dzongkha (national language) to guide and facilitate interviews.

The duly completed data collection forms were verified and reviewed for completeness and legibility.

[1] *Gup: Elected head of the gewog or block administration, Mangmi: Deputy elected health of gewog, Tshogpa: Village representative*

Data analysis

The data was entered into a data sheet created using the freely available software Epi-Data. The data was then exported to STATA version 14.0 for analysis. Prior to analysis, the data was cleaned and sample weights were calculated to adjust for probability of selection to ensure that the sample was representative of the total facilities in the country.

The weights were calculated following guidance provided in the literature. A detail on how the weights were calculated is provided in Appendix 3. Descriptive statistics (frequencies, proportions, means, and standard deviations) were mainly used to analyse the data.

Ethical considerations

TThe administrative clearance to conduct the assessment was provided by the Policy and Planning Division of the Ministry of Health. Considering the nature of the assessment, the Research Ethics Board of Health (REBH) granted a waiver for the need for ethical clearance from the board (Appendix 4).

The study information sheet that included information on the background/purpose and the interview process was shared with and/or read to respondents of the community assessment before the interviews. Similarly, the assessment's duty of confidentiality was explained and verbal consent was sought from participants.

Participants of the community assessment were also informed that their participation was voluntary and of their right to withdraw and ask questions at any time of the interview. No personal information that can help identify individuals was collected. All responses will be kept confidential and secured by the study team.

Findings

This chapter presents findings of the assessment. Findings from the community assessment are presented in the first section followed by those from the facility assessment.

Community needs, perception and demand

The findings related to the community needs, perception, and demand assessment are presented in this section.

Characteristics of the respondents

Of the total 140 community leaders and health workers interviewed, a majority were males (74.5 percent) and from rural (95.6 percent) areas (Table 1). The mean age of participants was 44.4 years and community leaders and village health workers (VHWs) constituted 52.2 percent and 43.6 percent of the interviewees, respectively. Most (40 percent) resided in the eastern regions, while 30 percent each were from the western and central regions.

Table 2: Characteristics of the respondents of community assessment

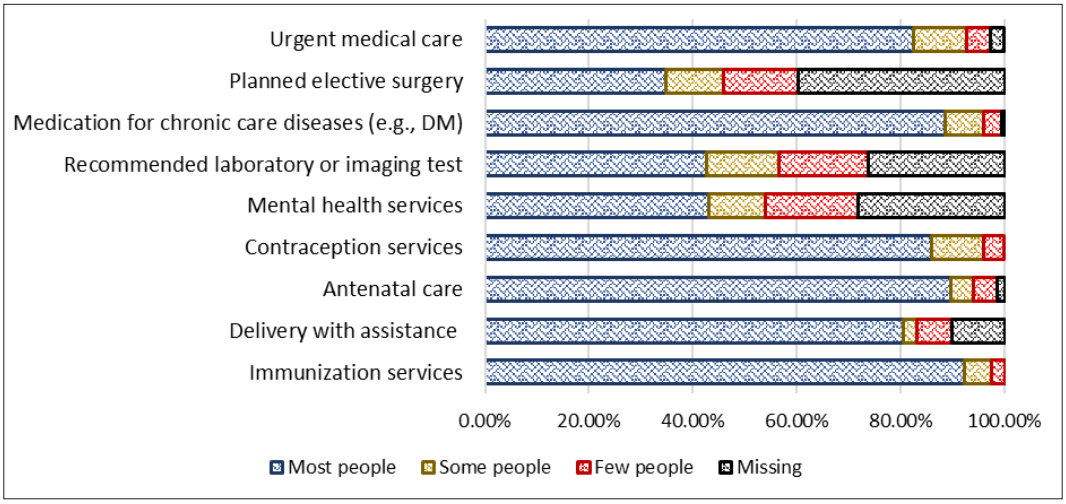
Characteristics	n=140	%
Gender		
Male	106	75.71
Female	34	24.29
Age (in years)		
Min; max	23; 99	
Mean (SD)	44.42 (13.85)	
Occupation		
Community leader	73	52.14
Village health worker	60	42.86
Other	7	5.00
-Community worker	1	0.71
-Former or retired community leader	2	1.43
-Village elderly	3	2.14
-Farmer	1	0.71
Residential area		
Urban	6	4.29
Rural	134	95.71
Region and district		
Western Bhutan	41	29.29
Central Bhutan	42	30.00
Eastern Bhutan	57	40.71

Need for and use of essential health services in communities

Except for planned elective surgery, mental health and recommended laboratory or imaging services, over 80 percent of the respondents reported that other services such as immunisation, urgent medical care, contraception services, ANC and assisted delivery were received by most people in the community when needed during the past three months (Figure 1). The proportion with missing information was also greater for the three former services. This may be because these services were not provided or available in some facilities such as PHCs.

A similar trend was observed when the analysis was stratified by region and by two southern districts, with greater proportion of central region residents reporting to have received most services compared to other regions (Supplementary Figure S1-4).

Figure 1: Accessibility to or use of health services in the community in the past 3 months (n=140)



Barriers to seeking essential health services in communities

Domestic work or household chores (57.6 percent) was reported to be the main reason for not availing of health services before the COVID-19 pandemic, followed by the preference for traditional or folk medicines (34.0 percent), lack of transportation to facilities (33.9 percent) and distance to health facilities (27.7 percent) (Figure 2). High transportation costs and perceived lack of equipment in the facilities were also reported as

reasons for not receiving care by 21.2 percent each of the respondents. Reasons cited under the "others" category by a few participants include "do not face issues" (n=10), "access to bigger hospital nearby" (n=3), "lack of awareness/ information", "financial difficulties", and "not seeking care for minor illnesses".

Figure 2: Reasons for not receiving health services before the COVID-19 pandemic (n=140)

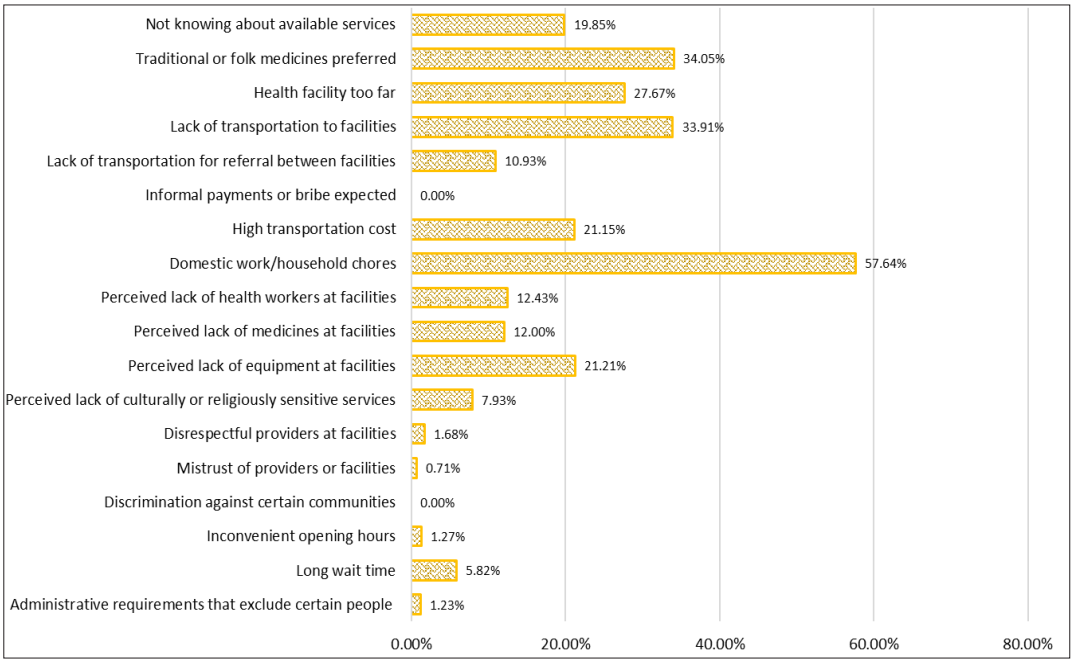
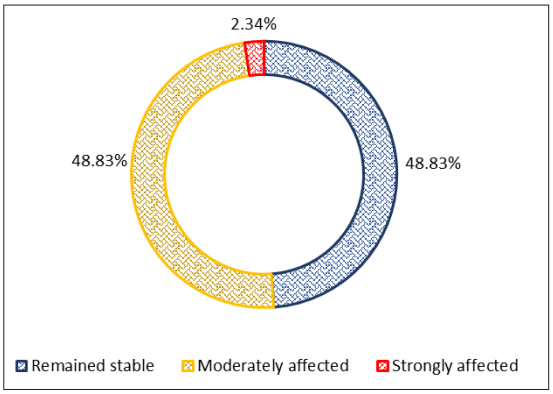


Figure 3: Changes in people's experience in getting health care during the COVID-19 pandemic (n=140)

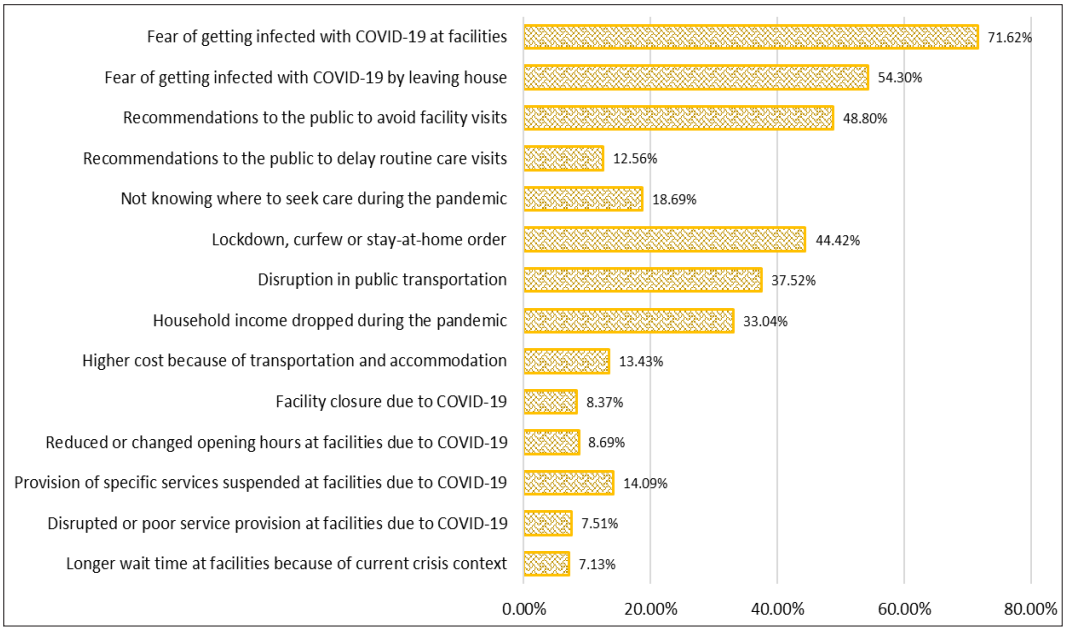


Of the total respondents, an equal proportion 48.8 percent of the respondents perceived that people's experience in availing health services remained stable or was moderately affected, while only a little over two percent felt that it was strongly affected (Figure 3). A slightly greater proportion of respondents in the western region felt that people's experience in getting health care was moderately or strongly

affected (Supplementary Table S1).

Of those who reported that community's experience in availing health services were affected during the pandemic, a greater proportion 71.6 percent reported fear of getting infected with COVID-19 at facilities as the main reason for not receiving health services (Figure 4). Similarly, fear of getting COVID-19 by leaving the house, public recommendations to avoid visiting facilities and lockdown or stay-home orders were reported as reasons by 54.3 percent,48.8 percent and 44.4 percent of the respondents, respectively (Figure 4).

Figure 4: Reasons for not receiving health services in the present context (n=69 or 51.17% from the total samples who responded 'moderately' or 'strongly affected' for experience in getting health care during the COVID-19 pandemic)



Other commonly reported reasons for not receiving health services were disruption in public transportation, reduction in household income and lack of knowledge on where to seek care during the pandemic.

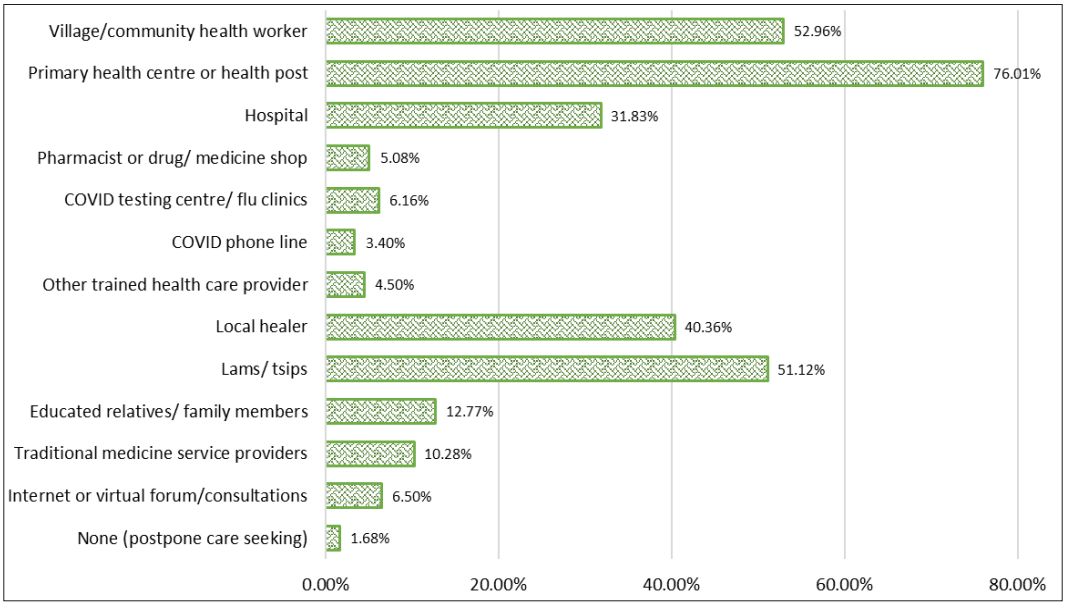
Reasons reported in the "others" category by a few participants include lack of information, inadequate manpower and inadequate equipment at the facilities.

A majority of the respondents reported that people in the community contacted PHCs (76 percent), hospitals (32 percent) and VHWs (53 percent) first to seek care and/or advice when they felt

unwell (Figure 5). A little over half of the respondents also reported that people contacted religious figures (lams) and/or astrologers (tsips) and 40.4 percent reported that people in the community contacted local healers when they fell ill.

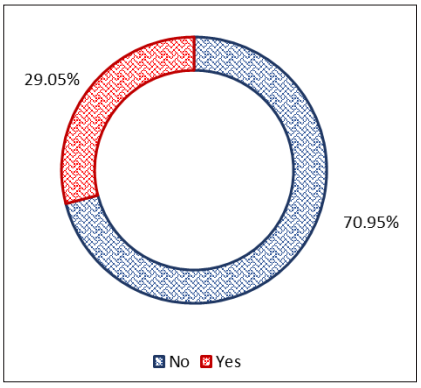
Other first points-of-contact when unwell included educated relatives or family members and traditional medicine service providers. Five of them also reported contacting 112 (health emergency help line) to seek advice or care and a few contacted local leaders for advice when unwell.

Figure 5: The first contact to seek advice if people in the community feel unwell (n=140).
**Lam: religious figures, Tsips: Astrologers*



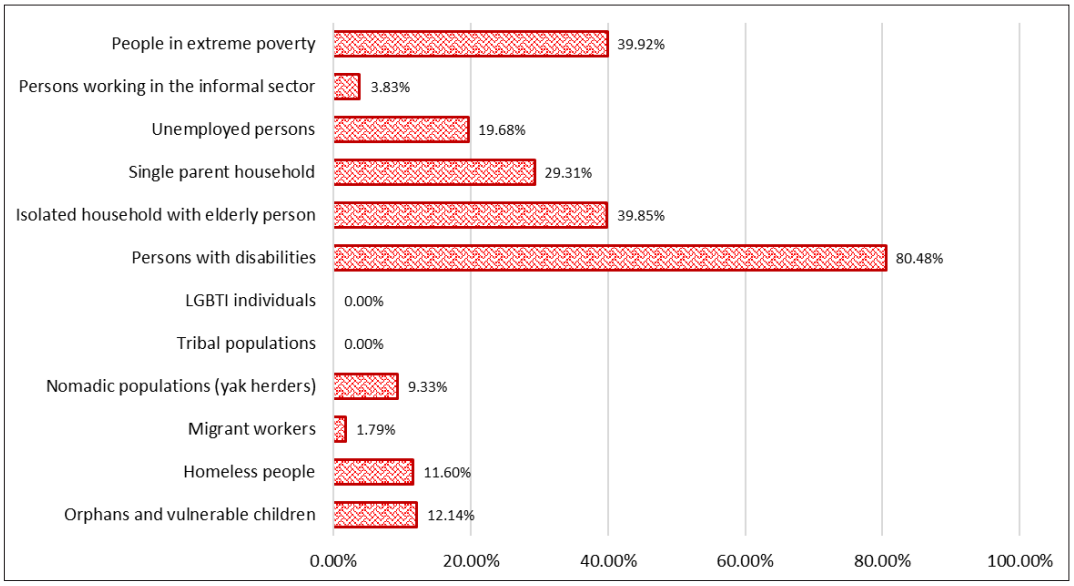
Most (71 percent) of the participants reported non-existence of groups of people in their communities, disadvantaged in terms of accessing health care due to socioeconomic and cultural reasons (Figure 6). However, around 29 percent stated that there are such groups of people in their communities.

Figure 6: Respondents who reported certain groups of people in the community are disadvantaged in accessing health services due to the COVID-19 pandemic (n=140)



Of the total respondents who responded that there are disadvantaged groups, a majority 80.5 percent identified persons with disabilities as such groups, followed by people in extreme poverty and isolated households with elderly persons identified by around 40 percent of the respondents each (Figure 7). Single-parent households and unemployed persons were also identified as disadvantaged groups by 29.3 percent and 20 percent of the interviewees, respectively.

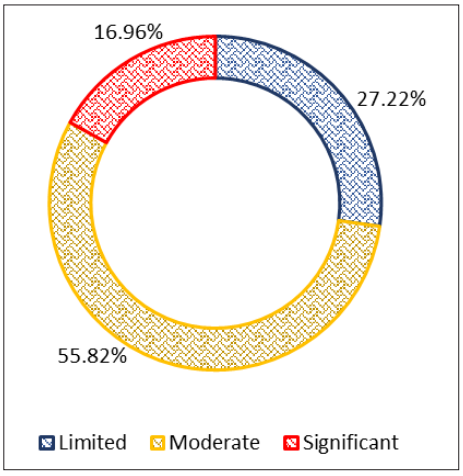
Figure 7: Groups of people reported to be disadvantaged (n=44 or 29% from the total who reported 'yes' for certain groups of people are disadvantaged in accessing health care services)



Community assets and vulnerabilities

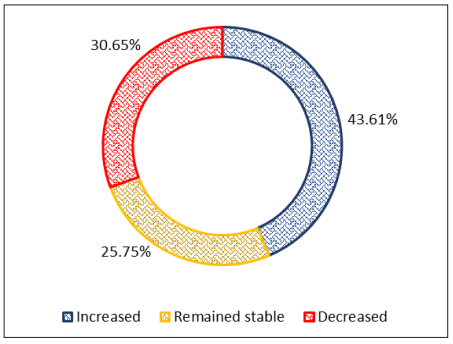
More than half (56 percent) of the total respondents felt that the economic impact of COVID-19 has been moderate and 17 percent reported the impact to be significant (Figure 8). Around a quarter felt that the initiatives have remained stable.

Figure 8: Degree of economic impact of the COVID-19 pandemic on the community (n=140)



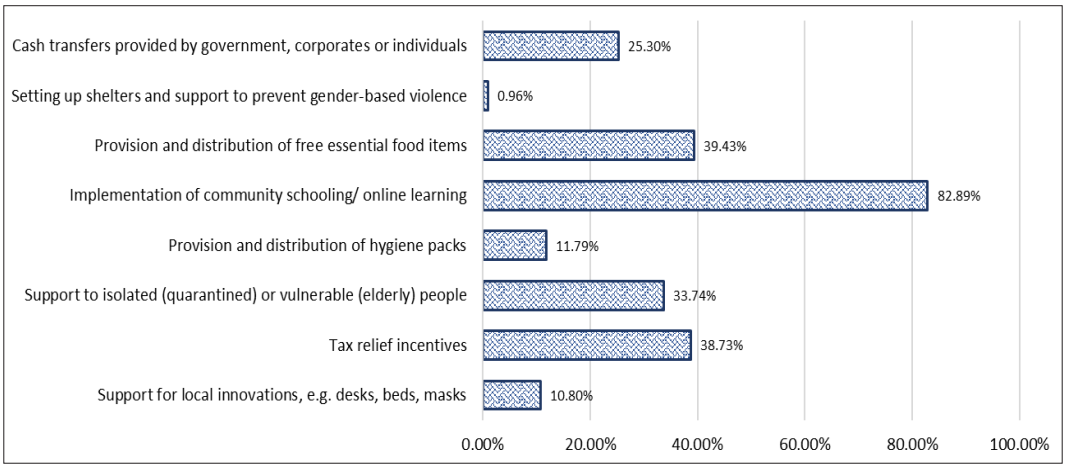
Compared with other regions, the proportion of respondents who perceived that the economic impact of COVID-19 on the community was moderate and significant was greater in the western region (Supplementary Table S1).

Figure 9: Changes in socioeconomic and educational initiatives in the community since the start of the COVID-19 (n=140)



A majority 43.6 percent reported that socioeconomic and educational initiatives increased in the community, while 31 percent reported that such initiatives decreased since the start of the pandemic (Figure 9).

Figure 10: Types of initiatives that have increased in the community (n=64 or 43.61% from the total sample who reported 'increased' for socioeconomic and educational initiatives)



Of those who perceived that socioeconomic initiatives increased, the most common types of initiatives were the implementation of community schooling/online learning (83 percent), provision and distribution of free essential food items (39.4 percent), tax relief incentives (38.7 percent) and cash transfers provided by the government, corporates and individuals (25.3 percent) (Figure 10). Agricultural support, welfare and relief support, loan interest waiver and provision of vitamin supplements were also stated by a few participants.

Figure 11: Changes in health and environmental hygiene initiatives in the community since the start of the COVID-19

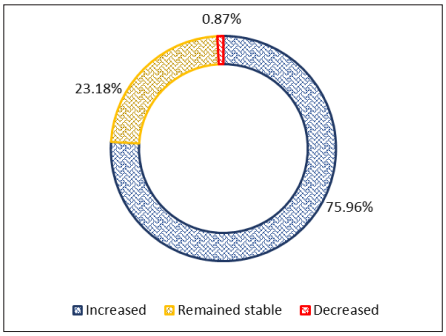
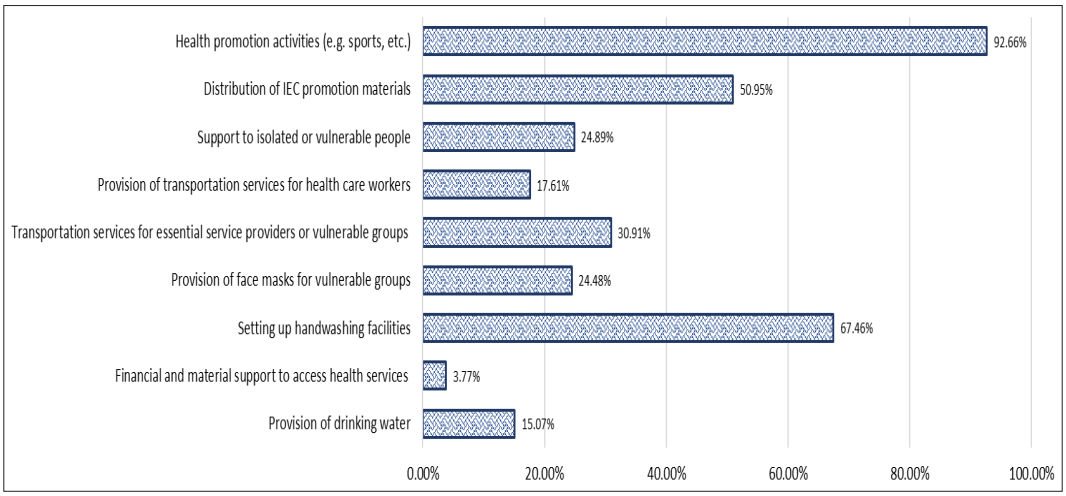


Figure 11 illustrates that most participants (76 percent) perceived health and environmental hygiene initiatives to have increased in the community since the start of the pandemic, whereas 23 percent felt such initiatives remained stable.

Figure 12: Types of initiatives that have increased in the community (n=109 or 75.96% from the total sample who reported 'increased' for health and environmental hygiene initiatives)



More than 92 percent of the respondents reported that health promotion activities increased and around 68 percent reported that initiatives to set up handwashing facilities were implemented (Figure 12). More than half the interviewees reported that initiatives to distribute ICE materials increased in their community.

Other initiatives thought to have increased include transportation services for essential services providers and support and provision of face masks to vulnerable groups.

Door-to-door service for delivery of essential food items and services and welfare support were also reported as some initiatives by a few participants under the "others" category.

Barriers to delivery of community-based services reported by VHWs

Of the total 60 VHWs interviewed, a greater proportion (92 percent) felt confident in their knowledge about COVID-19. A majority, 64 percent, perceived having a moderate to very high risk of contracting COVID-19 at work (Table 3). An almost equal proportion (~16 percent) reported having a slight and high risk of contracting COVID-19.

Of the total VHWs, 75.17 percent never felt stigmatised by people in the community fearing possible transmission of COVID-19 (Table 3).

However, around 25 percent felt they were sometimes stigmatised.

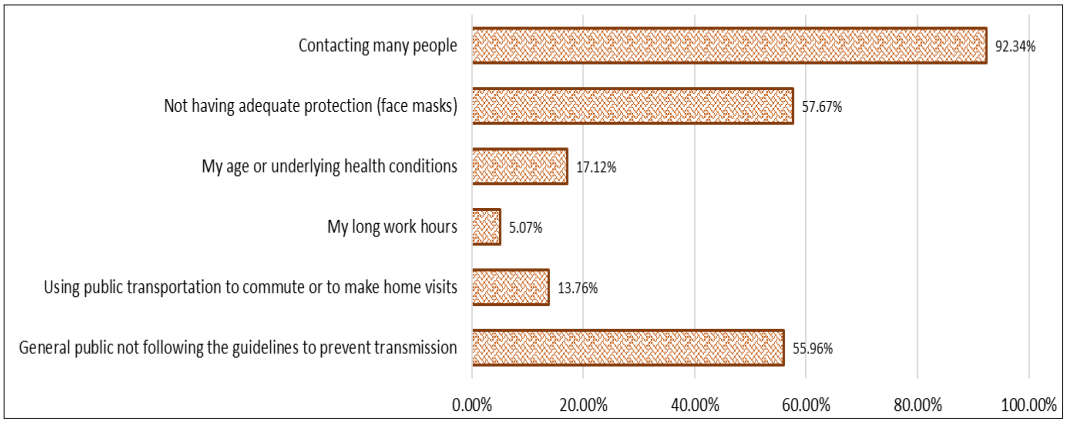
A majority (48 percent) of the VHWs felt they received some support required to properly perform their usual and COVID-19 related works. Around 33 percent felt they received the most support and about 19 percent reported receiving little support.

Table 3: Knowledge, perceived risk and stigma associated with COVID-19, and support needed to deliver community-based services

Measures	%
Proportion reported feeling confident about COVID-19 knowledge (n=60)	
Yes	92.17
No	7.83
Proportion of perceived risk of contracting COVID-19 at work (n=60)	
No risk	19.87
Slight	16.08
Moderate	36.61
High	15.99
Very high	11.44
Proportion reported feeling stigmatized by people in the community (n=60)	
Never	75.17
Sometimes	24.83
Often	0.00
Proportion reported receiving support needed to properly perform work services (n-60)	
Most support	32.90
Some	48.00
Little support	19.10

Figure 13 shows that contacting many people (92.3 percent) and not having adequate protection (57.7 percent), followed by poor adherence to prevention guidelines by the general public (66 percent) were the most common reasons thought to increase risk of contracting COVID-19 by the VHWs. They also reported having moderate to very high risk of contracting COVID-19 at work. One participant also reported potential risk of contracting COVID-19 at home from visitors.

Figure 13: Activities that are perceived to increase risk of contracting COVID-19 at work (n=39 or 64.05% from the samples of VHWs who perceived 'moderate' to 'very high' risk of contracting COVID-19 at work)



The most common support needed by VHWs to deliver services include training and information on COVID-19, personal protective equipment (PPEs), monetary incentives and support for transport and communication (Figure 14). Around 19 percent each of the respondents also highlighted the need for guidance from the health sector and community support.

Figure 14: Types of support needed that were not received (n=41 or 67.10% from the VHWs who reported to have received 'some' and 'little support' at work)

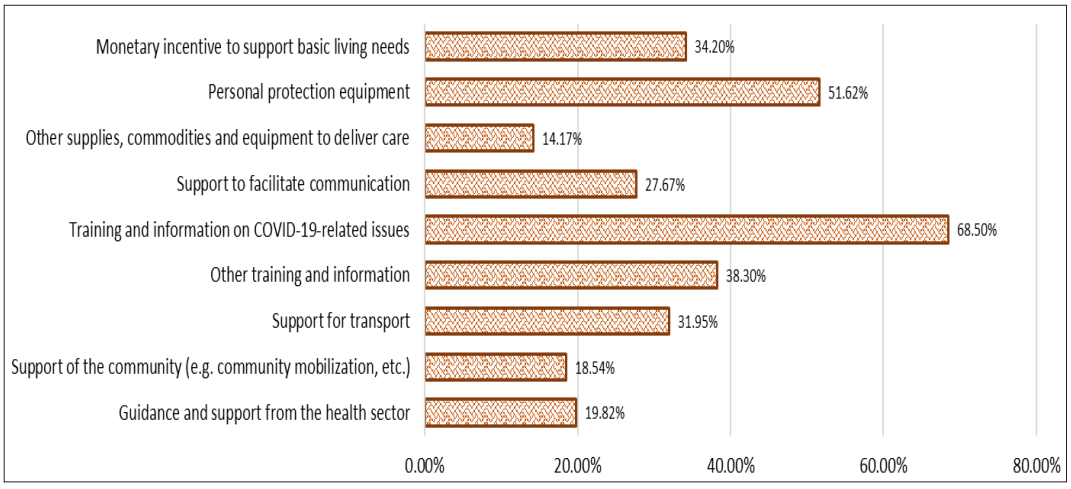
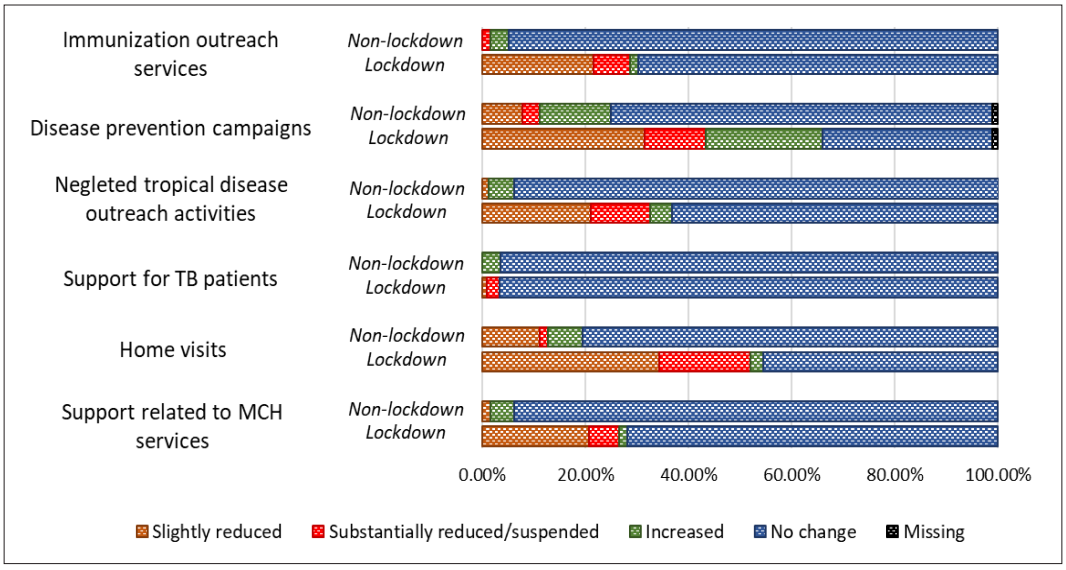


Figure 15: Changes in the provision of the health services during the non-lockdown and lockdown periods (n=60)



Besides support for people with TB, the provision of health services such as immunisation, disease prevention campaigns, home visits, neglected tropical disease (NTD) activities and MCH support services were reported to have slightly or substantially reduced during the lockdown periods than the non-lockdown ones (Figure 15).

Generally, the delivery of these services were reported to sustained during the non-lockdown period.

Continuity of essential health services

The findings related to the continuity of EHS from the facility assessment are presented in this section.

Health facilities and description

Of the total 71 health facilities included, 80 percentwere Primary Health Centres (PHCs), and 18 percent were district-level (≥10 beds) hospitals (Table 4).

A majority were located in rural areas (~86 percent), eastern region (~40 percent) and had in-patient services. The mean bed occupancy rate was 10.4 percent.

Around one-third of the facilities reported having dedicated 24-hour staffed emergency units and most (>94 percent) did not have intensive care or high-dependency units, and only eight had operating room/ theatre.

Table 4: Characteristics of the health facilities

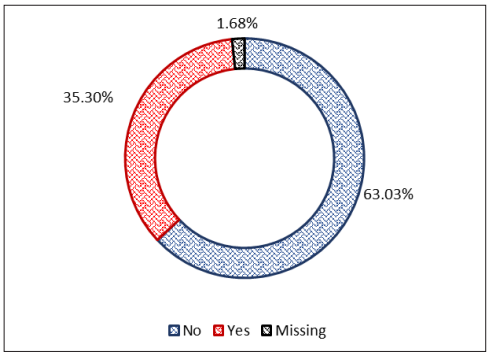
Characteristics	n=72	%
Type		
Primary health centre	55	80.09
District-level hospital	14	17.88
Referral hospital	3	2.02
Residential area		
Urban	13	14.50
Rural	59	85.50
Region and district		
Western	21	30.21
Central	23	30.21
Eastern	28	39.57
Facility with inpatient services		
No	7	9.91
Yes	65	90.09
Bed occupancy rate for the previous full month (n=60)		
Min; Max (in percentage)	0; 70	
Mean; SD (in percentage)	10.36; 15.05	
Facility with dedicated 24-hour staffed emergency unit		
No	55	78.77
Yes	16	19.80
Missing	1	1.43
Facility with intensive care or other high-dependency unit		
No	67	94.81
Yes	4	3.76
Missing	1	1.43
Facility with operation theatre/room		
No	63	90.24
Yes	8	8.33
Missing	1	1.43

Staffing

Of the 71 facilities reporting information on the number of health workers and facility staff, none of the facilities reported any health workers across different categories such as medical doctors, nursing personnel, technologists, health assistants, including administrative and support staff being diagnosed with COVID-19 (Supplementary Table S2).

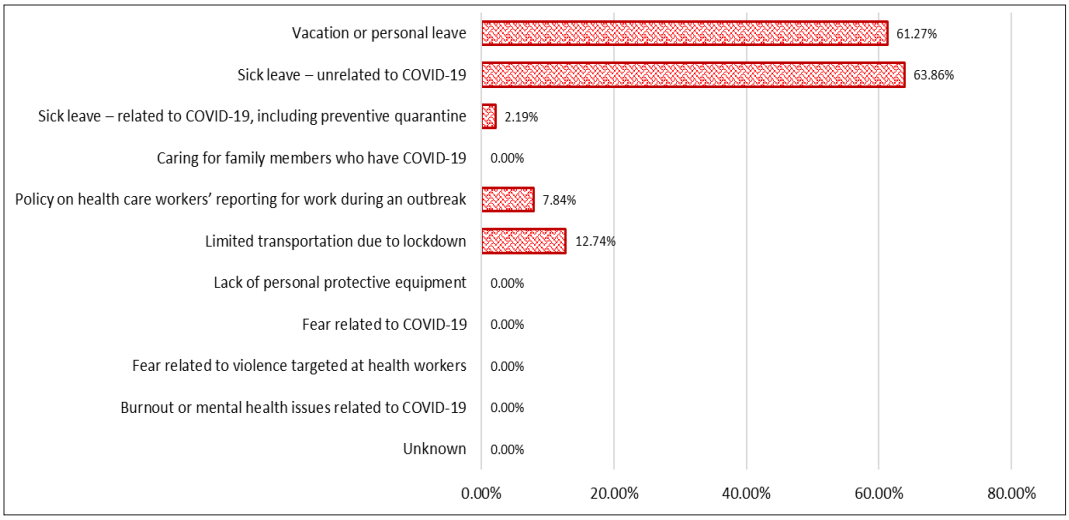
The facility from which the assessment could not collect staff information had two health workers diagnosed with COVID-19 (verbal communication by the Facility In-Charge). A majority, two-thirds, did not have any staff on leave or absent in the previous three months preceding the assessment (Figure 16).

Figure 16: Health facilities reporting any staff who had been on leave or absent (n=72)



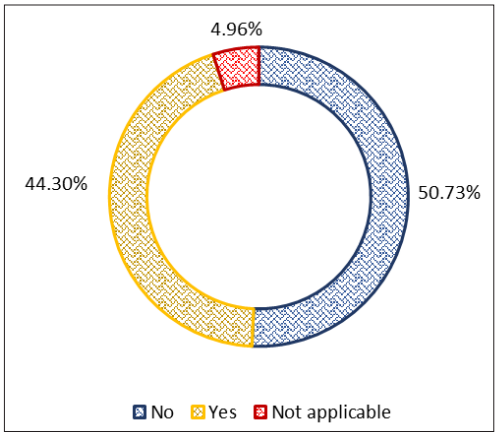
The most common reasons for staff taking leave were sick leave, unrelated to COVID-19 (63.9 percent), vacation or personal leave (61.3 percent) followed by limited transportation due to lockdown (12.7 percent) (Figure 17).

Figure 17: Reasons for staff taking leave or absence (n=28 or 35.30% from the total facilities reporting that any staff had been on leave or absent in the previous 3 months)



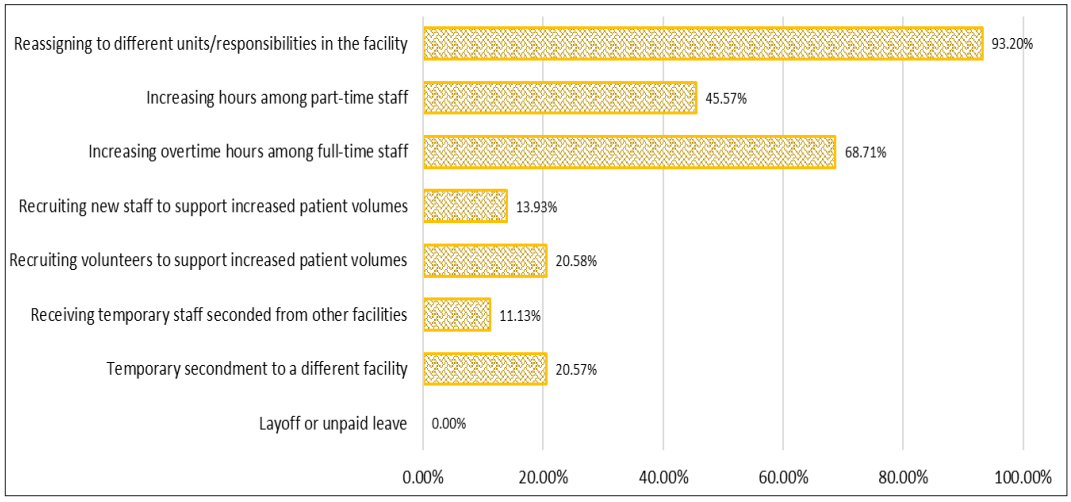
Around 44 percent of the health facilities reported making changes to how health workers were managed in the previous three months, specifically due to COVID-19, and around half reported not making any changes (Figure 18).

Figure 18: Health facilities making any changes to how health workers are managed in the previous 3 months because of COVID-19 (n=72)



The most common changes made were reassigning staff to different units or responsibilities in the facility (93 percent) and increasing over time among full-time (68.7 percent) and part-time staff (45.6 percent) (Figure 19). Recruiting volunteers and sending staff on temporary secondment to a different facility was also reported by 20 percent in each of the facility.

Figure 19: Changes made by health facilities in managing health workers (n=31 or 44.30% from the total facilities reporting making changes in the previous 3 months because of COVID-19)
**Part-time staff: These mainly include staff recruited temporarily.*



More than 93 percent of the facilities reported receiving training and/or support related to COVID-19 (Figure 20).

Figure 20: Health facilities reporting any staff in the facility received training or support related to COVID-19 (n=72)

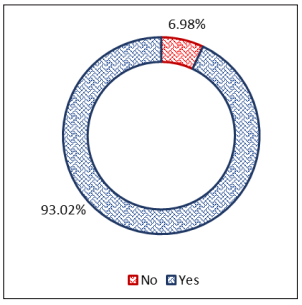
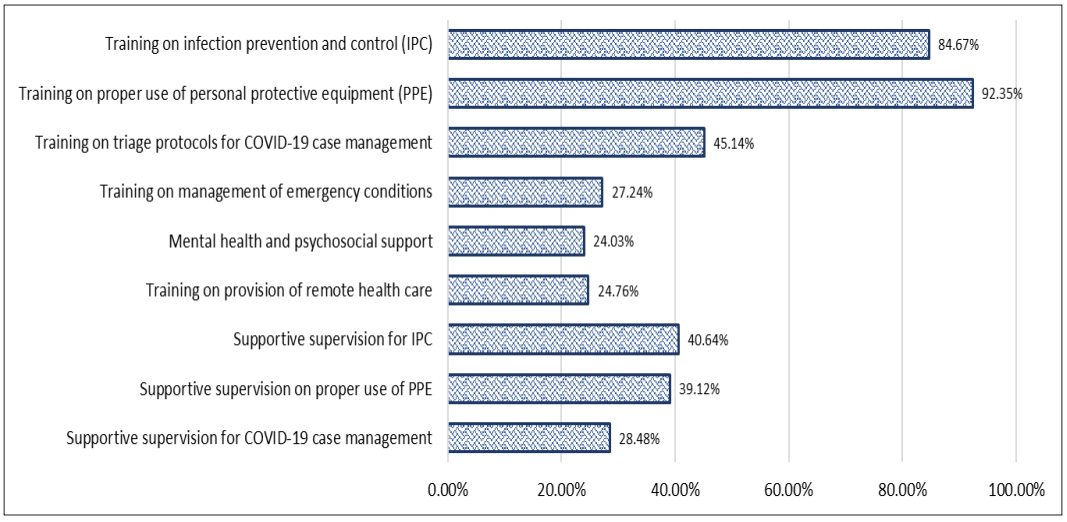


Figure 21 depicts that training on proper use of PPEs (92.4 percent), IPC (84.7 percent), triage protocols for COVID-19 case management (45.1 percent) and supportive supervisions on IPC (40.6 percent) and PPEs (39.1 percent) were the most common training and support received by facilities.

Figure 21: Type of training or support related to COVID-19 received (n=67 or 93.02% from the total facilities reporting any staff in the facility received training or support related to COVID-19)



Health financing

Although a majority, 63.4 percent, did not face any difficulties in delivering EHS due to inadequate and/or lack of funding, around a third (29.5 percent) reported facing such difficulties (Table 5).

A large proportion (85 percent) did not receive any additional funding to ensure the maintenance of EHS. Around two-third (62 percent) reported that the health personnel worked overtime in the previous month and, of these, none reported receiving overtime payment (Table 5).

Table 5: Availability and receipt of funding support and overtime work

Health financing measures	N	%
Proportion reporting difficulties in delivering essential services due to inadequate and/or lack of fund		
Yes	24	29.52
No	42	63.64
Don't know	6	6.84
Proportion receiving additional funding to ensure the maintenance of EHS		
Yes for COVID-19	4	5.92
Yes for other services	2	2.22
Yes for both COVID-19 and other services	1	1.03
No	59	85.07
Don't know	6	5.76
Proportion reporting any personnel worked overtime in the previous 3 months		
Yes	45	61.91
No	27	38.09
Proportion reporting health workers received overtime payments		
Yes	0	0.0
No	28	65.21
Not applicable	16	34.79

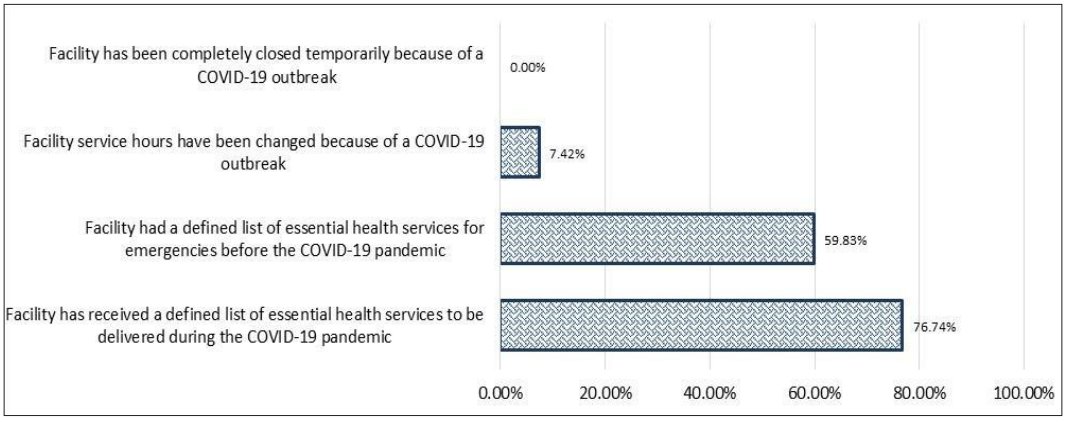
Service delivery and utilization

All facilities reported to have remained open during COVID-19 outbreak (Figure 22). The facility service hours were changed only in around seven percent of the total facilities because of the COVID-19 outbreak.

A similar trend was observed for these two measures when assessed by region and two southern districts (Supplementary Table S3).

More than three-fourth of the facilities reported receiving a defined list of EHS to be delivered during the pandemic and nearly 60 percent reported having a defined list of EHS for emergencies before the pandemic.

Figure 22: Health service delivery during the COVID-19 pandemic and availability of EHS list



Except for giving priority to high-risk patients, providing all care in a single visit, supporting self-care interventions and home-based care, no considerable changes to other services – reducing the scope and volume of services, suspending services, shifting consultation to digital platforms, using alternative dispensing approaches for medicines – were made during the non-lockdown periods (Figure 23).

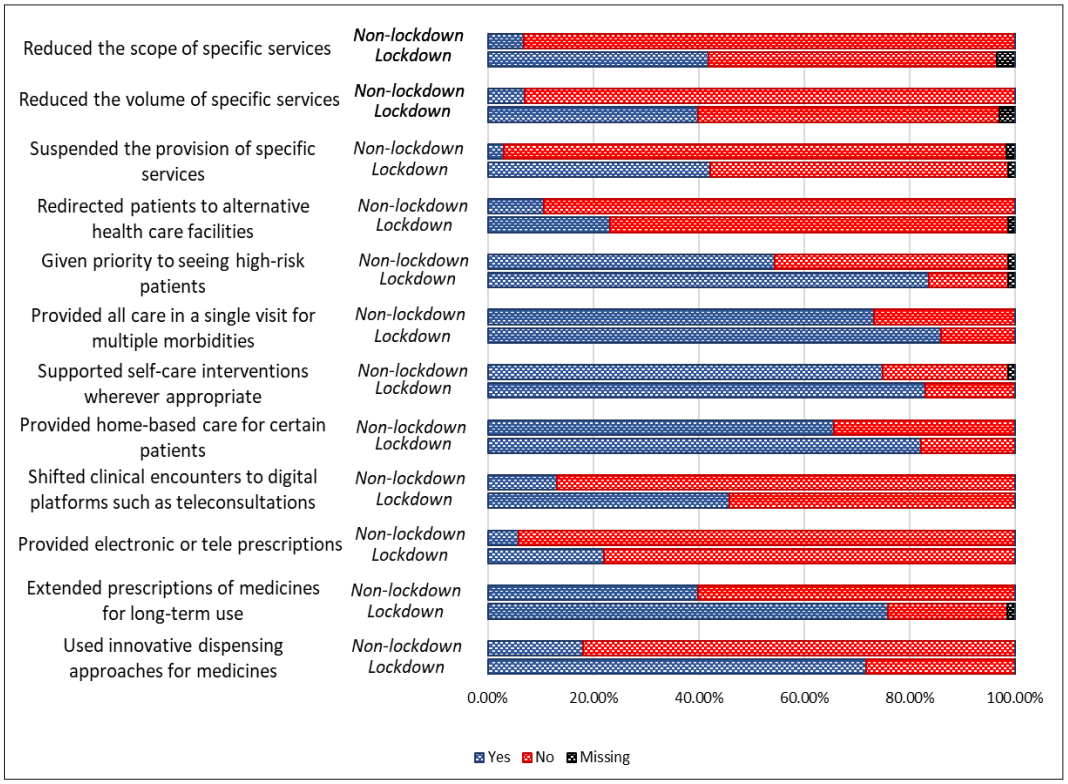
A greater proportion of facilities reported to have adopted these later approaches during the lockdown periods.

Changes made to almost all of the service delivery approaches irrelevant to COVID-19 were greater and/or increased during the lockdown periods compared to non-lock down ones.

The proportion of facilities reporting making most changes in service delivery during lockdown was greater in the central region, among the district-level and higher-level hospitals(Supplementary Table S4 a-b).

The proportion of few changes made, such as reduction in scope and volume of services and suspension of services, was greater among facilities in the two southern districts (Supplementary Table S4 c).

Figure 23: Changes made in health service delivery that are not related to COVID-19 during the lockdown and non-lockdown periods (n=72)

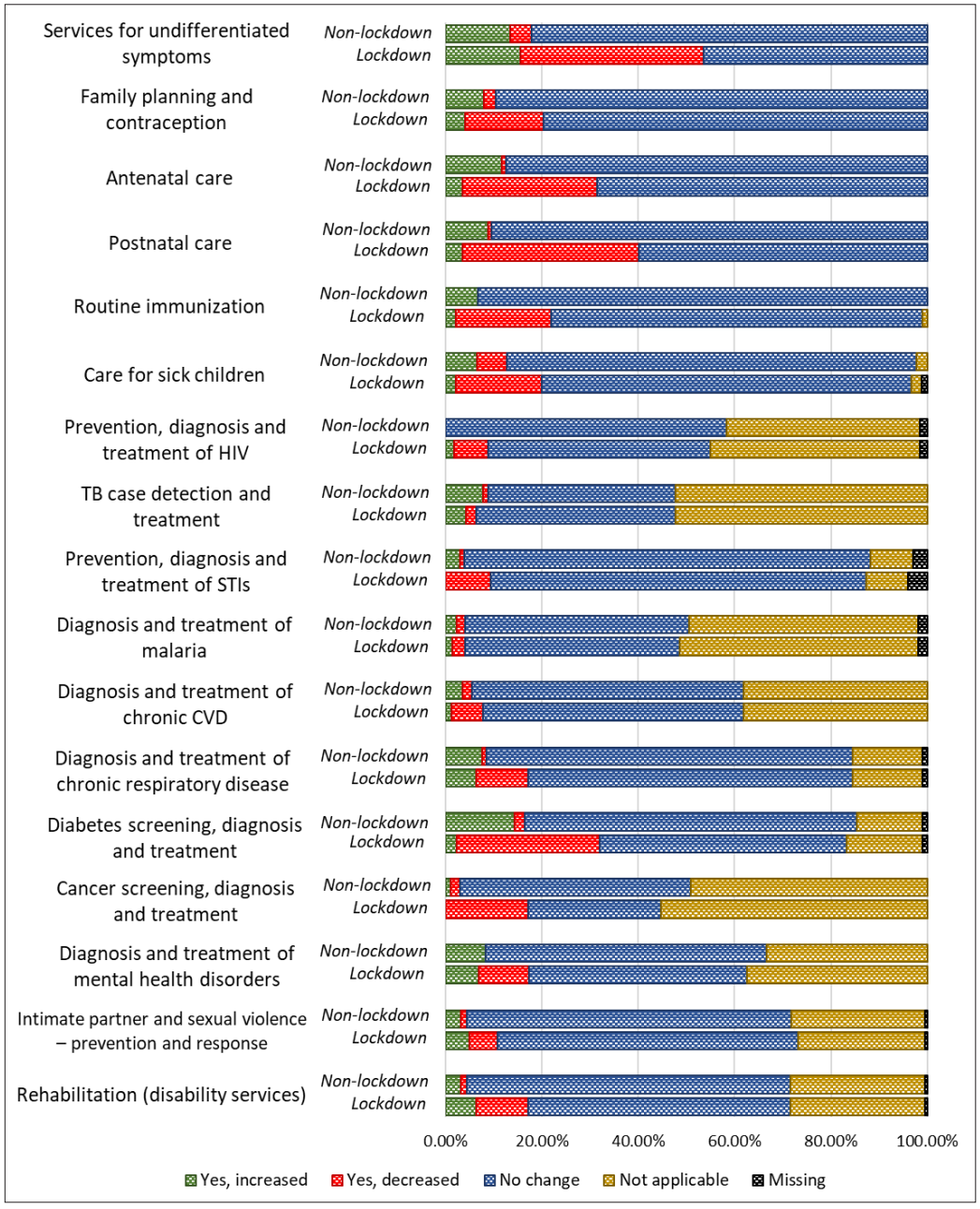


Although there appears to be no major changes in outpatient attendance across visits for all services both during the lockdown and non-lockdown periods, attendance for some services were reported to have decreased during the lockdown than the non-lock down period.

Services such as diabetes and cancer screening and treatment, PNC and ANC, services for undifferentiated symptoms, family planning and contraception, routine immunisation and care for sick children were reportedly the ones (Figure 24). The proportion reporting attendance due to service for undifferentiated symptoms and intimate partner and sexual violence was higher during the lockdown periods.

There was also a high proportion of facilities reporting some outpatient services such as for cancer, CVDs, HIV, TB and mental health to be unapplicable. Many of these services are not available at the PHC level.

Figure 24: Changes in outpatient attendance during the lockdown and non-lockdown periods (n=72)



Although a similar pattern was observed when assessed by facility-type in the two southern districts of Chukha and Sarpang, much of the changes in the outpatient attendance for these services were reported by district-level hospitals followed by referral hospitals, with more services seeing a decrease during the lockdown and increase during the non-lockdown periods (Supplementary Table S5 a-c).

Figure 25: Reasons for increase in outpatient attendance (n=32 or 41.13% from the total facilities that reported increase in attendance during the lockdown and/or non-lockdown periods)

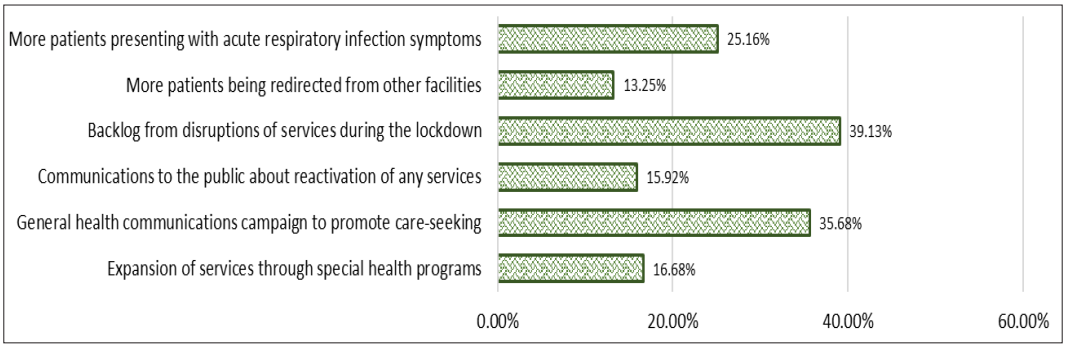
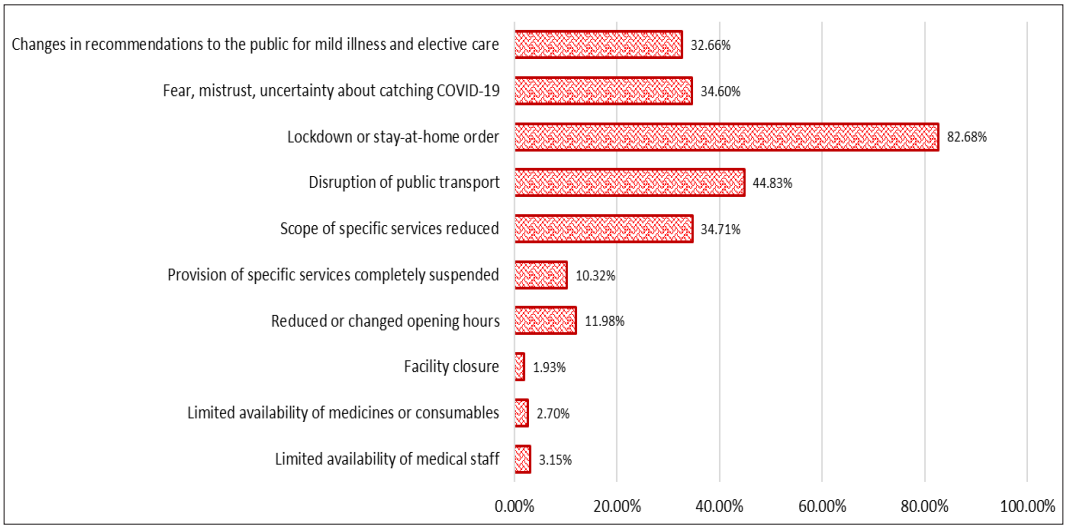


Figure 26: Reasons for decrease in outpatient visits (n=46 or 62.07% from the total facilities that reported decrease in attendance during the lockdown and/or non-lockdown periods)



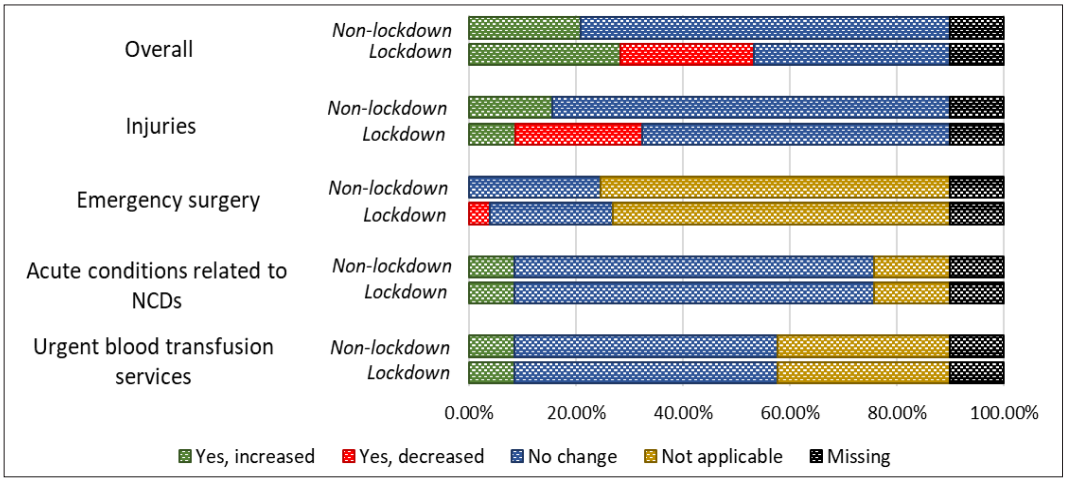
Of the facilities reporting increase in outpatient attendance (n=32), the most common reasons for it were backlog from disruption of services during the lockdown (39.1 percent), general health communication campaign to promote care-seeking (35.7 percent), and more patients presenting with respiratory symptoms (25.2 percent) (Figure 25).

Whereas, among facilities reporting decrease in attendance (n=46), the most common reasons for it were lockdown or stay home order (82.7 percent), disruption in public transport (44.8 percent), reduction in the scope of services (34.7 percent), fear, mistrust, uncertainty about catching

COVID-19 (34.6 percent) and changes in recommendations to public for mild illnesses and elective care (32.7 percent) (Figure 26).

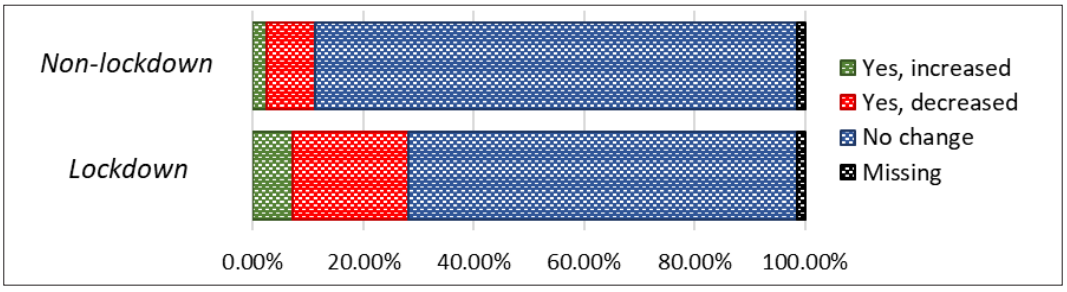
In terms of non-COVID-19-related emergency unit visits, generally, a majority of the facilities reported no changes in visits. However, visits due to injuries and overall reasons were reported to have decreased, while visits due to overall reasons were reported to have increased during the lockdown than non-lockdown periods (Figure 27).

Figure 27: Changes in emergency unit visits for non-COVID-19-related issues (n=16 or 19.80% from the total facilities that reported having dedicated 24-hour staffed emergency unit)



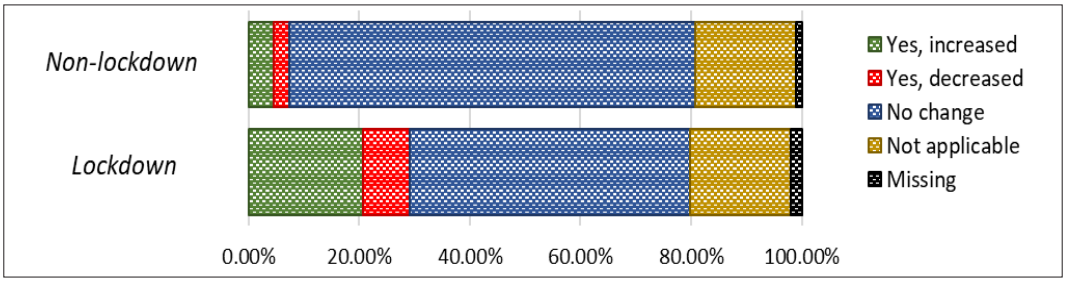
Similarly, although there were no substantial changes in terms of inpatient admission, the proportion of facilities reporting decrease in inpatient admissions was greater during the lockdown periods than the non-lockdown ones (Figure 28). A similar pattern was observed when assessed by facility type, region and two southern districts (Supplementary Table S6 a-c).

Figure 28: Changes in inpatient admissions (n=65 or 90.09% from the total facilities with inpatient services)



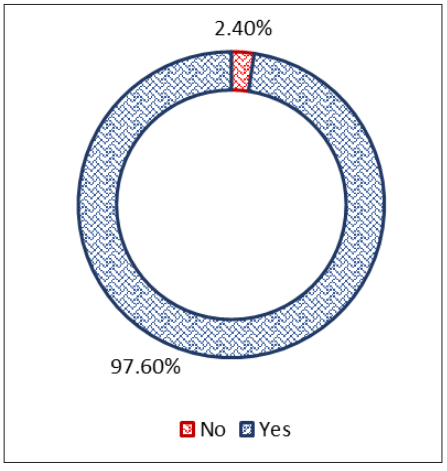
For prehospital emergency care services, a higher proportion of facilities reported no change in numbers seeking the services both during the lockdown and non-lockdown periods. The proportion reporting that number increased was greater during lockdown period than non-lockdown periods (Figure 29).

Figure 29: Changes in the number of prehospital emergency care services (n=72)



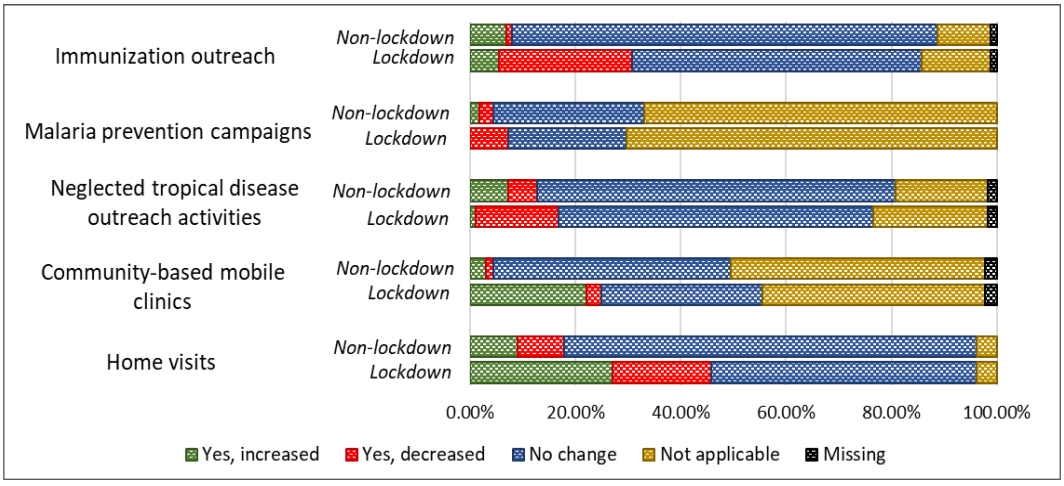
Almost all facilities (98 percent) provided community outreach or home-visit services (Figure 30).

Figure 30: Facility providing community outreach or home-visit services (n=72)



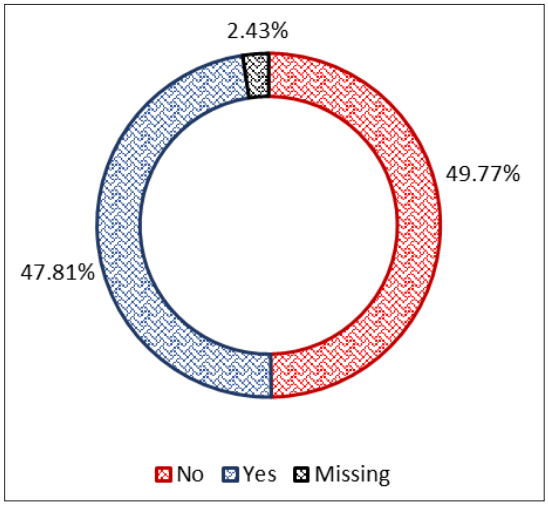
A majority of the facilities reported no changes in immunisation, prevention campaigns, NTD, community-based mobile clinics and home visit outreach activities both during the lockdown and non-lockdown periods (Figure 31). The proportion of facilities reporting decrease in these services was greater during the lockdown period compared to the non-lockdown period and the proportion of facilities reporting that home visits and community-based mobile services increased was greater during lockdown than the non-lockdown periods.

Figure 31: Changes in the delivery of outreach services (n=70 or 97.60% from the total facilities that reported providing community outreach services)



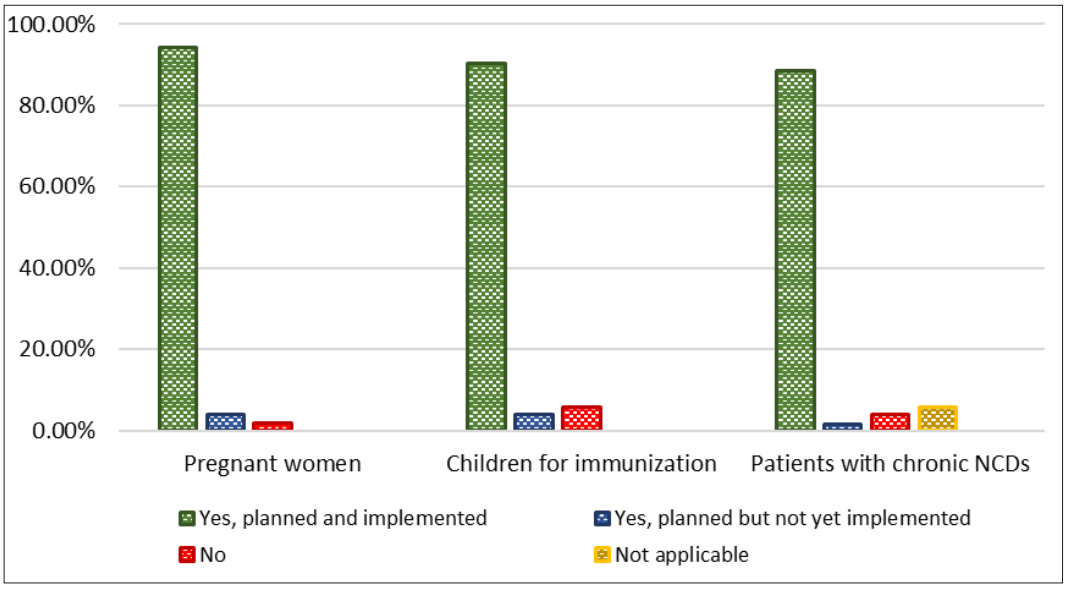
Around half the facilities reported they did not make plans to deliver services for those who missed routine appointments not related to COVID-19 in the previous three-four months (Figure 32).

Figure 32: Facility developing plans to deliver services for patients who missed routine appointments that are unrelated to COVID-19 (n=72)



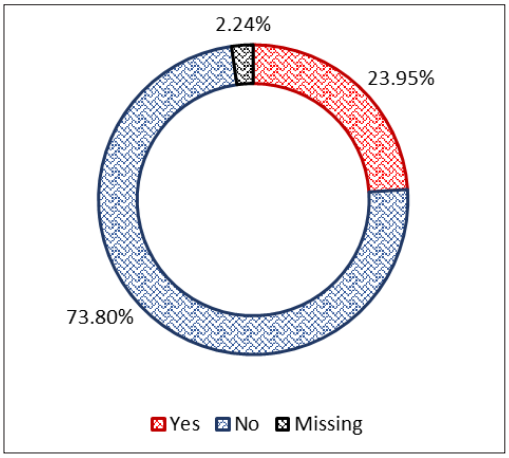
Almost all facilities that registered patients missing appointments developed plans and/or implemented targeted catch-up plans to immunise pregnant women and patients with chronic diseases (Figure 33).

Figure 33: Status of targeted catch-up plans made by facilities (n=34)



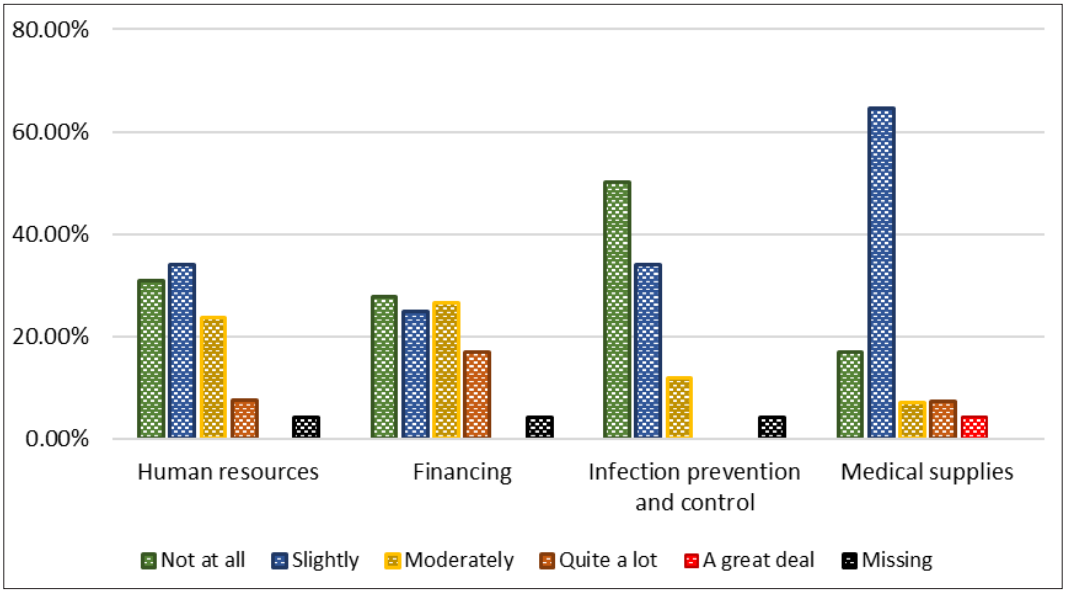
Of the total facilities, around a quarter (24 percent) reported experiencing disruption in the services provided in the previous three-four months (Figure 34). A greater proportion of the facilities in the central region (30 percent) faced disruption compared with the eastern (25 percent) and western regions (17 percent).Likewise, more district-level facilities (39.15 percent) faced disruptions than PHCs (20.2 percent) (Supplementary Table S3 a-b). A greater proportion of facilities in the two southern districts (28.6 percent) also faced disruptions than the total facilities included (Supplementary Table S3 c).

Figure 34: Facility experiencing any disruption of the services provided (n=72)



A greater proportion of facilities reported that financing and human resources contributed "moderately" to "a great deal" to the disruption of services (Figure 35).

Figure 35: Issues that contributed to the disruption experienced by facilities (n=18 or 23.95% from the total facilities that reported disruption of the services)



Trend of Key Health Indicators

Trends in morbidity

Total Out Patient Department (OPD) cases seen in the health facilities across the country dropped by 21.8 percent. This indicates a decrease in number of people who turned up for health services after the COVID-19 outbreak across the affected health facilities in the country.

The decrease in the number of cases could be due to closure of certain Out-Patient Department (OPD) services during lockdown.

A univariate analysis was performed using non-parametric signed-rank sum paired tests between the two years (2019 and 2020) to test for significant statistical (evidence against the null hypothesis of no difference) decrease in the monthly morbidity case volume in 2020 (Covid-19 pandemic period) as compared with 2019 (the same period before Covid-19 pandemic)(p-value: <0.001, Figure 36).

Total number of Inpatient Department (IPD) cases dropped by

10.67 percent in 2020 as compared with 2019. However, the overall IPD cases at national level increased by 4.93 percent in 2021 as compared with 2020, possibly indicating a return to the usual trend (Figure 37).

The trends are similar across regions of the country for IPD as well as OPD cases.

Figure 36: The trend in OPD cases seen across health facilities in Bhutan (Annual Health Bulletin, 2022)

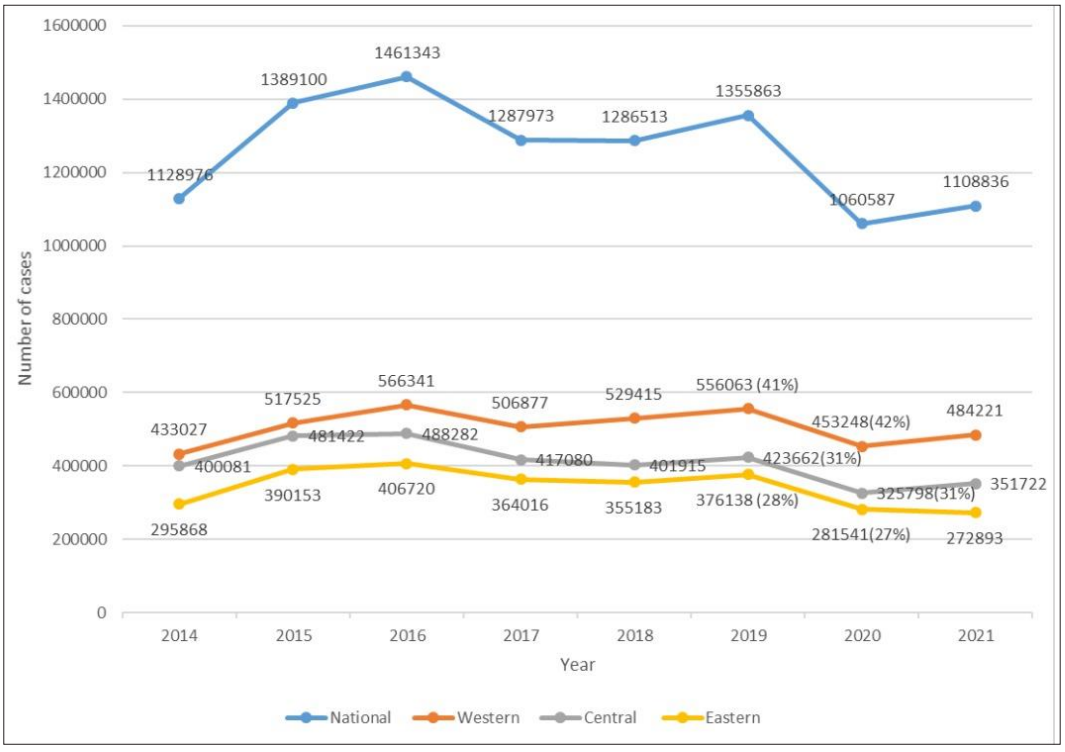
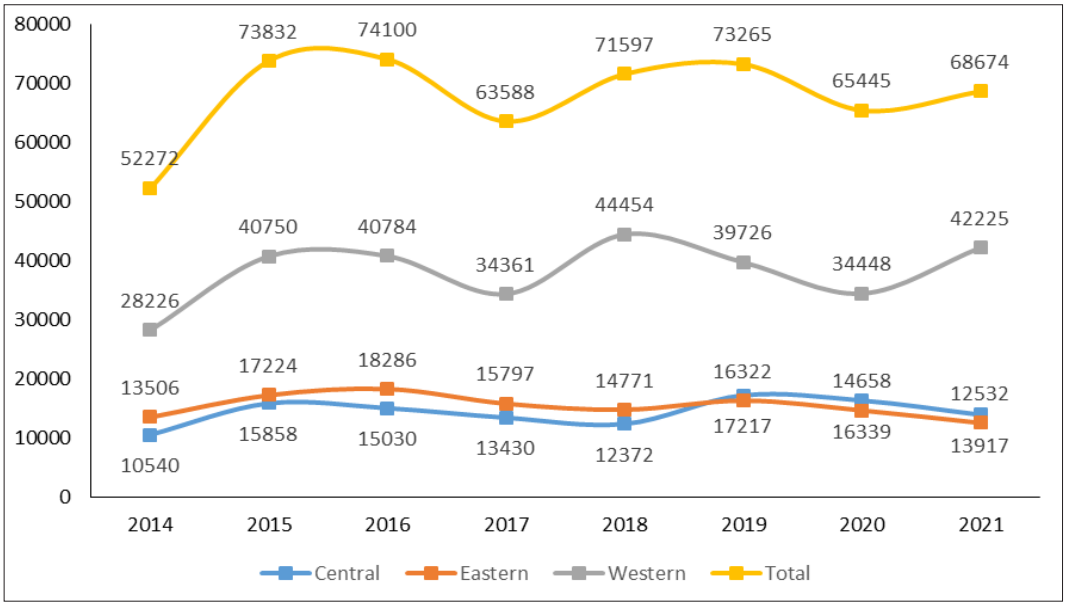


Figure 37: Trend in IPD cases by regions of Bhutan (Annual Health Bulletin, 2022)



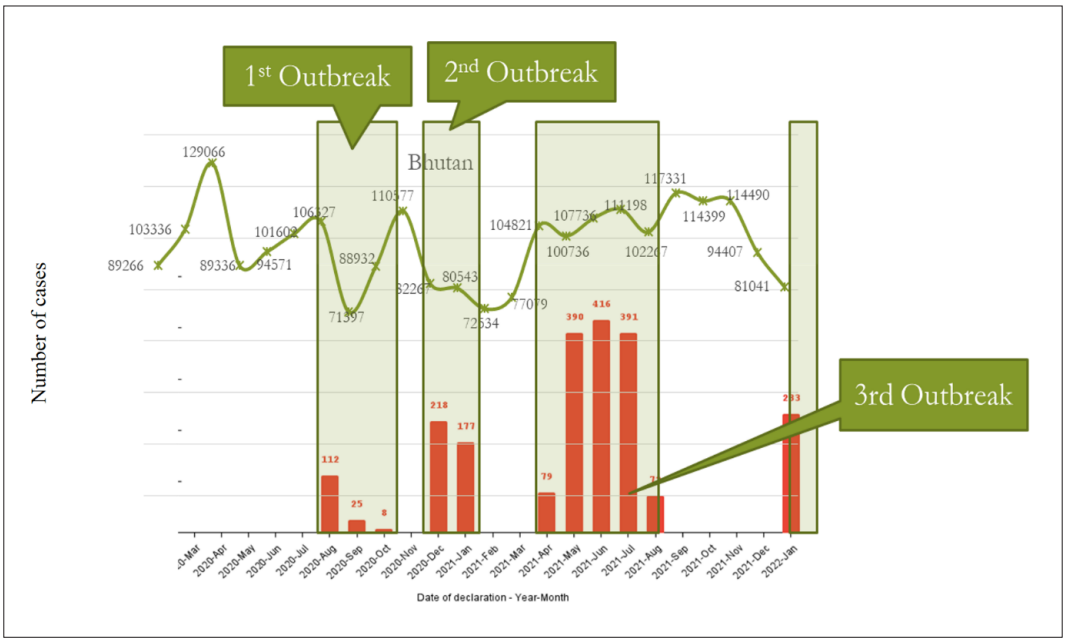
OPD cases during community COVID-19 outbreak

Data presented in figure 38 shows that the number of cases dropped during the COVID-19 outbreaks in the community.

During the first outbreak, the total number of cases declined by 32.7 percent as compared with the previous month and during the second outbreak it declined by 25.45 percent as compared with the previous month.

There was a sudden and drastic increase in the number of cases at the end of the first community outbreak but an increase of similar scale and magnitude were not seen in the second and third outbreaks.

Figure 38: Trend in morbidity cases seen in health facilities of Bhutan and a series of COVID-19 outbreak in the country

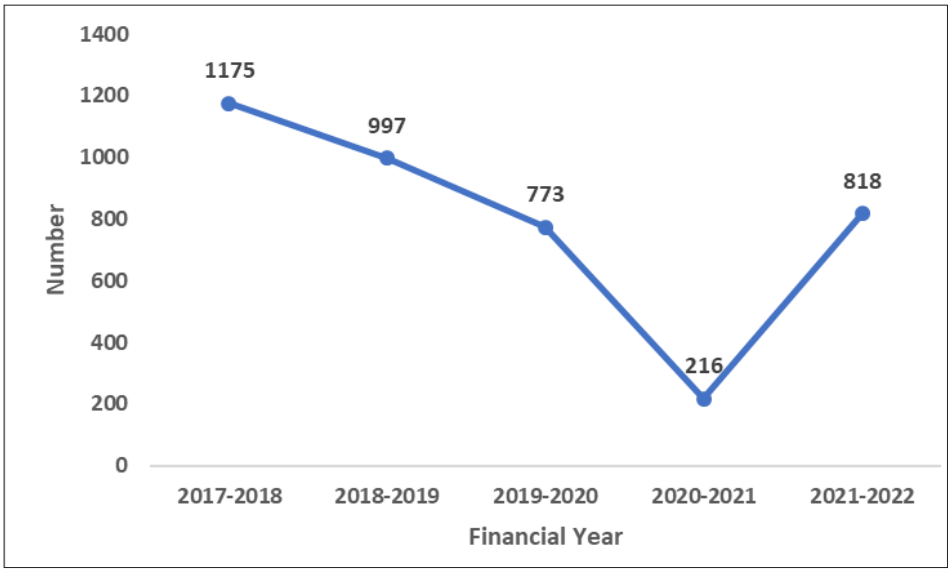


Ex-country referrals

The pandemic heavily affected flight schedules and international travels disrupting regular flights to India. Bubble flights were arranged where possible for emergency referrals. Where flights could not be arranged, referrals to Guwahati were managed by road.

There was a significant reduction in number of ex-country referrals during the pandemic period (figure 39). Data, JDWNRH in coordination with the Ministry of Health and Ministry of Foreign Affairs facilitated, show the repatriation of patients who completed the discharge from various hospitals in India.

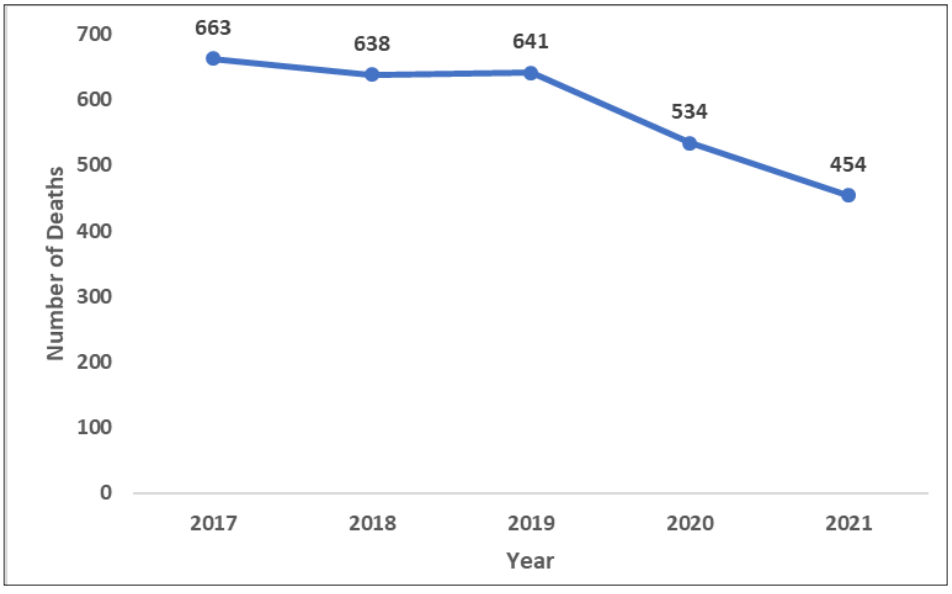
Figure 39: Ex-country patient referrals



Total number of deaths at the JDW National Referral Hospital

Data on total number of deaths at the Jigme Dorji Wangchuck National Referral Hospital was collected to assess if the pandemic increased the number of deaths. Data shows a declining trend in total number of deaths at the National Referral Hospital.

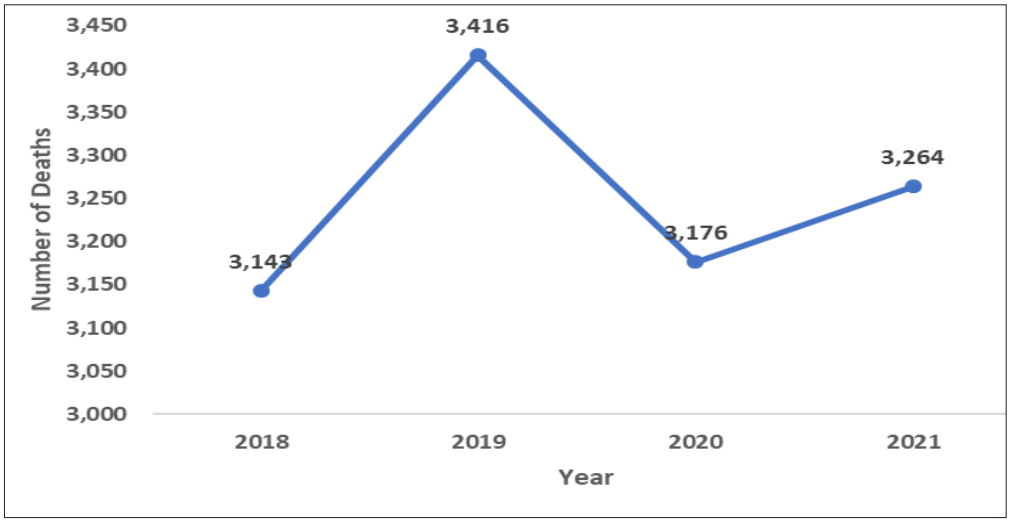
Figure 40: Total number of deaths at the National Referral Hospital (Data Source: Medical Records, JDWNRH)



Rural Life Insurance Claims

Total number of rural life insurance claims correspond to the total number of deaths in the country. Data was requested from Royal Insurance Corporation of Bhutan Limited (RICBL) to understand the mortality pattern in the country in the wake of pandemic. Data shows that total mortality in the country was unaffected by the pandemic.

Figure 41: Total number of rural life insurance claims in the country (Data Source: RICBL)



Routine vaccine coverage

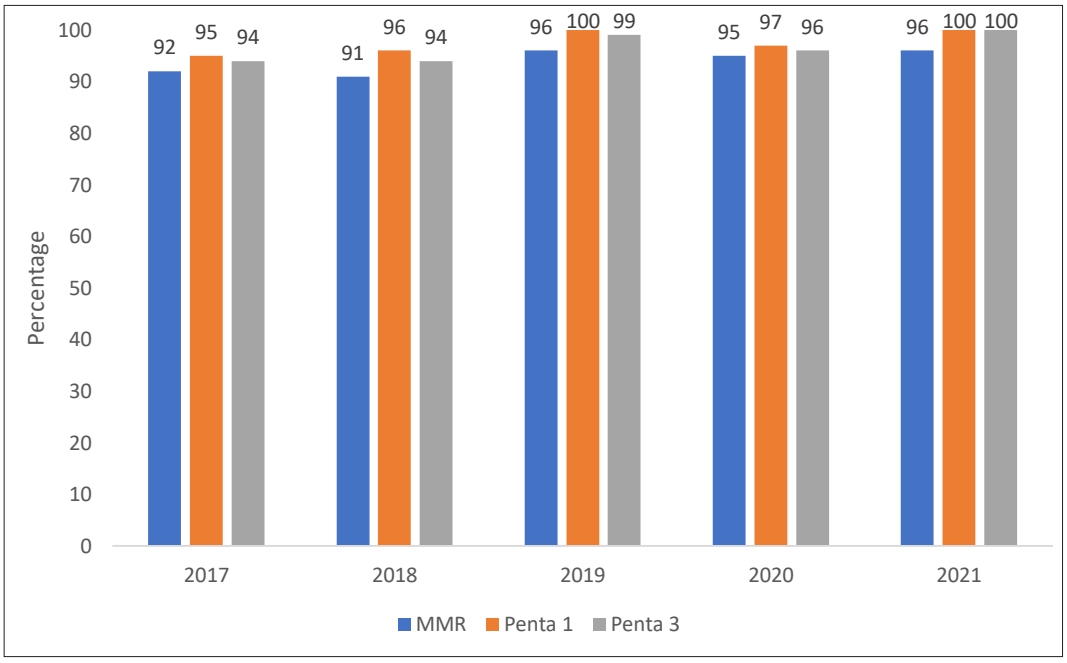
Improving vaccination coverage is a multifactorial effort that requires keen insights and oversight of both the target population and health system. Vaccine coverage is routinely used as a performance indicator for immunization programs both at local and global levels. Data maintained with DHIS2 for routine immunisation programs shows an impressive coverage despite the pandemic and lockdown is 2020 and 2021 as presented in figure 40.

Despite the high coverage, sustaining high immunisation coverage (over 95 percent) was a huge challenge as most health professionals were focused on COVID-19 pandemic response.

Best Practices

- Mobile medical clinics to provide basic services helped sustain high immunisation coverage.
- Mothers were allowed to visit health facilities for immunisation and other MCH services even during lockdowns.

Figure 42: Routine vaccines coverage



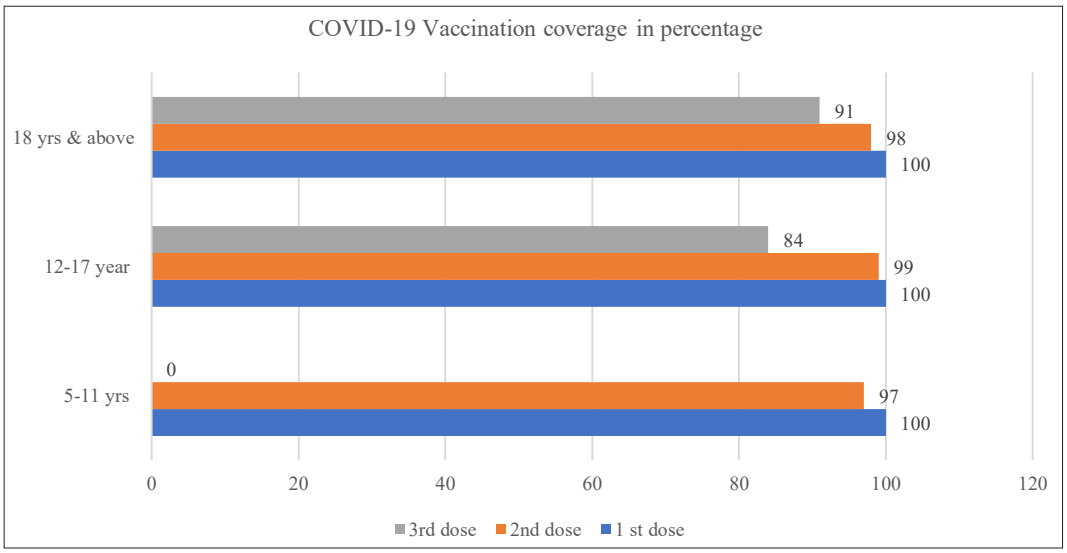
COVID-19 Vaccination

Bhutan gained the global limelight for COVID-19 response, including the vaccine coverage. COVID-19 vaccinations were provided to the population in a campaign mode after conducting religious rituals and beginning on an auspicious day. Data maintained with the Bhutan Vaccine System (BVS) shows an impressive vaccine coverage for various doses and age groups as presented in figure 41.

Best practices

- Bhutan Vaccine System, an online platform was developed extensively for registration and monitoring of COVID-19 vaccination.
- Vaccination centres were established at various locations to ensure accessibility.
- Door-to-door services were provided for physically-challenged individuals.

Figure 43: Coverage of COVID-19 Vaccine



Reproductive, Maternal and Newborn Health Services

COVID-19 pandemic disrupted many essential health services, including the Reproductive, Maternal and Newborn Health Services due to lockdowns and travel restrictions.

In 2020, Operational Guideline for continuity of Reproductive, Maternal, Newborn, Child Health (RMNCH) and Nutrition Services during COVID-19 Pandemic was developed.

It highlighted RMNCH service delivery mode during lockdowns and travel restrictions. Health care providers across the country were trained on this guideline over online platforms.

Although there was no major disruption to RMNH services in the country, slight variation in service uptake was noted across some indicators as shown in figure 42 and 43.

Figure 44: Trends in MCH services in Bhutan

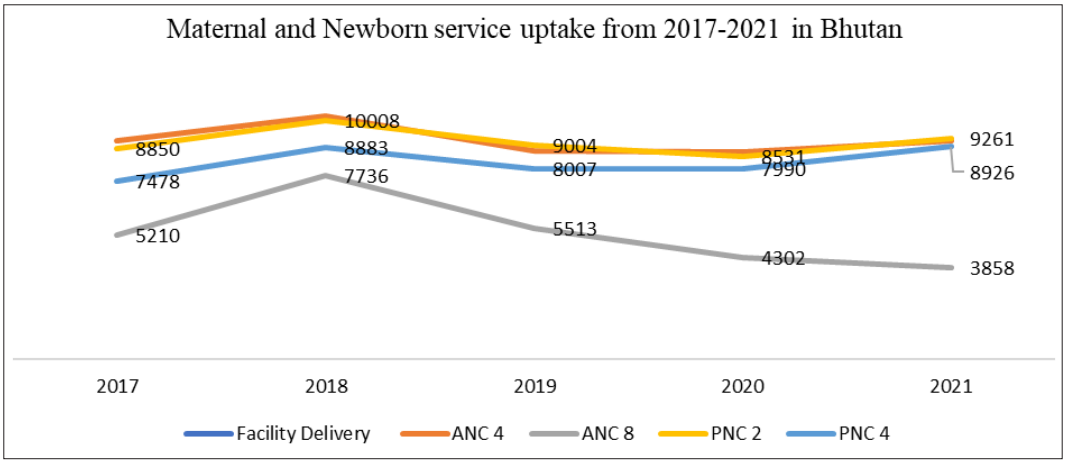
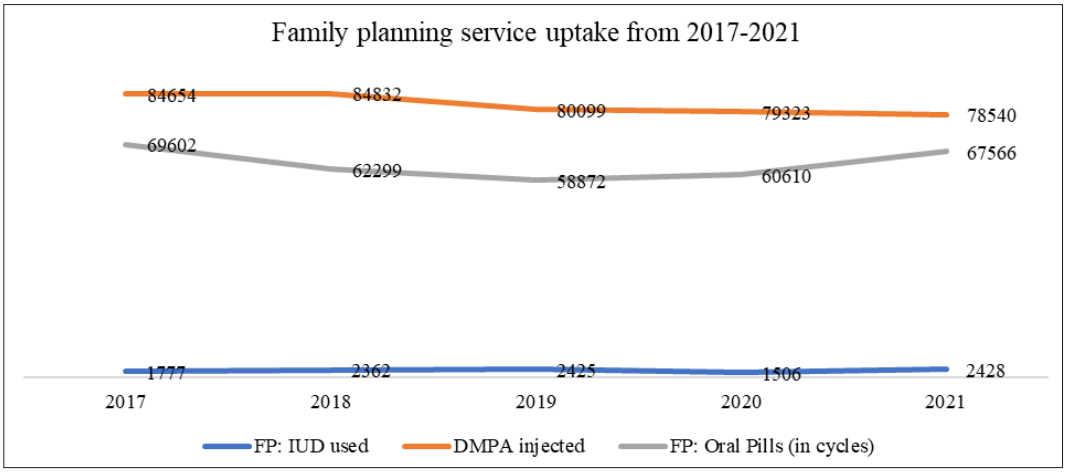


Figure 45: Uptake of family planning services



Chemotherapy Services

Chemotherapy services are available only at the National Referral Hospital. Currently, on an average, seven to 10 patients receive chemotherapy service daily. Total number of new cases increased notably from 193 in 2018 to 255 in 2022, but decreased slightly to 245 in 2021 (Figure 44). Similarly, total chemotherapy service provided increased from 1,478 in 2018 to 3,240 in 2022 but decreased to 2,576 in 2021.

Uninterrupted chemotherapy treatment was provided even during lockdowns. Patients were line-listed

along with their appointment dates, called on the day and followed up on. Ministry of Health and respective districts arranged travel permissions.

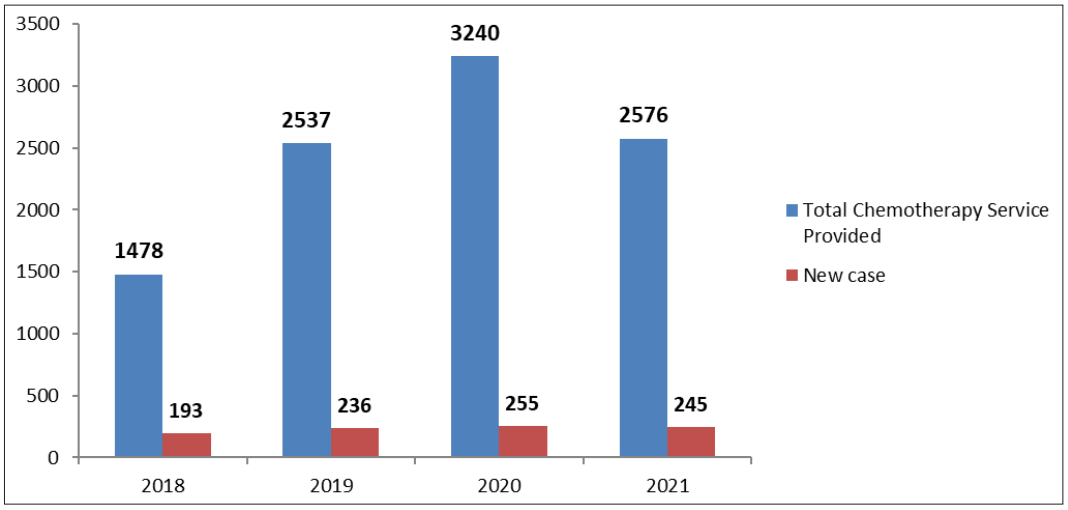
Relevant Civil Society Organizations (CSO) working to support cancer patients, volunteered to work with the oncology ward during the first nationwide lockdown.

The primary task was to assist oncology staff during OPD sessions and help nurses with patient care at the oncology ward. CSO's also volunteered to pick up and drop cancer patients for their chemotherapy treatment and also helped them with ration and medical refills

Best Practices

- All patients were line-listed along with their appointment dates and personal details like contact numbers and addresses.
- Travel permit was arranged for patients by health facilities/ MoH even during lockdowns.
- Transportation was arranged by respective districts/gewogs/ relevant CSO's in coordination with MOH.

Figure 46: Chemotherapy service provided and total patient registered for the service



Dialysis services

Dialysis is a life-saving procedure to remove waste products and excess fluid from blood when kidneys stop working properly. In Bhutan, dialysis services are provided at five centres of JDW National Referral Hospital, Central Regional Referral Hospital, Eastern Regional Referral Hospital, Wangdue Hospital and Phuentsholing Hospital.

Until 2019, the services were available only at three referral hospitals. Wangduephodrang and Phuentsholing Hospitals began providing the service with the intent of taking the services closer to the people in the wake of the pandemic.

Dialysis services were provided uninterrupted during the pandemic, including lockdowns. Patients were line-listed along with their appointment dates, telephonically informed about it and followed up. The Ministry of Health and respective districts arranged travel permissions.

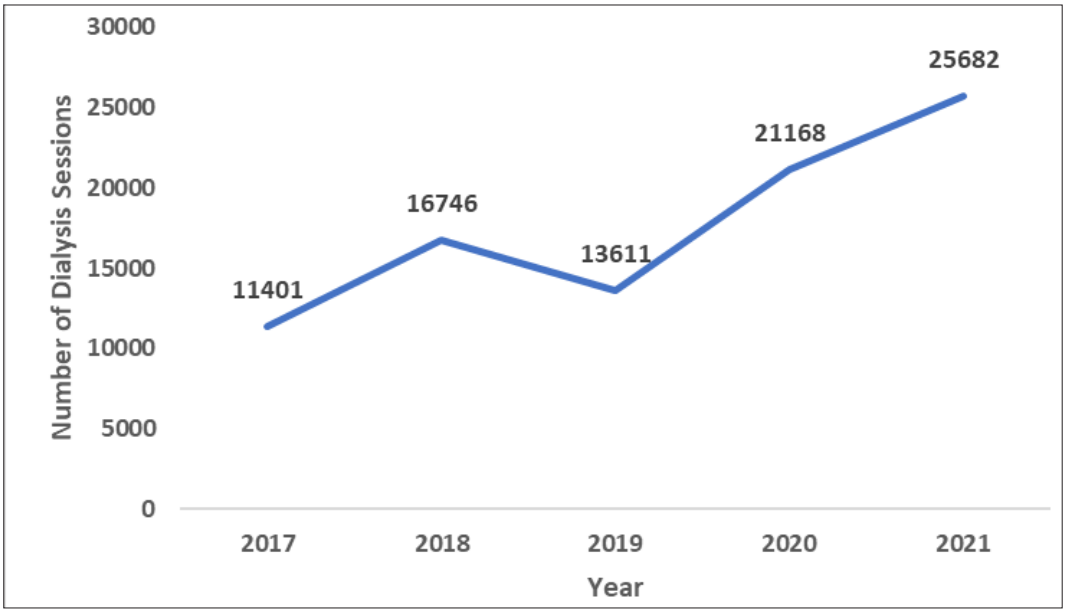
Relevant Civil Society Organizations (CSO) working for kidney-related diseases and supporting the wellbeing of kidney patients in the country complemented the Ministry of Health's efforts in providing uninterrupted services for dialysis patients.

Bhutan Kidney Foundation supported patients with essentials to economically disadvantaged patients, arranged transportation and supported travel expenses. The foundation also facilitated delivery of medicines at patients' doorsteps.

Best Practices

- All patients were line-listed along with their appointment dates and personal details like contact numbers and addresses.
- Travel permit was arranged for patients by health facilities/ MoH even during lockdowns.
- Transportation was arranged by respective districts/gewogs/ relevant CSO's in coordination with MoH.

Figure 47: Number of dialysis sessions by years



Mental Health

Determinants for mental health are multi-dimensional as it is influenced by social factors, economic reasons, genetic factors, working environment, health status and family environment. Grounded on this view and in view of the growing mental health problems, it calls for collaborative efforts from all stakeholders sharing a common goal to enhance mental wellbeing of the people.

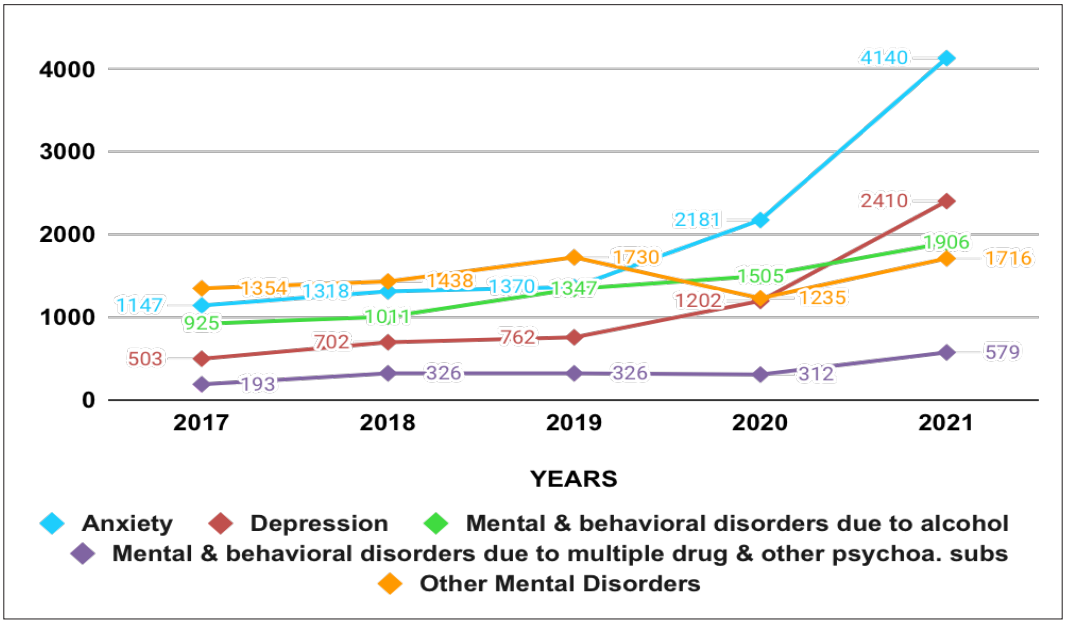
Currently, based on the mandates, there are numerous ongoing efforts from different stakeholders to support and promote mental health and wellbeing. However, explicit and coordinated response needs to be strengthened. There are opportunities to build on and re-orient our efforts to strengthen commitments to deliver timely, reliable and effective interventions.

To ensure accessible mental health care, mental health services are integrated into primary healthcare centres and general hospitals. This will ensure meeting both mental health and physical health needs of patients.

Considering the emerging mental health issues and needs of vulnerable groups, system should be responsive and resilient to emerging challenges.

Provision of mental health services are incorporated in the National Health Policy (Policy statement in Annexure I). Accordingly, National Mental Health Strategy (2015-2023) has been developed to strengthen services and prevent disorders through appropriate and evidence-based interventions.

Figure 48: Mental Health Situation in Bhutan



Domestic violence

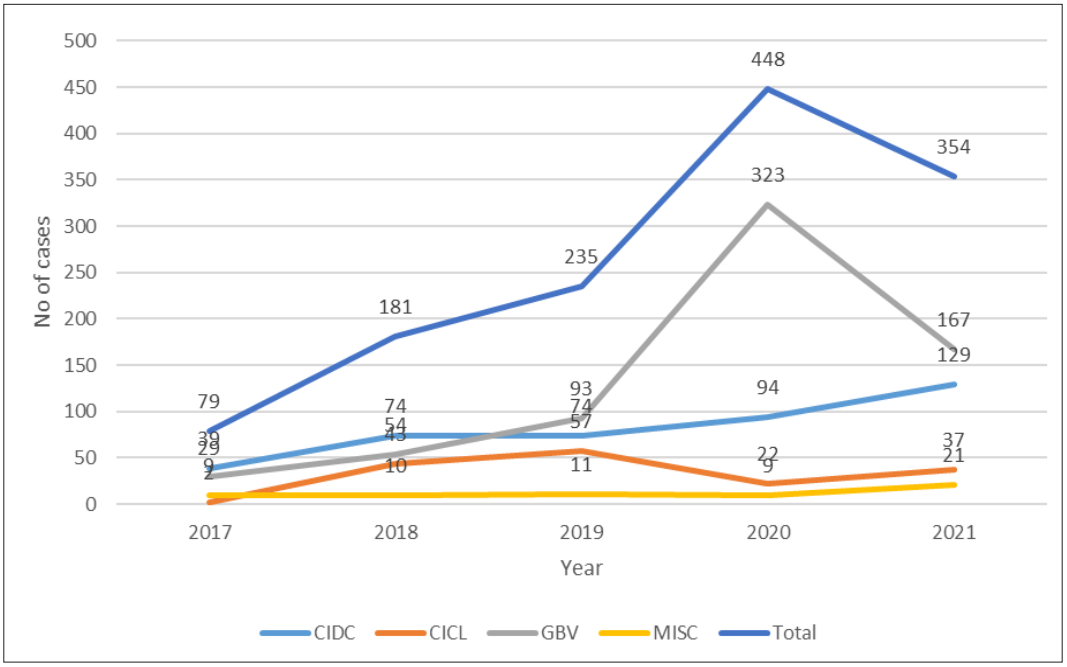
The National Commission for Women and Children (NCWC) was established in 2004 under the Ministry of Health (MoH) as the national machinery to take the lead in promoting and protecting the rights of women and children in the country.

In 2008, with the increase in the number of issues related to women and children and the commission's increasing responsibilities, it was upgraded to a fully autonomous agency under the Royal Government of Bhutan.

Women and children are the two of the most vulnerable groups during emergencies. COVID-19 presented a rather sinister nexus, not only in terms of the vulnerabilities of women and children but also their safety and protection measures or response mechanisms to prevent violence and abuse.

Domestic violence cases are categorised as child in difficult circumstances (CIDC), child in conflict with law (CICL), gender based violence (GBV) and miscellaneous. Cases of domestic violence grew as presented in figure 47.

Figure 49: Trend in domestic violence cases



Way Forward

The PEMA, instituted as a nodal agency for mental health and formally inaugurated on 16th June 2022 provides a platform to re-strategise our efforts to promoting mental wellbeing and preventing mental disorders.

Under the guidance of The Pema Board, a framework for mental healthcare was developed. The framework for mental health care provides a roadmap with the goal to ensure good mental wellbeing for all through a multi-sectoral approach.

It emphasises reinforcing, reorienting and initiating new mechanisms to enhance mental health services for all. It will strengthen ongoing efforts of all stakeholders, implement evidence-based and sustainable interventions.

Broadly, it focuses on four major areas:

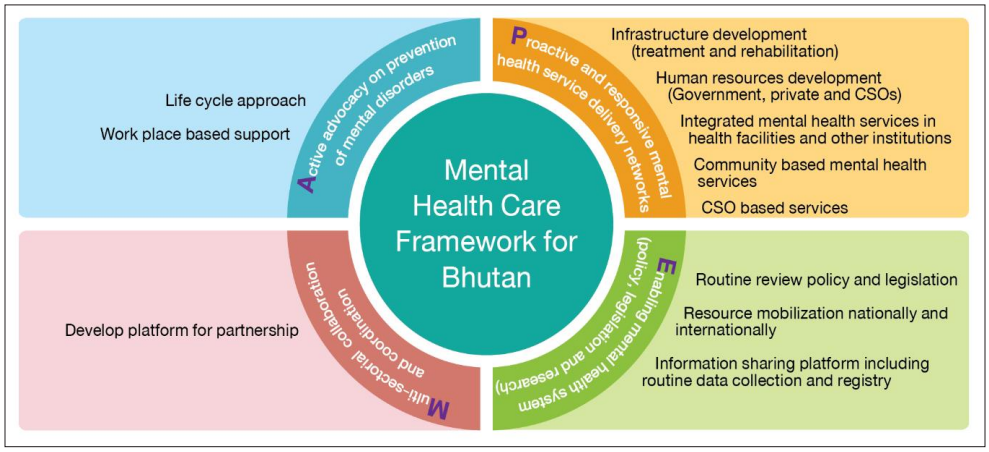
(i) Proactive and responsive mental health service delivery networks

(ii) Enabling mental health system

(iii) Multisectoral collaboration and coordination

(iv) Active advocacy on prevention of mental disorders

Figure 50: Mental Health Framework



COVID-19 infection prevention and control and PPEs

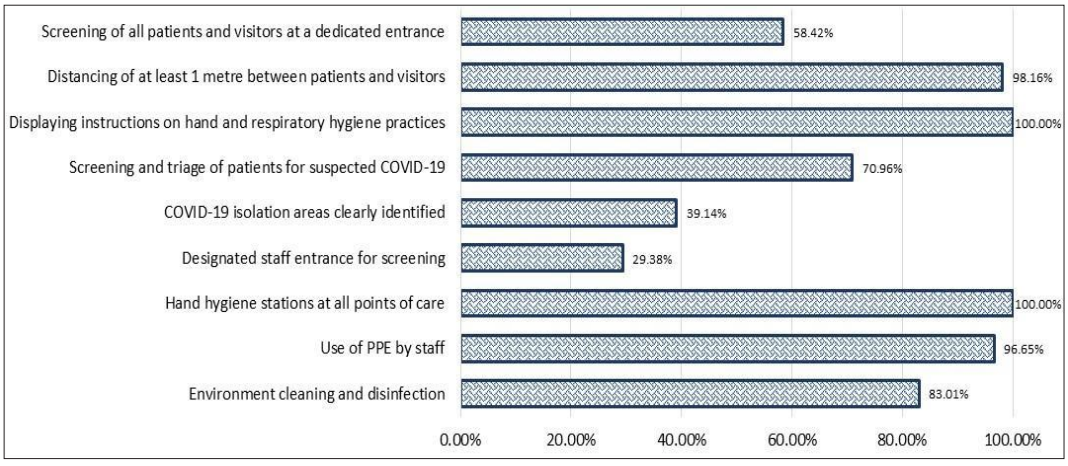
Around 44 percent of the facilities reported they did not have a designated IPC focal person, and six percent reported they did not implement any measures to create a COVID-19 safe environment (Table 6).

Table 6: COVID-19 infection prevention and control readiness and PPE provision

COVD-19 IPC measures	N	%
Proportion reporting having a designated IPC focal point person		
Yes	40	54.89
No	31	43.68
Missing	1	1.43
Proportion reporting that the facility implemented any measures to create a COVID-19 safe environment		
Yes	68	94.0
No	4	6.00
Proportion reporting that the facility has IPC guidelines	38	50.15
Yes	34	49.85
No		
Proportion reporting that the facility usually provide PPEs		
Yes	70	96.22
No	2	3.78

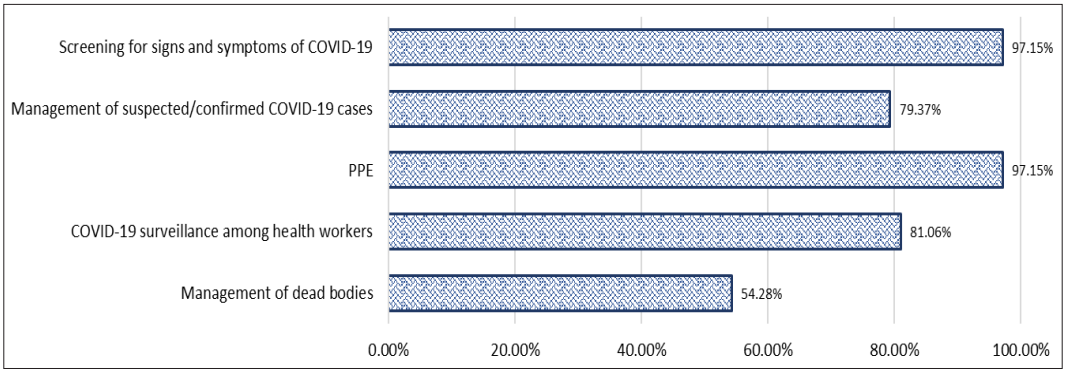
Measures implemented in almost all the facilities were displaying instruction on hand and respiratory hygiene (100 percent), setting up hand hygiene stations (100 percent), maintaining one-metre distancing (100 percent), use of PPE by staff (97 percent), environment cleaning and disinfection, screening and triage of patients (Figure 49). Other measures like having designated staff at the entrance, identification of COVID-19 isolation areas and screening of patients and visitors at the dedicated entrance were implemented by less than 60 percent of the facilities.

Figure 51: Types of IPC measures implemented in the facility (n=68 or 94.00% from the total facilities that implemented any measures to create a COVID-19 safe environment)



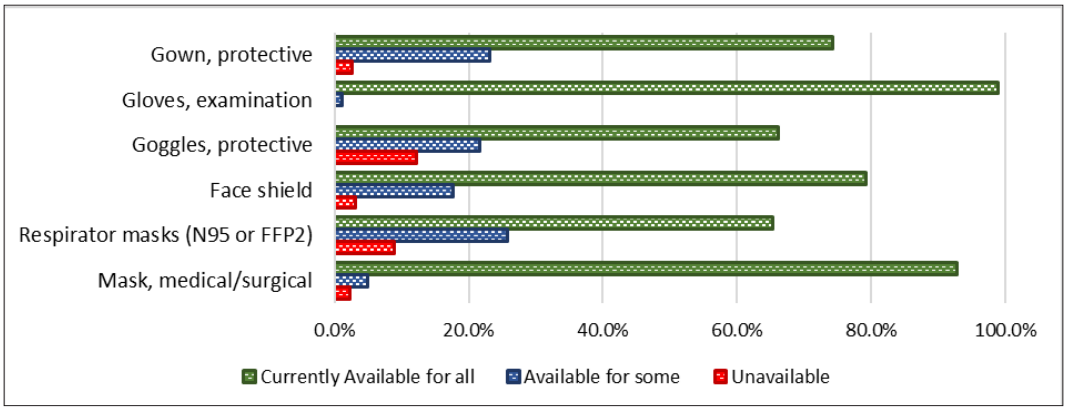
Half of the facilities (50.2 percent) reported they did not have IPC guidelines for COVID-19 in the facility (Table 6). Except for guidelines on the management of dead bodies (54 percent), more than 80 percent of the facilities reported having other IPC guidelines like screening of COVID-19 symptoms, management of suspected and confirmed cases, PPEs and COVID-19 surveillance among health workers (Figure 50).

Figure 52: Types of IPC guidelines available in the facility (n=38 or 49.85% from the total facilities that have IPC guidelines for COVID-19)



Ninety-six percent of the facilities reported to be usually providing PPEs to health workers (Table 6). While all PPEs were reported to be available to some or all health workers by more than 80 percent of the facilities. The proportion of facilities reporting non-availability of respirator masks and protective googles was greater than non-availability of other PPEs (Figure 51).

Figure 53: Types of PPEs available in the facility (n=70 or 96.22% from the total facilities that usually provided PPE to health workers)



Management of suspected and confirmed COVID-19 in PHCs

Around a third (32 percent) of the PHCs reported lacking focal point or team responsible for COVID-19 service coordination (Table 7).

Of those reporting having a focal person or a team, 84 percent reported having standard operating procedures (SOPs), the rest 16 percent did not have SOPs.

Eighty-seven percent of the facilities reported collecting specimens to diagnose patients, and of these, 86 percent reported conducting rapid diagnostic test (RDT).

One facility conducted polymerase chain reaction (PCR) tests. Of the facilities reporting to have a COVID-19 focal person or team, around 13 percent reported seeing persons with suspected COVID-19 in the past three months (Table 7).

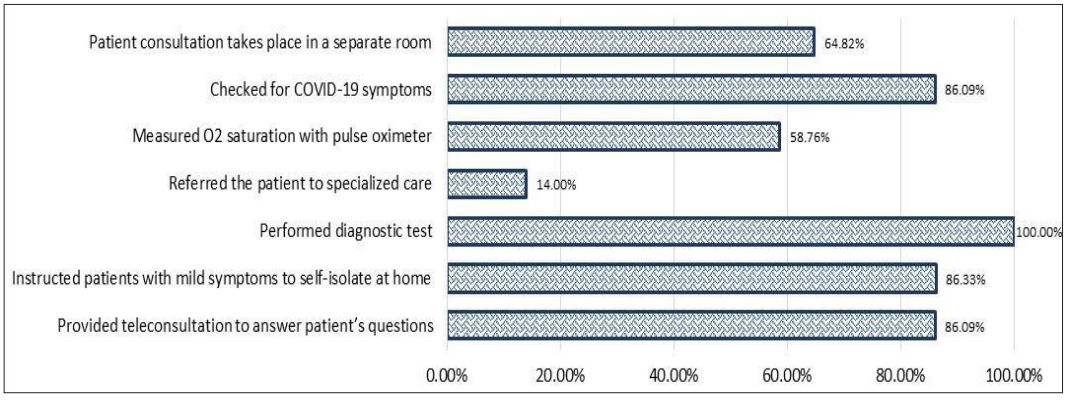
Table 7: Capacity to manage suspected and confirmed COVID-19 in PHCs

COVID-19 management measures (n=55)	N	%
Proportion reporting having a focal point/team responsible for COVID-19		
Yes	34	65.03
No	19	31.97
Missing	2	3.01
Proportion reporting having SOPs for COVID team or focal (n=34)		
Yes	29	83.96
No	5	16.04
Proportion reporting that the facility collects specimens from patients to diagnose COVID-19 (n=55)		
Yes	47	86.47
No	8	13.53
Proportion reporting that the facility collect specimen and conduct tests to diagnose COVID-19 (n=47)		
Yes, PCR	0	0.00
Yes, RDT	40	87.19
No	7	12.81
Proportion reporting that the facility saw patients with suspected COVID-19 in the past 3 months (n=55)		
Yes	7	12.75
No	48	87.25
Proportion reporting having up-to-date guidelines to manage asymptomatic or mild COVID-19 cases (n=55)		
Yes	19	35.37
No	36	64.63
Proportion reporting that the facility received other information or guidelines on how to manage asymptomatic or mild COVID-19 cases (n=55)		
Yes	26	52.18
No	29	47.82

Proportion reporting that there are designated facilities for the referral of patients with suspected or confirmed COVID-19 (n=55)		
Yes	40	72.03
No	15	27.79
Proportion reporting that the facility has access to safe/isolated transportation to transfer patients (n=55)	25	64.94
Yes	15	35.06
No		
Proportion reporting that the facility is tasked with contact tracing (n=55)		
Yes	15	29.12
No	39	69.66
Missing	1	1.22
Proportion reporting that staff members received contact tracing training (n=15)		
Yes	4	29.12
No	11	69.66

Of the facilities that saw patients with signs and symptoms of COVID-19, all performed diagnostic tests, 86 percent each reported checking for COVID-19 symptoms, instructed patients with mild symptoms to self-isolate at home and provided teleconsultation. Sixty-five percent of the facilities consulted patients in a separate room and close to 60 percent measured oxygen saturation of patients (Figure 52).

Figure 54: Procedures performed or protocol followed to manage suspected COVID-19 cases (n=7 or 12.75% from the total PHCs that have seen suspected COVID-19 cases)

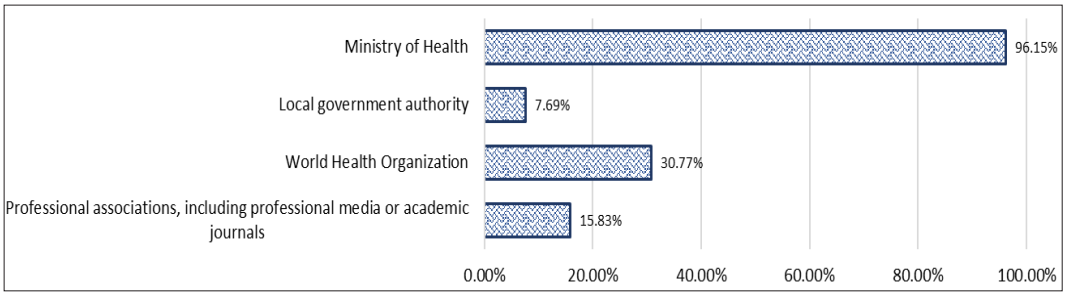


Sixty-five percent of the PHCs reported lacking up-to-date guidelines on COVID-19, and 52 percent reported receiving any other information or guidelines on management of asymptomatic or mild COVID-19 cases (Table 7).

Almost three-fourths (72 percent) of the PHCs reported having designated facilities for referral of patients with suspected or confirmed COVID-19 cases and 65 percent reported having access to safe and isolated transportation to transfer patients following referral.

About 70 percent of the PHCs reported of facilities not being tasked to perform contact tracing when positive cases were identified. Of those tasked with contact tracing process, 70 percent reported not receiving training on contact tracing.

Figure 55: Reported sources for information or guidelines (n=26 or 47.82% from the total PHCs that received other information/guidelines on how to manage asymptomatic/mild COVID-19 cases)



A majority (96 percent) of the PHCs reported Ministry of Health as the source of information or guidelines, followed by World Health Organization (30 percent) (Figure 54).

Availability of selected tracer therapeutics

Drugs such as epinephrine, magnesium sulphate and carbamazepine, including other essential therapeutic drugs and consumables like syringes, cannula and giving sets were reported to be available by 90 to 100 percent of the facilities (Figures 54 & 55).

Figure 56: Availability of medical supplies in the facility currently (n=72)

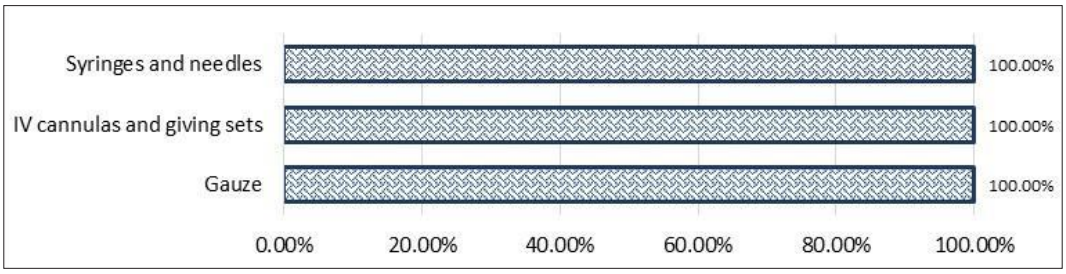
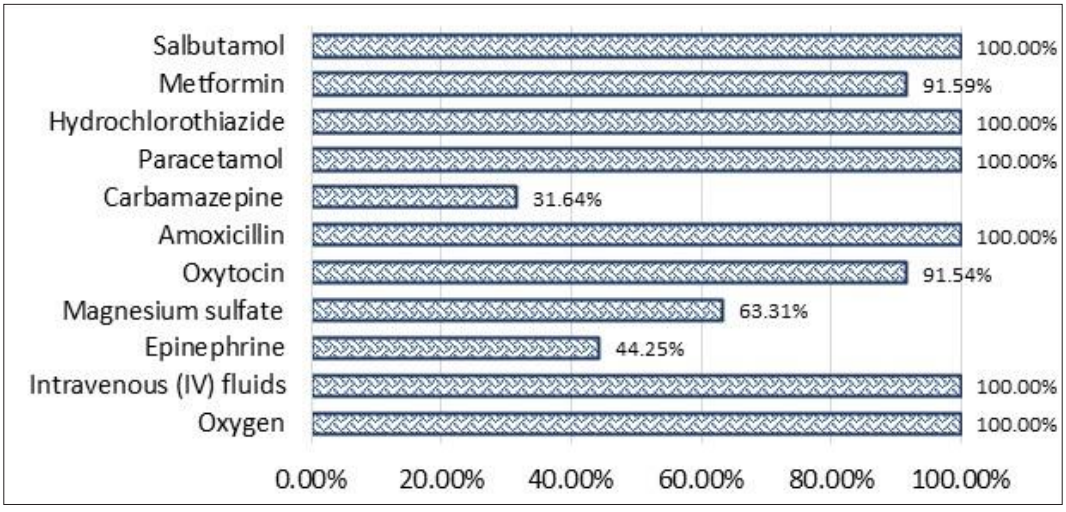


Figure 57: Availability of tracer medicines in the facility (n=72)

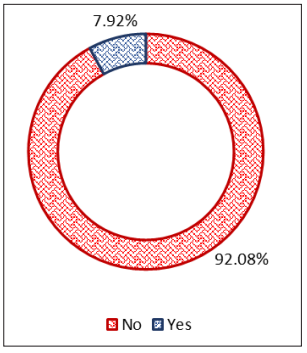


Almost all of the facilities (≥99 percent) of the facilities also reported the availability of key vaccines at the time of the assessment (Figure 56).

More than 92 percent of the facilities reported no disruptions in the delivery of services due to supply stock out (Figure 44). A similar trend was observed when assessed by region, facility type, including the two southern districts (Supplementary Table S3 a-c).

Figure 58: Availability of vaccines in the facility currently (n=71)

Figure 59: Facilities reporting disruption in the capacity to provide certain services due to supply stock out (n=72)



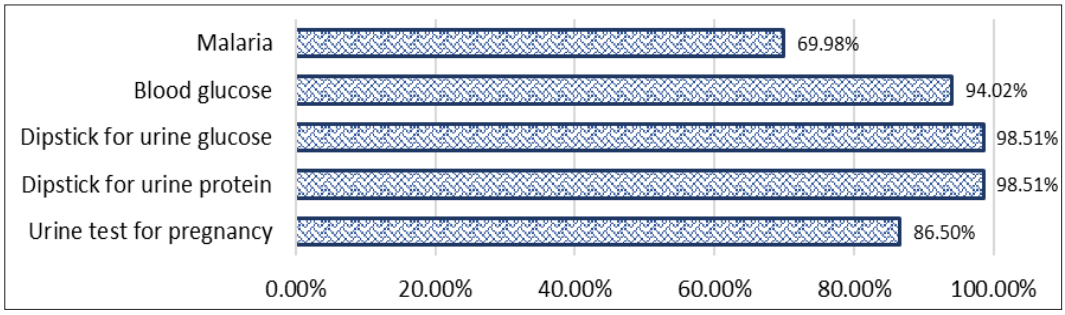
Availability of diagnostics

Table 8: Availability of laboratory diagnostic facilities/services for COVID-19

Laboratory diagnostic facilities and services measures	N	%
Proportion reporting that the facility collects specimens from patients to diagnose COVID-19 (n=72)		
Yes	59	83.60
No	13	16.40
Proportion reporting that the facility conducts PCR/RDT tests to diagnose COVID-19 (n=59)		
Yes	41	72.05
No	18	27.95
Proportion reporting the availability of a functioning specimen transport system for forwarding specimens to a referral laboratory (n=18)		
Yes	7	37.45
No	9	50.46
Missing	2	12.09
Proportion reporting conducting any other diagnostic testing of specimens using either laboratory equipment or RDT (n=72)		
Yes	67	93.79
No	5	6.21

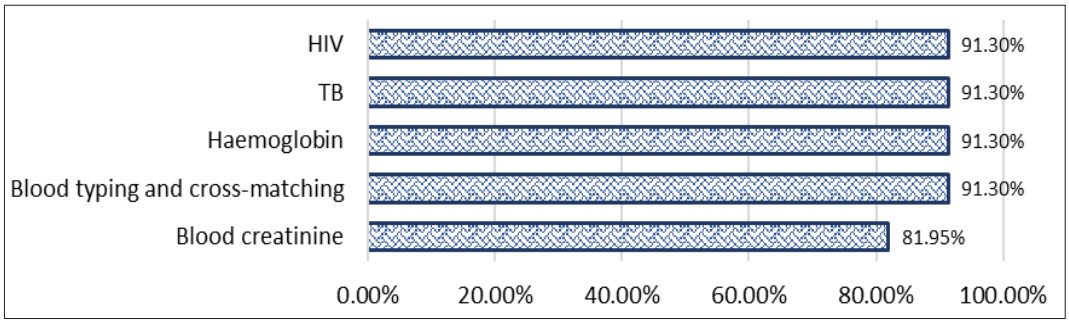
Close to 85 percent of the facilities reported collecting specimens from patients to diagnose COVID-19 (Table 8). Of these, 72 percent performed PCR and/or RDT to diagnose COVID-19. Of those facilities that collected specimens but did not perform diagnostic tests, around half of the facilities reported lacking a functioning specimen transport system for forwarding specimens from the hospital to a referral laboratory. Of the total facilities, more than 93 percent conducted other diagnostic testing of specimens using either laboratory equipment or RDT (Table 8).

Figure 60: Availability of tests onsite at the facilities (n=67 or 93.79% from the total facilities that conducted any other diagnostic testing of specimens using either laboratory equipment or RDT)



Except for the malaria test (~70 percent) and urine test for pregnancy (87 percent), rest of the diagnostic tests that include blood glucose and dipstick for urine protein and glucose were available in 94 percent to 98 percent of the facilities (Figure 45). Similarly, tests for HIV, TB, haemoglobin, blood typing and cross-matching and blood creatinine were reported to be available in most (>81 percent) of the included hospitals (Figure 46).

Figure 61: Availability of tests onsite at the facilities (n=17 hospitals)



Of the total hospitals, close to 70 percent reported having X-ray services, only one facility had Magnetic Resonance Imaging (MRI) services and more than 80 percent reported having ultrasound services (Table 9). All of the facilities that indicated availability or provision of these imaging services, all reported associated supplies to be available and functional.

Table 9: Availability of diagnostic imaging services or facilities

Availability of imaging examinations	n=17	%
X-ray		
Yes	12	69.05
No	2	12.84
Missing	3	18.11
The items required available and functional (n=12)		
Yes	12	100.00
Magnetic resonance imaging		
Yes	1	2.14
No	13	79.75
Missing	3	18.11
The items required available and functional (n=1)		
Yes	1	100.00
Ultrasound		
Yes	14	81.89
Missing	3	18.11
The items required available and functional (n=14)		
Yes	14	100.00

Discussion, recommendations and conclusions

This chapter discusses the main findings of the community and the facility assessments. The recommendations related to the findings from this assessment are then presented. The chapter concludes with a summary of the key findings and recommendations.

Discussions community assessment

A majority of the community representatives interviewed reported receiving health services such as immunisation, urgent medical care, contraception services and maternal health services in the past three months before the assessment. This suggests that most EHS were accessible to the public in the past few months.

The MoH instituted mechanisms to provide urgent medical care and services for those in need even during lockdowns. Supporting this finding, the results from the section that explored the experience of VHWs also show that delivery of these services, including disease prevention campaigns and home visits, were unaffected during non-lockdown periods compared to the pre-COVID-19 period.

However, many also reported not receiving planned elective surgery, mental health support and laboratory and imaging services in the same period.

Although MoH set up mental health services and helplines, it may be that people, especially in the rural areas, were unaware of the availability of helplines and/or how to access mental health support. A majority of those interviewed for this assessment were from rural areas.

Although there were instances of difficulty in accessing contraception services and a likely increase in unwanted and teenage pregnancies mainly during the first lockdown, (15) accessibility is likely to have improved after the first lockdown. However, as expected the delivery of these services appear to have been slightly or substantially reduced during lockdown periods than non-lockdown periods.

The fear of getting COVID-19 infection at facilities, public recommendations to avoid facility visits and disruption in public transportations were the most common reasons for not receiving health care during the present context. The government under the leadership of His Majesty the King implemented a series

of socioeconomic and health programs to buffer COVID-19 impacts and effectively fight it.

These include, but are not limited to, online learning system, loan interest waivers, distribution of PPEs, establishing handwashing facilities, tax relief incentives, income support for affected livelihoods, extra care and support for vulnerable groups and setting up emergency shelters for victims of violence.

This assessment also shows the most common socioeconomic and health initiatives that increased in communities during the global pandemic.

Increased efforts to scale up awareness on COVID-19 prevention such as social distancing, use of face masks, observing hand hygiene and improving access to public transport systems as a part of service delivery approaches, especially during movement restrictions, may help individuals seek timely health care and follow public health recommendations. Disruption in public transport, fear, mistrust and uncertainty about catching COVID-19 also emerged as reasons for decreased outpatient visits in the facility assessment.

Although health workers and facilities were the first point of contact when ill, a significant proportion reported that community members also preferred to contact religious figures, astrologers and local healers suggesting poor health-seeking behaviour. Sensitising local healers, religious figures and astrologers in the community on COVID-19 prevention, engaging them in risk communication and instituting a referral mechanism for people with symptoms may help in preventing the spread of infection.

This assessment also shows that around a quarter of the VHWs felt stigmatised by the community members fearing they might transmit infection. The stigma associated with COVID-19 can trigger concealment of the condition to obviate discrimination, which can be detrimental as to prevent one from seeking health care early and adopt healthy behaviours.

Understanding the disease, building trust and implementing practical and effective measures can help address social stigma. (16)

Similarly, a majority (>60 percent) of VHWs reported having a risk of contracting COVID-19 infection at work. Increased perception of risk can make them fearful of COVID-19, which in turn, can make them reluctant to deliver services efficiently. (17) Fear of contracting COVID-19 is generally associated with inadequate protection or PPEs.

Findings in this assessment also revealed how lack of adequate PPEs, in addition to contacting many people and public ignoring prevention protocols, to be the main reasons for the perceived heightened risk. Furthermore, training and information on COVID-19 and PPEs, followed by monetary incentives and support for communication,

were reported as the main support needed by the VHWs to diligently deliver their duties.

Almost a third of the participants reported of disadvantaged groups in their communities. People with disabilities, the older population and people living in extreme poverty were identified as the main underprivileged groups in communities.

Pandemics such as COVID-19 can increase the mental ill-health burden among those from low socioeconomic backgrounds via socioeconomic disadvantage, discrimination and food insecurity. (18) Around two percent of Bhutanese have moderate to severe disability. (19) People living with disabilities are more likely to have poor health and thus susceptible to deficiencies in health services and impacts of COVID-19. (20) Prevalence of disability is also usually greater among older people.

Besides, limited mobility, lack of access to the right information, personal assistance and care can impact these groups disproportionately. Failure to protect these key populations can elevate their risk of contracting COVID-19 and undermine the response and broader public health goals.

The results show that more than half the respondents felt that the economic impact of COVID-19 pandemic on the community was moderate and/or significant, with a higher proportion in the western than the other two regions.

The western region is seemingly more developed and more economic and commercial activities occur in the west. Thus, more people might have been impacted compared with those in the central and the eastern regions.

Facility assessment

Results of this assessment show that none of the health workers and staff working in 71 of the total included health facilities contracted COVID-19 at least during the assessment. This suggests adequate implementation of, and high compliance to infection prevention and control (IPC) and safety measures in these health facilities.

Phuentsholing hospital, the facility from where information on health workers could not be collected, had two health workers – one swab collector and a medical record technician – who contracted COVID-19 as of June 2021 (verbal communication by the Facility In-Charge).

The swab collector was thought to have contracted the infection during mass testing in the community, while the MRT caught the infection while at home, which was located in a red building. The fact that just two health workers were reported to be infected with COVID-19 outside of the facility indicates adequate implementation of IPC measures at least in the facility. However, health workers need to take extra

precautions and follow safety measures when rendering service in communities.

Many facilities reported not receiving training and/or supervision on COVID-19 and management of emergency conditions, mental health and provision of remote services. It is important to train adequate number of health personnel in all facilities on the management of COVID-19 and emergency conditions so they stay prepared to manage COVID-19 cases.

Health workers, especially those working at the community level, also need to be trained on the provision of mental health services given the fear and threats, the uncertainty, social isolation, changes in the way we live and work, in the context of COVID-19, which can directly impact mental wellbeing. (18,21) A sharp increase in the number of people seeking mental health services was documented in 2020, (22) and recent data show an increase in depression incidence from 10.4 per 10,000 population in 2019 to 15.9 in 2020. (23) The findings from the community assessment also show that many people, especially in rural areas, reported not receiving mental health services, possibly due to lack of awareness and knowledge on how to access mental health support.

Equally important is the need to train health and frontline workers on coping with chronic fatigue, stress, burnout and emotional exhaustion. Measures to protect their mental wellbeing should be implemented.

Furthermore, provision of services remotely can be an important approach during lockdowns and following stay-home orders. Additionally, training on home-based management of COVID-19 for those with mild symptoms, especially for health workers in the southern districts, can be beneficial during outbreaks and rapid surge of cases. Most COVID-19 patients can be cared for at home if they and their family members know how to prevent transmission and healthcare workers are able to identify a patient's care needs. (24)

Almost one-third of the facilities reported facing difficulties in delivering EHS due to inadequate and/or lack of funding. Funding for facilities requiring support may be necessary to enable them to develop and implement specific programs to help deliver EHS and ensure continuity of essential services. A funding needs assessment might be helpful in identifying facilities in genuine need of support.

The findings also show that medical supplies, financing and human resources seem to have contributed to the disruption experienced by nearly a quarter of the facilities. One of the main challenges of the health system in Bhutan is inadequate human resources. (25) Bhutan did not have adequate medical and health training centers until recently. Most

health professionals are still trained abroad.

All facilities reported remaining open during COVID-19 outbreak with no major changes in outpatient visits for most services, including emergency visits, inpatient admissions and outreach services. Changes in service delivery were made only for some approaches and for outreach services mainly during lockdowns.

This suggests minimal disruption, if at all, in the delivery of EHS, mainly during lockdown periods. It also highlights a well-functioning and resilient health system in place amid the COVID-19 pandemic. The comparison of data from the previous few months with the same months in the past year for key indicators like outpatient attendance, immunisation and some essential services showed no major changes.

The community assessment results (in section 4.1.1) suggested that most people could avail of the services they needed in the past months. This corroborates that EHS delivery was not interrupted in a major way.

Bhutan acted swiftly in response to the COVID-19 pandemic and had in place a National Preparedness and Response Plan by February 2020 to respond to and mitigate the threat posed by the pandemic. It also strengthen health systems. Bhutan is implementing a COVID-19 Emergency Response and Health Systems Preparedness Project. It also mobilised additional resources to strengthen response measures with support from bilateral and multilateral partners, including national and international organisations. All districts also developed contingency plans. Flu clinics were also set up in all districts and where necessary mobile flu clinics were also established.

Thousands of members of a voluntary organisation, De-Suung – Guardians of Peace, patrolled towns and borders, ensuring compliance with prevention measures and delivering essential services.

During lockdowns, the MoH adapted service delivery through provision of right and timely health information, emergency care, teleconsultations and changing dispensing approaches. The government instituted helplines and door-to-door services to deliver essentials services. All these policies, structures and programs might have facilitated the maintenance of EHS delivery.

The proportion of facilities reporting higher attendance for undifferentiated symptoms and partner and sexual violence increased during lockdown periods. A greater incidence of violence was reported among women and children especially during lockdowns.

For instance, around 777 gender-based violence cases, an increase of almost 37 percent were reported in 2020 alone. (26) More people might were referred to health facilities and/or visited flu clinics

during the lockdown periods for undifferentiated symptoms.

The findings also show slight decrease in outpatient attendance for contraception and family planning services and a few other services. This partly supports the results of the community assessment, which highlighted difficulty among people in accessing contraception.

It also explains the likely increase in unwanted and teenage pregnancy that may be attributable to sexual abuse during movement restrictions and inadequate access to contraception and related services. (15)

The results point up the need for improved and/or strengthened delivery of services in general, and mainly for some specific services such as diabetes screening and treatment, PNC, ANC and partner violence, particularly during lockdowns. Even a modest disruption may potentially result in increased morbidity and mortality from causes other than COVID-19. (6) Studies designed to assess the impact of interruption in the EHS delivery on morbidity and mortality are needed.

Almost 50 percent of the facilities reported not making plans to deliver services for those who missed routine appointments that are unrelated to COVID-19. Registering those who missed routine appointments due to COVID-19 responses and making plans to deliver the services can be an important strategy to ensure continuity of key services, which can help avert associated adverse outcomes.

The assessment revealed that all facilities surveyed had sufficient PPEs to deliver essential services safely. However, around 45 percent of the facilities did not have a designated IPC focal person and half of these facilities reported lacking IPC guidelines.

Moreover, many facilities reported not having identified COVID-19 isolation and not performing screening at a dedicated entrance. IPC guidelines are important to support the delivery of safe services via rigorous application of procedures for the protection of service users, health workers and visitors in health facilities. They can help minimise the introduction of infection into the facility and prevent spread within and beyond the facility.

The MoH will need to ensure that the IPC guidelines are made available to all facilities and they are orientated with these guidelines for optimal implementation and adherence. Although the IPC guidelines and other COVID-19 protocols are available at the national level, they need to be disseminated adequately to all facilities, especially those at the community level.

The need for continuous adequate supply and rational use of PPEs, hand hygiene and cleaning supplies were also felt. Irrational

use, on the other hand, risked exhausting supplies and exposing individuals to infection, resulting in loss of resources.

Similarly, of the total PHCs, a third did not have a focal point and/or a team for COVID-19 service coordination. Additionally, a majority of the facilities reported lacking latest guidelines on COVID-19 and most were not tasked with and did not receive training on contact tracing. Some facilities also reported needing designated facilities for referral of suspected or confirmed cases.

These possibly suggest limited preparation in terms of capacity and structures to manage COVID-19 at the PHC level. It appears that the national-level policies and programs on COVID-19 were not rolled out and/or disseminated at the PHC level adequately. While it is conceivable that it may not be necessary for PHCs to provide all services to manage COVID-19, PHCs can play an important role in identifying symptomatic and referring cases, performing rapid diagnostic tests, collecting and transporting specimens, implementing IPC measures, performing contact tracing, isolation of suspects and providing mental health support.

They can also be trained to provide home-based management of patients with mild illnesses, which could prove beneficial in case of a huge outbreak or when cases spiked. Management of mild cases at the primary facilities may help lower burden on bigger facilities. Thus, the MoH will need to ensure that PHCs are equipped with the capacity to deliver these basic, yet essential, COVID-19 services in the community and are aware of the latest guidelines and policies on COVID-19.

Almost all hospitals and PHCs did not face any significant disruption in the delivery of laboratory and diagnostic services and also did not run out of supplies required for these tests and services. Likewise, all of the hospitals reported the availability of selected essential medicines, vaccines and medical supplies during the time of the assessment.

Nearly all of the PHCs also reported having all basic essential diagnostic tests. Furthermore, almost all facilities did not face disruption in the capacity to provide certain services due to supply stock out. These findings suggest an adequate supply and management system for drugs and health products in place during the pandemic.

However, of the facilities that collected specimens for diagnosis, around 50 percent reported needing access to a functioning specimen transport system for forwarding specimens to the referral laboratory.

Access to a functioning and efficient specimen transport system is important for early diagnosis and management. All facilities collecting specimens should have

easy access to the transport system and there should be adequate coordination between the facilities and the referral laboratory or facility.

Although not substantial, the results showed that the proportion of facilities reporting disruption in service delivery was greater in the western region and the two southern districts (Chukha and Sarpang). More facilities in the two southern districts also reported making changes in the service delivery approach.

Similarly, the community assessment showed that a greater proportion of community members in the western region perceived that most people in the community did not receive some of the services when needed. They also reported that people's experience in availing health services was moderately or strongly affected.

These may suggest that the western region was slightly more affected in terms of accessing and obtaining EHS. This is plausible since more lockdowns and other related restrictions were enforced in the western districts, mainly in Chukha and Thimphu. The southern district of Sarpang shares borders with India and has been identified as a red zone area with more restrictions.

The results indicate an increase in the mean inpatient admissions in the third month of the past four months (February to May) than the corresponding month of the previous year. This, although may potentially be due to the greater number of patients visiting health facilities following the lockdown in the preceding months (i.e., January and February 2021), needs further exploring. The data from the facility assessment also suggest that the decrease in inpatient visits was greater during lockdowns than the non-lockdown periods.

Strengths and limitations

TThis assessment included a nationally representative number of health facilities, including all three referral hospitals. A wide array of EHS components such as health needs, delivery, use, barriers, availability of medical supplies and products, including the use of routine data was examined by interviewing community members and sourcing information directly from health facility in-charges.

This study also adopted the tools developed by WHO and were pilot-tested. Follow-up reminder emails and phone calls were served because of which the study achieved a high response rate. Thus, the findings can be valid and useful in improving the delivery of EHS and strengthening the COVID-19 response. The analysis was further stratified by two districts in the south identified as red zones and by regions, to assess any potential differences by the geographies.

However, there are some limitations. The point estimates generated in the analysis may not

be stable since the assessment was designed only to provide a rapid snapshot of the continuity, delivery and use of EHS during the COVID-19 pandemic. Similarly, the number of samples was not enough to provide point estimates by region and facility type, thus the results may not be accurate.

Furthermore, the national team could not conduct field supervision as per adopted training and data collection approach because of the rapid surge ofCOVID-19 cases during the time of the assessment. The duly completed questionnaires submitted by the facilities were nonetheless checked for their consistency, legibility, and completeness.

In a few of the health facilities, owing to the non-availability or busy schedule of the facility in-charge, the data for the facility assessment was collected by a health worker. These health workers might not have full knowledge of what's going on in health facilities, especially of hospital-level facilities, although they were asked to discuss with the in-charge and/or other colleagues in the facility when needed.

Additionally, the assessment did not collect data on the situation of the delivery, continuity and use of EHS beforeCOVID-19 pandemic for some questions. For these reasons, the assessment is unable to provide information on the changes or interruptions in services due to the COVID-19 pandemic.

The facility assessment questionnaire was self-administered by the identified facility in-charges. Although self-reporting could result in individuals responding in a way that seems most favourable to them or is viewed favourably by others, self-reporting may also allow for more honest responses. Moreover, there is possibility the respondents might misunderstand or are unable to follow directions in the questionnaires, which could have caused them to skip questions or quit filling entirely.

The lengthy questionnaire of the facility assessment could have also resulted in survey fatigue among respondents. Furthermore, some of the community members were interviewed over telephones, which does not allow observing vital body languages, which can be sometimes important to gauge a person's feelings.

Likewise, the quality of the interview could also have been compromised due to possible network connection problems. Despite these limitations, this study provides adequate evidence on the gaps in EHS delivery and highlights the need to adapt strategic solutions and monitor changes given that the pandemic is likely to wax and wane in the next months.

Initiatives and achievements

There were numerous initiatives and achievements across the country in the wake of the global pandemic.

- Construction of flu clinics at all major hospitals helped prevent COVID-19 affecting routine health facilities.
- Installation of hotlines/ teleconsultation facilities in all the major hospitals.
- Installation of handwashing stations at all health facilities, schools and institutions.
- Dzongkhag-wise and health facility level contingency plan.
- Mobilisation of human resources within the district done by dzongkhags.
- Line-listing people with chronic medical conditions.
- Initiated“Our Gyenkhu” where various social media influencers such as actors, visual artists, bloggers and sports personalities were engaged voluntarily to inform the general population (particularly the youth) on COVID-19.

Challenges

Numerous challenges were faced by service providers and users. A few important and most prominent ones are listed below.

- Restriction of movement during lockdowns posed huge challenge on provision of timely services.
- Limited number of vehicles/ ambulances to support transportation/evacuation of patients.
- Transportation of patients from red zone to green zone was challenging as stopover was disallowed.
- Health staff stretched thin due to surveillance, quarantine, isolation duties in addition to mobile medical teams and door-to-door delivery of medicines.
- Inadequate space for containment in health facilities.
- Health camps and awareness programs could not be conducted as planned.
- Confusion due to frequent change of protocols and reporting mechanisms.

Key recommendations

The following recommendations are provided to further strengthen and improve delivery and use of EHS during COVID-19 pandemic and other similar health emergencies. Many of the recommendations are in line with World Health Organization’s guidance on how countries can maintain the delivery of EHS during the pandemic. (27)

Service delivery and utilization

- Delivery of EHS generally, and for NCDs, MCH services,

partner violence and access to public transport systems, especially during lockdowns, needs strengthening. Adopting efficient approaches, instituting systematic mechanisms and increasing awareness on availability and access to EHS is crucial. The MoH needs to coordinate with other relevant sectors to ensure easy access to public transport systems during movement restrictions.

- There is a need to increase awareness on the availability of mental health services and helplines especially in rural communities. Community-based health workers need to be trained on mental health and counselling, including COVID-19 prevention.
- Given that the most affected during community outbreaks and lockdowns are the vulnerable groups especially people with disabilities and those in poverty, access to health and other essential services needs to be enhanced for these groups. Local authorities can help line-list such groups in their communities, assess their needs, and link these groups with public and health services and welfare systems.
- All facilities should have a system in place to register and provide services, although unrelated to COVID-19, for those missing routine appointments during movement restrictions and lockdowns.
- MoH needs to ensure dissemination of defined list of EHS at every level of the facility in the contingency plan to be delivered during the pandemic. It should also ensure that all facilities have a defined list of EHS for health emergencies.
- Assessments to determine funding needs for facilities to maintain continuity of EHS and strengthen COVID-19 management can be useful.

Barriers to delivery of services

- Awareness and programs aimed at raising knowledge on COVID-19 prevention, building community trust and reducing stigma associated with COVID-19 among the general population need to be implemented and/or scaled up for people to continue seeking care when needed and heed to public health advice.
- Key community members such as astrologers, religious figures and local healers, who are also the preferred contact by people in the community when ill, may be involved in COVID-19 response. Building their capacity on COVID-19 prevention, risk communication and provision of mental health support is critical.

Infection control and PPEs

- All facilities should have IPC guidelines and a designated IPC focal person to coordinate the implementation of IPC guidelines and activities in the facilities. It is as important to train IPC focal persons on the guidelines.
- A continuous and adequate resupply of essential health commodities that include PPEs, essential diagnostic tests and tracer medicines, vaccines and critical medical consignment at all times should be ensured. PPEs need to be made available to VHWs when performing their duties.

Capacity to manage COVID-19

- MoH should ensure that all PHCs have adequate capacity to, not only deliver EHS, but also provide primary COVID-19 services, which include identifying symptomatic patients, isolation norms and referring suspects. Other required competencies include performing rapid diagnostics, collecting and transporting specimen, implementing IPC measures, performing contact tracing and providing mental health support and home-based management of mild COVID-19 cases.
- An up-to-date COVID-19 guidelines and SOPs need to be made available to all facilities. Health workers should be trained on the latest guidelines. Facilities must be orientated on the protocols for referral of patients with COVID-19 symptoms for diagnosis and management.
- Supportive supervision visits on different aspects of COVID-19, such as IPC and case management at each level of the health system, should be conducted regularly.
- MoH should ensure that all facilities collecting specimens for COVID-19 diagnosis have access to efficient transportation system to move samples to higher/referral centres, which can also be activated during mass testing.
- Capacity building of dzongkhag teams in outbreak investigation and surveillance.

Coordination

- Proper planning with Royal Bhutan Police, De-Suung and Dzongkhags for better coordination on the ground.
- A defined role and responsibilities for different organisations, including CSO's, for improved coordination.
- Expand/upscale telemedicine implementation in preparation for future pandemic.

- Develop national plan for emergency preparedness.

Supplies

- Front loading of medicines, along withother medical supplies, and increasing buffer stock to prevent stock outs.

Emergency preparedness

- Develop a national emergency response preparedness plan.

Financial and procurement rules

- It needs to be more accommodating and adaptive during national emergencies

Conclusions

The COVID-19 pandemic overwhelmed health care services and workers globally. The response to mitigate the impact of COVID-19 and prevent its spread has shifted to delivering EHS. This can lead to interruption in services, which in turn can bring about an increase in morbidity and mortality from diseases and conditions other than COVID-19.

Overall the findings from both the community and facility assessments indicate minimal disruption in the delivery and use of EHS, suggesting a resilient primary health care structure and a well-functioning health system in Bhutan. Generally, community members were also able to access and avail of a majority of the essential services when needed.

The results also indicated good implementation of and adherence to IPC and COVID-19 safety measures in the included facilities. Basic PPEs, tracer medicines and vaccines and key diagnostics services were available in almost all facilities. Bhutan was able to provide most of the EHS throughout the COVID-19 pandemic with no major interruption during lockdowns.

The results, nonetheless, also suggest that the delivery of EHS can be further strengthened by improving service delivery for mental health, chronic conditions, sexual and reproductive health, partner violence and enhancing access to public transportation system during state-imposed movement restrictions.

Ensuring continuous and adequate resupply of PPEs, basic essential medicines, vaccines and essential diagnostic tests and related supplies is paramount to maintaining EHS delivery and provide COVID-19 services. All facilities should also have a defined list of EHS to be delivered during health emergencies.

The provision of EHS and other services should account for the needs of vulnerable populations such as people with disabilities, elderlies, those from poor socioeconomic backgrounds and

residents of rural areas.

Awareness programs on COVID-19 prevention and programs aimed to build community trust and reduce stigma, and awareness on the availability of EHS and mental health services, need to be scaled up.

The capacity and structures of the PHCs to manage COVID-19, implement IPC measures and deliver EHS can be further strengthened. Influential community religious members and healers may be involved in the COVID-19 response by building their capacity on COVID-19 prevention and risk communication.

There is prospect in realigning the delivery of EHS to provide homebound care by building capacities of facilities, including the PHCs.

A better understanding of the likely effect on morbidity and mortality, including real-time monitoring of changes in EHS delivery and use, can provide a comprehensive picture of COVID-19impact on EHS. It would inform policies for an improved delivery of EHS.

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Appendices

Appendix 1: List of health facilities included for the assessment

Sl #	District	Hospitals	PHCs
1	Bumthang	Wangdicholing Hospital	Chumey PHC Ura PHC Tang PHC
2	Chukha	Phuentsholing Hospital Chhukha Hospital Tsimalakha Hospital Gedu Hospital	Getena PHC Lokchina PHC Metakha PHC Rangaytung Chapcha PHC Rinchentsey PHC Sinchula PHC Chongeykha PHC Darla PHC Arikha PHC Doongna PHC
3	Mongar	Mongar Hospital (ERRH) Gyalpozhing Hospital	Jurmed PHC Lingmethang PHC Tsamang PHC Sengor PHC Chhaling PHC Yadi PHC Banjar PHC Tsakaling PHC Kengkhar PHC Balam PHC Ngatshang PHC Chagsskhar PHC Drametse PHC
4	Punakha	Punakha Hospital	Samdingkha PHC Nobgang PHC Thinleygang PHC Shelgana PHC Kabisa PHC Goenshari PHC

5	Sarpang	Gelephu Hospital (CRRH) Sarpang Hospital	Umling PHC Jigmecholing PHC Chokorling PHC Tarraythang PHC Jigmeling PHC Menchulam PHC
6	Trashigang	Trashigang Hospital Khaling Hospital Rangjung Hospital Riserboo Hospital	Phongmed PHC Kangpara PHC Changmi PHC Bidung PHC Udzorong PHC Yangnyer PHC Radi PHC Bikhar PHC Yabrang PHC
7	Wangdue	Wangdue Hospital Eusa Hospital	Samtegang PHC Jimithangka PHC Gaselo PHC Kashi PHC Uma PHC Sephu PHC Kamichu PHC
8	Thimphu	JDWNRH (NRRH)	
	Total	17	55

Appendix 2 a: Assessment Tools – Community Assessment

Community needs, perceptions and demand: Community assessment tool

མི་སྡེའི་ཞེར་མགོ་དང་ ཚོར་སྣང་ དགོས་འདོད་: མི་སྡེའི་དབུ་ཞིབ་ཀྱི་འདྲི་རོག

Section 1. Identification and informed consent

དོན་ཚན་༡ པ། ངོས་འཛིན་དང་ བརྡ་འཕྲོད་ལས་ལེན།

The questions in this section are to introduce the tool, collect respondent information, and obtain informed consent.

No	Question	Response options
1.1	Interviewer name	
1.2	Date (DD/MM/YYYY)	
1.3	Time	
1.4	Respondent phone number	
1.5i	If the data is collected through face-to-face interview, *skip to 1.7i*	
1.5	Hello. My name is [*INTERVIEWER'S NAME*] calling from the [Ministry of Health]. May I speak to [RESPONDENT'S NAME]?	
1.6	Record the result of the phone call	1. Reached correct participant 2. Correct number, but participant not available 3. No answer 4. Wrong number 5. Number no longer working
1.7i	Hello, good day! I am contacting you/ calling on behalf of the MINISTRY OF HEALTH. The MINISTRY OF HEALTH is conducting an assessment among COMMUNITY HEALTH WORKERS AND COMMUNITY MEMBERS to assist the government in knowing more about access to essential health services during the COVID-19 pandemic in our country. You were selected to participate in this study. We will be asking you questions about communities' experience in accessing services in your catchment area, not your own experience. Information collected during this study may be used by the MINISTRY OF HEALTH, organizations supporting services in your facility, and researchers for planning service improvement or for conducting further studies of health services. Your name will not be included in the data set or in any report. We are asking for your help in order to collect this information. The interview will take about 15-20 minutes. You may refuse to answer any question or choose to stop the interview at any time. However, we hope you will answer the questions, which will benefit communities in the country. At this point, do you have any questions about the study? Do I have your agreement to proceed?	

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1.7	May I begin the interview?	1. Yes 2. Yes, but respondent asked to call back at a different time – *skip to question 6.4* 3. No – STOP. *skip to question 6.4*
1.8	Type interviewer name indicating consent obtained	_____
1.9	What is your gender?	1. Male 2. Female 3. Not responded
1.10	How old are you?	_____ (numerical entry)
1.11	What is your title or occupation?	1. Community leader (e.g. gup, mangmi, tshogpa, chairperson of local board or local institution) 2. Village health worker 3. Civil society organization staff/member 4. Other (please..... specify.....)
1.12	In what type of residential area is the community you work in or represent located?	1. Urban 2. Rural

Section 2. Need for and use of essential health services in communities

དོན་ཚན་༢ པ། མི་སྡེའི་ནང་ བེས་པར་མཁོ་བའི་ གསོ་བའི་ཞབས་ཏོག་ཆུ་གི་ དགོས་མཁོ་དང་ལག་ལེན།

Now, I will ask about need for and use of health services in the community you work in or represent.

No	Question	Response options		
2.1	People have different experiences in getting health care, especially during the COVID-19 pandemic. In the community during the past 3 months, would you say most people, some people or few people received the following health services when they needed them?	1. Most people	2. Some people	3. Few people
2.1.1	Urgent medical care	☐	☐	☐
2.1.2	Planned elective surgery	☐	☐	☐
2.1.3	Usual medication for chronic care diseases such as diabetes or hypertension	☐	☐	☐
2.1.4	Recommended laboratory or imaging/radiology test	☐	☐	☐
2.1.5	Mental health services	☐	☐	☐
2.1.6	Contraception services	☐	☐	☐
2.1.7	Antenatal care	☐	☐	☐
2.1.8	Delivery with assistance from a skilled birth attendant	☐	☐	☐
2.1.9	Immunization services	☐	☐	☐

Section 3. Barriers to seeking essential health services in communities

དོན་ཚན་༣ པ། མི་སྡེའི་ཕྱུ་ ངེས་བར་མཐོ་བའི་ གསོ་བའི་ཞབས་ཏོག་ཚུ་ ལེན་ནི་ཕྱུ་བར་ཚད།

I will now ask about difficulties that people may experience when they need health services. This is again about people's experience in the community you work in or represent, and is not specific to your own experience.

No	Question	Response options
3.1	In general, before the COVID-19 pandemic, what were the main reasons people did not receive the health services they needed? Anything else? **DO NOT READ RESPONSE OPTIONS ALOUD.** **SELECT ALL APPLICABLE ANSWERS.**	*Informational and cultural reasons* 1. Not knowing about available services 2. Traditional or folk medicines preferred *Physical access and cost reasons* 3. Health facility too far 4. Lack of transportation to facilities 5. Lack of transportation for referral between facilities 6. Informal payments or bribe expected 7. High transportation cost 8. Domestic work/household chores *Facility reasons* 9. Perceived lack of health workers at facilities 10. Perceived lack of medicines at facilities 11. Perceived lack of equipment at facilities 12. Perceived lack of culturally or religiously sensitive services 13. Disrespectful providers at facilities 14. Mistrust of providers or facilities 15. Discrimination against certain communities 16. Inconvenient opening hours 17. Long wait time 18. Administrative requirements that exclude certain people (e.g. registration in local area, citizenship) 19. Other (please specify……)

3.2	During the COVID-19 pandemic, would you say people's experience in getting health care has generally remained stable, been moderately affected, or been strongly affected? This refers to any type of health services, not only COVID-19 care.	1. Remained stable – *skip to question 3.4* 2. Moderately affected 3. Strongly affected
3.3	Currently, what do you think are the main reasons related to the present context that people are not receiving the health services they need? Anything else? **DO NOT READ RESPONSE OPTIONS ALOUD.** **SELECT ALL APPLICABLE ANSWERS.**	*Reasons related to information, perception and government recommendations* 1. Fear of getting infected with COVID-19 at facilities 2. Fear of getting infected with COVID-19 by leaving house 3. Recommendations to the public to avoid facility visits for mild illness during the pandemic 4. Recommendations to the public to delay routine care visits until further notice during the pandemic 5. Not knowing where to seek care during the pandemic *Reasons related to physical access and cost* 6. Lockdown, curfew or stay-at-home order 7. Disruption in public transportation 8. Household income dropped during the pandemic 9. Higher cost because of transportation and accommodation *Reasons related to health facilities* 10. Facility closure due to COVID-19 11. Reduced or changed opening hours at facilities due to COVID-19 12. Provision of specific services suspended at facilities due to COVID-19 13. Disrupted or poor service provision at facilities due to COVID-19 (limited availability of medicines, commodities and staff) 14. Longer wait time at facilities because of current crisis context 15. Other (please specify.....)

3.4	Currently, when people in the community feel unwell, who do they contact first to seek advice or receive care? Anything else? **DO NOT READ RESPONSE OPTIONS ALOUD.** **SELECT ALL APPLICABLE ANSWERS.**	1. Village/Community health worker 2. Primary health centre or health post 3. Hospital 4. Pharmacist or drug/ medicine shop 5. COVID testing centre/ flu clinics 6. COVID phone line 7. Other trained health care provider 8. Local healer 9. Lams/ Tsips 10. Educated relatives/ family members 11. Traditional medicine service providers 12. Internet or virtual forum/consultations (wechat, facebook, etc.) 13. Other (please specify……) 14. None (postpone care seeking)
3.5	Certain groups of people are disadvantaged in how they access health care for economic, social or cultural reasons. In the community where you work, are there such groups of people?	1. Yes 2. No – *skip to next section*
3.6	Who are those groups of people? Any others? **DO NOT READ RESPONSE OPTIONS ALOUD.** **SELECT ALL APPLICABLE ANSWERS.**	1. People in extreme poverty 2. Persons working in the informal sector 3. Unemployed persons 4. Single parent household 5. Isolated household with elderly person 6. Persons with disabilities 7. Lesbian, gay, bisexual, transgender and intersex (LGBTI) individuals 8. Tribal populations 9. Nomadic populations (yak herders) 10. Migrant workers 11. Homeless people 12. Orphans and vulnerable children 13. Other (please specify……)

Section 4. Community assets and vulnerabilities

དོན་ཚན་༤ པ། མི་སྡེའི་རྒྱུ་དངོས་དང་ རྒྱབ་ཤེན།

In this section, I will ask you questions on the context of the community you work in or represent to understand how the community has coped with the pandemic.

No.	Question	Response options
4.1	Overall, would you say the economic impact of the COVID-19 pandemic on the community has been limited, moderate, or significant?	1. Limited 2. Moderate 3. Significant
4.2i	The following questions are about government- or community-led initiatives on socioeconomic aspects, education, health and environmental hygiene implemented in the community.	
4.2	Since the start of the COVID-19 pandemic, would you say socioeconomic and educational initiatives have increased, remained stable or decreased in the community?	1. Increased 2. Remained stable – *skip to question 4.4* 3. Decreased – *skip to question 4.4*
4.3	What types of initiatives have increased in the community? **DO NOT READ RESPONSE OPTIONS ALOUD.** **SELECT ALL APPLICABLE ANSWERS.**	1. Cash transfers provided by government, corporates or individuals 2. Setting up shelters and support to prevent gender-based violence 3. Provision and distribution of free essential food items 4. Implementation of community schooling/ online learning 5. Provision and distribution of hygiene packs 6. Support to isolated (quarantined) or vulnerable (elderly) people 7. Tax relief incentives 8. Support for local innovations, e.g. desks, beds, masks 9. Others (please specify……..……)
4.4	Since the start of the COVID-19 pandemic, would you say health and environmental hygiene initiatives have increased, remained stable or decreased in the community?	1. Increased/enhanced 2. Remained stable – *skip to next section* 3. Decreased – *skip to next section*
4.5	What types of initiatives have increased in the community? **DO NOT READ RESPONSE OPTIONS**	1. Health promotion activities (e.g. sports, exercise, handwashing demonstrations) 2. Distribution of information, education and

	ALOUD. **SELECT ALL APPLICABLE ANSWERS.**	communication promotion materials 3. Support to isolated or vulnerable people 4. Provision of transportation services for health care workers 5. Provision of transportation services for essential service providers or vulnerable groups (e.g. pregnant women) 6. Provision of face masks for vulnerable groups 7. Setting up handwashing facilities 8. Financial and material support to access health services (donation, lending) 9. Provision of drinking water 10. Others (please specify.....)

Section 5. Barriers to delivery of community-based services

དོན་ཚན་༥ པ། མི་སྡེ་ཡུ་བརྒེན་པའི་ཞབས་ཏོག་རྒྱུན་བྱེད་ནི་ཡ་བར་ཚད།

Note: This section will only be administered to key informants ***who provide community-based services****.*

I will now ask about your experience as a ***Village Health Worker*** to understand how you are able to continue performing your tasks during the COVID-19 pandemic and identify what additional support you may need.

No	Question	Response options
5.1i	Check response for ***Question 1.11***. If it is "***2. Village health worker***", proceed to the next question. If not, *skip to next section.*	
5.1	Do you feel confident in your knowledge about COVID-19?	1. Yes 2. No
5.2	How would you rate your own risk of contracting COVID-19 in your work?	1. No risk – *skip to question 5.4* 2. Slight – *skip to question 5.4* 3. Moderate 4. High 5. Very high
5.3	What do you think puts you at risk or increases your risk of contracting COVID-19 in your work? Anything else? **DO NOT READ RESPONSE OPTIONS ALOUD.** **SELECT ALL APPLICABLE ANSWERS.**	1. Contacting many people 2. Not having adequate protection (face masks) 3. My age or underlying health conditions 4. My long work hours 5. Using public transportation to commute or to make home visits 6. General public not following the guidelines to prevent transmission 7. Others (please specify……)
5.4	As a village health worker, do you never, sometimes, or often feel stigmatized by people in the community fearing you might transmit COVID-19?	1. Never 2. Sometimes 3. Often
5.5	Currently, do you feel you receive most, some, or little of the support you need to properly perform your work, including both your usual and your COVID-19-related work?	1. Most support – *skip to question 5.7* 2. Some support 3. Little support

5.7.5	Home visits	1. Slightly reduced 2. Substantially reduced or suspended 3. Increased 4. No change	1. Slightly reduced 2. Substantially reduced or suspended 3. Increased 4. No change
5.7.6	Support related to MCH services (e.g. line listing, follow-up pregnant women for ANC, provide education)	1. Slightly reduced 2. Substantially reduced or suspended 3. Increased 4. No change	1. Slightly reduced 2. Substantially reduced or suspended 3. Increased 4. No change

Section 6. Follow-up consent and interview result

དོན་ཚན་༦ པ། ལས་ལེན་ཕྱལ་དཔྱད་དང་ དྲི་བ་དྲིས་ལན་གྱི་གྲུབ་འབྲས།

No	Question	Response options
6.1	Thank you for responding to the interview. We may want to speak with you again in the future. Do you have a better number on which we can reach you in case we follow up with you?	1. Yes 2. No, the current number is good - *skip to question 6.4*
6.2	What is the updated number?	
6.3	Can you repeat the number again?	
6.4	Record the result of the interview.	1. Completed 2. Postponed 3. Partly completed and postponed 4. Partly completed 5. Refused 6. Other

Appendix 2 b: Assessment Tools – Facility Assessment

Continuity of essential health services: Facility assessment tool

Consent

Hello. My name is [*your name*]. I am *contacting you on* behalf of the Ministry of Health. The Ministry of Health is conducting a health facility assessment to assist the government in knowing more about continuity of essential health services during the COVID-19 pandemic in our country. Your facility was selected to participate in this study. We will be asking you questions about various essential health services.

Information collected about your facility during this study may be used by the Ministry of Health, organizations supporting services in your facility, and researchers, for planning service improvement or for conducting further studies of health services. Neither your name nor the names of any other staff who participate in this study will be included in the dataset or in any report. Facility identifiers will not be reported.

We are asking for your help in order to collect this information. You may refuse to answer any question or choose to stop the interview at any time. However, we hope you will answer the questions, which will benefit the services you provide and the nation. If there are questions for which someone else is the most appropriate person to provide the information, we would appreciate if you introduce me to / help contact that person to help us collect that information. At this point, do you have any questions about the study? Do I have your agreement to proceed?

No.	Question	Response options
1.A	May I begin the interview?	1. Yes 2. No – STOP, *skip to question 9.4*
1.B	Type interviewer name indicating consent obtained	_____

Section 1: Health facility identification and description

The questions in this section are related to the facility identification and description.

No.	Question	Response options		
1.1	Facility code			
1.2	Facility name			
1.3	Residence area	1. Urban 2. Rural		
1.4	Type of facility	1. Primary health centre 2. District-level hospital 3. Referral hospital 4. Other If other, please specify: _____		
1.5	Respondent or key informant's position			
1.6	Interview date (DD/MM/YYYY)	Day:	Month:	Year:

The following questions relate to the services offered in this facility.

No.	Question	Response options	
1.7	Does this facility provide inpatient services?	1. Yes 2. No – *skip to question 1.9*	
1.8	How many overnight/inpatient beds does the facility have in total, excluding delivery beds?	_____ beds (numeric entry)	
1.9	Does the facility have the following departments or wards/spaces?	1. Yes	2. No
1.9.1	Dedicated 24-hour staffed emergency unit/department	☐	☐
1.9.2	Intensive care or other high-dependency unit	☐	☐
1.9.3	Operation theatre/room	☐	☐
1.10i	If the answer to question 1.9.2 is "No", *skip to next section*		
1.10	Of the total number of inpatient beds, how many are intensive care unit (ICU) beds?	_____ beds (numeric entry)	

Section 2: Staffing

The questions in this section relate to staffing in the previous 3 months.

No.	Question	Response options	
2.1	For each of the following occupations, please provide the total number of staff and the number of staff who have been diagnosed with COVID-19 in the previous 3 months.	2.1.1.1 Number of staff	2.1.1.2 Number of staff who have been diagnosed with COVID-19 in the previous 3 months
2.1.1	Medical doctors		
2.1.2	Nursing personnel		
2.1.3	Medical Technologist/ Technician		
2.1.4	Health Assistants (including Clinical Officers)		
2.1.5	Drungthso/ sMenpa		
2.1.6	Clinical Counsellors		
2.1.7	Administrative and support staff		
2.1.8	Other		
2.2	Have any staff been on leave or absent at any time in the previous 3 months?	1. Yes 2. No – *skip to question 2.4*	
2.3	Please give the reasons for staff leave or absence in the previous 3 months. ***Do not read response options aloud. Select all applicable answers.***	1. Vacation or personal leave 2. Sick leave – unrelated to COVID-19 3. Sick leave – related to COVID-19, including preventive quarantine 4. Caring for family members who have COVID-19 5. Government policy on health care workers' reporting for work during an outbreak 6. Limited transportation due to lockdown 7. Lack of personal protective equipment 8. Fear related to COVID-19 9. Fear related to violence targeted at health workers 10. Burnout or mental health issues related to COVID-19 11. Other (please specify .....) 12. Unknown	

2.4	Has the facility made any changes to the way in which health workers are managed in the previous 3 months specifically because of COVID-19?	1. Yes 2. No – *skip to question 2.6* 3. Not applicable, there have been no changes in patient volume or patient type related to COVID-19 – *skip to question 2.6*		
2.5	What changes have been made? ***Select yes only if the adjustment is related to COVID-19***		1. Yes	2. No
2.5.1	Reassigning to different units/responsibilities in the facility		☐	☐
2.5.2	Increasing hours among part-time staff		☐	☐
2.5.3	Increasing overtime hours among full-time staff		☐	☐
2.5.4	Recruiting new staff to support increased patient volumes		☐	☐
2.5.5	Recruiting volunteers to support increased patient volumes		☐	☐
2.5.6	Receiving temporary staff seconded from other facilities		☐	☐
2.5.7	Temporary secondment to a different facility		☐	☐
2.5.8	Layoff or unpaid leave		☐	☐
2.6	Have any staff in the facility received training or support related to COVID-19 since the onset of the COVID-19 pandemic?	1. Yes 2. No – *skip to next section*		
2.7	In which of the following areas/topics, did the staff receive training or support? **If yes, ask and provide the date of latest supervision.**		1. Yes	2. No	Date of latest supervision (DD/MM/YYYY)
2.7.1	Training on infection prevention and control (IPC)		☐	☐	Not relevant
2.7.2	Training on proper use of personal protective equipment (PPE)		☐	☐	Not relevant
2.7.3	Training on triage protocols for COVID-19 case management		☐	☐	Not relevant
2.7.4	Training on management of emergency conditions		☐	☐	Not relevant
2.7.5	Mental health and psychosocial support		☐	☐	Not relevant
2.7.6	Training on provision of remote health care		☐	☐	Not relevant
2.7.7	Supportive supervision for IPC		☐	☐	
2.7.8	Supportive supervision on proper use of PPE		☐	☐	
2.7.9	Supportive supervision for COVID-19 case management		☐	☐	

Section 3: Health financing

The questions in this section relate to health financing during the COVID-19 pandemic.

No.	Question	Response options
3.1	Has there been a time since the start of the COVID-19 pandemic that your facility encountered difficulty in delivering routine essential services due to inadequate and/or lack of funding/budget?	1. Yes 2. No 3. Don't know
3.2	In the previous 3 months, has the facility received additional funding to ensure the maintenance of essential health services during the pandemic?	1. Yes – for COVID-19 case management services 2. Yes – for other essential health services 3. Yes – both for responses 1 and 2 4. No – *skip to question 3.4* 5. Do not know – *skip to question 3.4*
3.3	What is the source of the additional funding? ***Select all applicable answers.***	1. Government 2. Local community 3. International organization 4. Private 5. Do not know 6. Other (please specify.....)
3.4	Have any personnel worked overtime in the previous 3 months?	1. Yes 2. No – *skip to next section*
3.5	Have all personnel who worked overtime in the previous 3 months received overtime payment?	1. Yes 2. No 3. Not applicable, there is no overtime payment for staff

Section 4: Service delivery and utilization

The questions in this section relate to services delivered during the lockdown and non-lockdown periods of COVID-19.

No.	Question	Response options			
4.1	Has the health facility been completely closed temporarily because of a COVID-19 outbreak in the previous 3 months?	1. Yes 2. No			
4.2	Have the facility service hours been changed because of a COVID-19 outbreak in the previous 3 months?	1. Yes 2. No			
4.3	Did the facility have a defined list of essential health services for emergencies/pandemics before the COVID-19 pandemic?	1. Yes 2. No			
4.4	Has the facility received a defined list of essential health services to be delivered during the COVID-19 pandemic?	1. Yes 2. No			
4.5	For services that are not directly related to COVID-19 care and management, has the facility done any of the following during the lockdown and non-lockdown periods, compared to the pre-COVID period (Dec 2019-Feb 2020)??	**During non-lockdown period**		**During lockdown period**	
		1. Yes	2. No	1. Yes	2. No
4.5.1	Reduced the scope of specific services	☐	☐	☐	☐
4.5.2	Reduced the volume of specific services	☐	☐	☐	☐
4.5.3	Suspended the provision of specific services	☐	☐	☐	☐
4.5.4	Redirected patients to alternative health care facilities	☐	☐	☐	☐
4.5.5	Given priority to seeing high-risk patients	☐	☐	☐	☐
4.5.6	Provided all care in a single visit for multiple morbidities	☐	☐	☐	☐
4.5.7	Supported self-care interventions wherever appropriate	☐	☐	☐	☐
4.5.8	Provided home-based care for certain patients	☐	☐	☐	☐
4.5.9	Shifted clinical encounters to digital platforms such as teleconsultations	☐	☐	☐	☐
4.5.10	Provided electronic or tele prescriptions	☐	☐	☐	☐
4.5.11	Extended prescriptions of medicines for long-term use, such as medicines for treating noncommunicable diseases	☐	☐	☐	☐
4.5.12	Used innovative dispensing approaches for medicines	☐	☐	☐	☐
4.6	Are you aware that there are designated facilities for referral of patients with suspected or confirmed COVID-19?	1. Yes 2. No			
4.7	Does this facility have access to safe and isolated transportation to transfer the patients following referral?	1. Yes 2. No			

4.8	Has the facility observed **changes in outpatient attendance** (excluding emergency unit visits, if any) during the lockdown and non-lockdown periods, compared to the pre-COVID period (Dec 2019-Feb 2020)?	**During non-lockdown period**	**During lockdown period**
4.8.1	Services for undifferentiated symptoms (e.g. fever, pain, fatigue and cough)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.2	Family planning and contraception	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.3	Antenatal care	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.4	Postnatal care	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.5	Routine immunization	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.6	Care for sick children	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.7	Prevention, diagnosis and treatment of human immunodeficiency virus	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.8	Tuberculosis case detection and treatment	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.9	Prevention, diagnosis and treatment of sexually transmitted infections	1. Yes, increased 2. Yes, decreased 3. No change	1. Yes, increased 2. Yes, decreased 3. No change

		4. Not applicable (service not offered)	4. Not applicable (service not offered)
4.8.10	Diagnosis and treatment of malaria	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.11	Diagnosis and treatment of chronic cardiovascular disease	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.12	Diagnosis and treatment of chronic respiratory disease	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.13	Diabetes screening, diagnosis and treatment	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.14	Cancer screening, diagnosis and treatment	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.15	Diagnosis and treatment of mental health disorders (including substance abuse)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.16	Intimate partner and sexual violence – prevention and response	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.8.17	Rehabilitation (disability services)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable (service not offered)
4.9i	Check the responses to questions 4.8.1–4.8.17. If there are none with the answer 1 ("Yes, increased"), *skip to question 4.10.*		

4.9	For the services where outpatient attendance increased, what are the likely reasons for the increase? Any other reasons? ***Do not read response options aloud. Select all applicable answers.***	1. More patients presenting with acute respiratory infection symptoms 2. More patients being redirected from other facilities 3. Backlog from disruptions of services during the lockdown 4. Communications to the public about reactivation of any services that were previously suspended or reduced 5. General health communications campaign to promote care-seeking 6. Expansion of services through special health programs (e.g. FLAGSHIP, PENHEARTS) 7. Other (please specify.....)
4.10i	Check the responses to questions 4.8.1–4.8.17. If there are none with the answer 2 ("Yes, decreased"), *skip to question 4.11.*	
4.10	For the services where outpatient attendance decreased, what are the likely reasons for the decrease? Any other reasons? ***Do not read response options aloud. Select all applicable answers.***	**Community reasons** 1. Changes in recommendations to the public for mild illness and elective care 2. Fear, mistrust, uncertainty about catching COVID-19 during facility visits 3. Lockdown or stay-at-home order 4. Disruption of public transport **Facility reasons** 5. Scope of specific services reduced 6. Provision of specific services completely suspended 7. Reduced or changed opening hours 8. Facility closure 9. Limited availability of medicines or consumables 10. Limited availability of medical staff 11. Other (please specify .....)
4.11i	Check response to question 1.9.1. If the answer is "No", *skip to question 4.12.*	

4.11	Has the facility observed **changes in emergency unit visits for non-COVID-19-related issues** during the non-lockdown and lockdown periods, compared to the pre-COVID period (Dec 2019-Feb 2020)?	**During non-lockdown period**	**During lockdown period**
4.11.1	Overall	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)
4.11.2	Injuries	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)

4.11.3	Emergency surgery, including emergency caesarean section	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)
4.11.4	Acute conditions related to noncommunicable diseases (e.g. myocardial infarction, arrhythmia, stroke, diabetic ketoacidosis, asthma, chronic obstructive pulmonary disease and cancer)	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)
4.11.5	Urgent blood transfusion services	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)
4.12i	Check the response to question 1.7. If the answer is "No", *skip to question 4.14.*		
4.12	What was the average bed occupancy rate for the previous full month? *Note:* average bed occupancy rate is calculated by dividing the total number of bed-days effectively occupied for the duration of the whole month by the number of beds available for curative care multiplied by 30, and multiplying the ratio by 100.	_____ (percentage)	
4.13	Has the facility observed **changes in inpatient admissions** during the non-lockdown and lockdown periods, compared to the pre-COVID period (Dec 2019-Feb 2020)?	**During non-lockdown period** 1. Yes, increased 2. Yes, decreased 3. No change	**During lockdown period** 1. Yes, increased 2. Yes, decreased 3. No change
4.14	Has the facility observed **changes in the number of prehospital emergency care services** (such as ambulance transport) during the non-lockdown and lockdown periods, compared to the pre-COVID period (Dec 2019-Feb 2020)?	**During non-lockdown period** 1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable, prehospital emergency care services not offered	**During lockdown period** 1. Yes, increased 2. Yes, decreased 3. No change 4. Not applicable, prehospital emergency care services not offered
4.15	Does this facility usually provide community outreach or home-visit services?	1. Yes 2. No – *skip to question 4.17*	
4.16	For each of the following outreach services, has the facility **changed the frequency of services** during the non-lockdown and lockdown periods, compared to the pre-COVID period (Dec 2019-Feb 2020)?	**During non-lockdown period**	**During lockdown period**

4.16.1	Immunization outreach	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)
4.16.2	Malaria prevention campaigns, including distribution of insecticide-treated nets	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)
4.16.3	Neglected tropical disease outreach activities, including mass drug administration (deworming)	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)
4.16.4	Community-based mobile clinics	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)
4.16.5	Home visits	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)	1. Yes, increased 2. Yes, decreased 3. No 4. Not applicable (service not offered)
4.17	For patients who missed routine appointments that are unrelated to COVID-19 in the previous 3-4 months, has the facility developed plans to deliver services for those?	1. Yes 2. No – *skip to question 4.20*	
4.18	Has the facility registered the patients who have missed appointments?	1. Yes 2. No	

4.19	Has the facility made plans for targeted catch-up for the following patient groups?	1. Yes, planned and implemented	2. Yes, planned but not yet implemented	3. No	4. Not applicable – no service provided to the patient group
4.19.1	Pregnant women	☐	☐	☐	☐
4.19.2	Children scheduled for routine immunization	☐	☐	☐	☐
4.19.3	Patients with chronic noncommunicable diseases	☐	☐	☐	☐

4.20	Has there been any disruption of the services provided by the facility in the previous 3-4 months?	1. Yes 2. No – *skip to next section*				
4.21	On a scale of 1–5 from not at all to a great deal, how much have the following issues contributed to the disruption?	1. Not at all	2. Slightly	3. Moderately	4. Quite a lot	5. A great deal
4.21.1	Human resources	☐	☐	☐	☐	☐
4.21.2	Financing	☐	☐	☐	☐	☐
4.21.3	Infection prevention and control	☐	☐	☐	☐	☐
4.21.4	Medical supplies	☐	☐	☐	☐	☐

Please also answer the questions in Annex 1.

Section 5: COVID-19 infection prevention and control and personal protective equipment

The questions in this section concern infection prevention and control (IPC) during the COVID-19 pandemic.

No.	Question	Response options	
5.1	Is there a designated IPC focal point person in the facility?	1. Yes 2. No	
5.2	Has the facility implemented any measures to create a COVID-19 safe environment?	1. Yes 2. No – *skip to question 5.4*	
5.3	Which of the following measures have been implemented in this facility?	1. Yes	2. No
5.3.1	Screening of all patients and visitors at a dedicated entrance	☐	☐
5.3.2	Distancing of at least 1 metre between patients and visitors in waiting rooms and wards	☐	☐
5.3.3	Displaying instructions on hand and respiratory hygiene practices for patients and visitors	☐	☐
5.3.4	Screening and triage of patients for suspected COVID-19 using up-to-date national guidelines	☐	☐
5.3.5	COVID-19 isolation areas clearly identified and divided from non-COVID-19 areas	☐	☐
5.3.6	Designated staff entrance for screening	☐	☐
5.3.7	Hand hygiene stations at all points of care	☐	☐
5.3.8	Use of PPE by staff	☐	☐
5.3.9	Environment cleaning and disinfection	☐	☐
5.4	Does the facility have IPC guidelines for COVID-19?	1. Yes 2. No – *skip to question 5.6*	
5.5	Which of the following IPC guidelines exist?	1. Yes	2. No
5.5.1	Screening for signs and symptoms of COVID-19	☐	☐
5.5.2	Management of suspected/confirmed COVID-19 cases	☐	☐
5.5.3	PPE	☐	☐
5.5.4	COVID-19 surveillance among health workers	☐	☐
5.5.5	Management of dead bodies	☐	☐
5.6	Does this facility usually provide PPE to health workers?	1. Yes 2. No – *skip to next section*	

5.7	Are the following items **currently available** for each of the staff who are required to use them in accordance with the applicable guidelines?	1. Currently available for all health workers	2. Currently available only for some health workers	3. Currently unavailable for any health workers	4. Not applicable – never procured or provided
5.7.1	Gown, protective	☐	☐	☐	☐
5.7.2	Gloves, examination	☐	☐	☐	☐
5.7.3	Goggles, protective	☐	☐	☐	☐
5.7.4	Face shield	☐	☐	☐	☐
5.7.5	Respirator masks (N95 or FFP2)	☐	☐	☐	☐
5.7.6	Mask, medical/surgical	☐	☐	☐	☐

N95: not resistant to oil, 95% filter; FFP2: filtering face piece with minimum of 94% filtration percentage and maximum 8% leakage to the inside.

Section 6: Management of suspected and confirmed COVID-19 cases in primary care centres

The questions in this section concern management of patients with suspected or confirmed COVID-19. This section is ***only for Primary Health Centres (BHU IIs)***.

No.	Questions	Response options	
6.1i	Check responses to question 1.4. If the answer is *"1. Primary health centres"*, answer the questions in this section. If not, skip to the next section.		
6.1	Does the facility have a focal point or team responsible for COVID-19 service coordination?	1. Yes 2. No – *skip to question 6.3*	
6.2	Do they have standard operation procedures?	1. Yes 2. No	
6.3i	Questions 6.5 to 6.7 will be repeated in Section 8		
6.3	Does the facility collect specimens from patients to diagnose COVID-19?	1. Yes 2. No – *skip to question 6.6*	
6.4	Does the facility conduct polymerase chain reaction (PCR) tests or rapid diagnostic tests (RDTs) to diagnose COVID-19?	1. Yes, PCR– *skip to question 6.6* 2. Yes, RDT– *skip to question 6.6* 3. No	
6.5	Is there a functioning specimen transport system for forwarding specimens from the facility to a referral laboratory?	1. Yes 2. No	
6.6	Has the facility seen patients with suspected COVID-19 in the past 3 months?	1. Yes 2. No – *skip to question 6.8*	
6.7	Which of the following were performed to manage suspected COVID-19 cases?	1. Yes	2. No
6.7.1	Patient consultation takes place in a separate room	☐	☐
6.7.2	Checked for COVID-19 symptoms	☐	☐
6.7.3	Measured O_2 saturation with pulse oximeter	☐	☐
6.7.4	Referred the patient to specialized care	☐	☐
6.7.5	Performed diagnostic test	☐	☐
6.7.6	Instructed patients with mild symptoms to self-isolate at home	☐	☐
6.7.7	Provided teleconsultation to answer patient's questions before facility visit	☐	☐

6.8	Does the facility have up-to-date guidelines (COVID-19 Case Management Protocol - Second Version) to manage asymptomatic or mild COVID-19 cases, including for referral?	1. Yes 2. No
6.9	Have you received any other information or guidelines on how to manage asymptomatic or mild COVID-19 cases?	1. Yes 2. No – *skip to question 6.11*
6.10	Who did you receive the information from? ***Do not read response options aloud.*** ***Select all applicable answers.***	1. Ministry of health 2. Local government authority 3. World Health Organization 4. Professional associations, including professional media or academic journals 5. Other
6.11	Are there designated facilities for the referral of patients with suspected or confirmed COVID-19?	1. Yes 2. No – *skip to question 6.13*
6.12	Does this facility have access to safe and isolated transportation to transfer the patients following referral?	1. Yes 2. No
6.13	Is your facility tasked with contact tracing when positive cases are identified at the facility?	1. Yes 2. No – *skip to next section*
6.14	Have any staff members in your facility received training on contact tracing?	1. Yes 2. No

Section 7: Availability of selected tracer therapeutics

The questions in this section concern availability of selected medicines and medical supplies.

No.	Question	Response options	
7.1	Which of the following medicines are **currently available?**	1. Currently available	2. Currently unavailable
7.1.1	Salbutamol	☐	☐
7.1.2	Metformin	☐	☐
7.1.3	Hydrochlorothiazide	☐	☐
7.1.4	Paracetamol	☐	☐
7.1.5	Carbamazepine	☐	☐
7.1.6	Amoxicillin	☐	☐
7.1.7	Oxytocin	☐	☐
7.1.8	Magnesium sulfate	☐	☐
7.1.9	Epinephrine	☐	☐
7.1.10	Isoniazid + pyrazinamide + rifampicin	☐	☐
7.1.11	Intravenous (IV) fluids (normal saline or Ringer's lactate)	☐	☐
7.1.12	Oxygen	☐	☐
7.2	Which of the following supplies are **currently available?**	1. Currently available	2. Currently unavailable
7.2.1	Syringes and needles	☐	☐
7.2.2	IV cannulas and giving sets	☐	☐
7.2.3	Gauze	☐	☐

7.3i	Check responses to question 4.8.5. If the answer is "4. Not applicable", *skip to next question 7.4.*		
7.3	Which of the following vaccines is **currently available?**	1. Currently available	2. Currently unavailable
7.3.1	Measles vaccine and diluent	☐	☐
7.3.2	DTP+Hib+HepB (pentavalent)	☐	☐
7.3.3	Oral polio vaccine	☐	☐
7.3.4	BCG vaccine and diluent	☐	☐
7.4	In the previous 3-4 months, has the capacity of the facility to provide certain services been disrupted due to supply stockout?	1. Yes 2. No	

DTP: diphtheria, tetanus, pertussis; Hib: *Haemophilus influenzae* type b; HepB: hepatitis B vaccine; BCG: Bacillus Calmette–Guérin.

Section 8: Availability of diagnostics

The questions in this section concern the availability of laboratory and imaging services and supplies. This section is optional subject to country-specific priorities and context.

No.	Question	Response options		
8.1	Does the facility collect specimens from patients to diagnose COVID-19?	1. Yes 2. No – *skip to question 8.4*		
8.2	Does the facility conduct polymerase chain reaction (PCR) or rapid diagnostic tests (RDT) to diagnose COVID-19?	1. Yes – *skip to question 8.4* 2. No		
8.3	Is there a functioning specimen transport system for forwarding specimens from the hospital to a referral laboratory?	1. Yes 2. No		
8.4	Does this facility conduct any other diagnostic testing of specimens using either laboratory equipment or RDT?	1. Yes 2. No – *skip to question 8.7i*		
8.5 Are the following tests available onsite at any location in this facility?				
		1. Yes	2. No	
8.5.1	Malaria	☐	☐	
8.5.2	Blood glucose	☐	☐	
8.5.3	Dipstick for urine glucose	☐	☐	
8.5.4	Dipstick for urine protein	☐	☐	
8.5.5	Urine test for pregnancy	☐	☐	
8.6 For tests conducted onsite, are the associated items (equipment and supplies) required for each of the following test available and functional?				
		1. Yes	2. No	3. Not applicable
8.6.1	Malaria	☐	☐	☐
8.6.2	Blood glucose	☐	☐	☐
8.6.3	Dipstick for urine glucose	☐	☐	☐
8.6.4	Dipstick for urine protein	☐	☐	☐
8.6.5	Urine test for pregnancy	☐	☐	☐
8.7i	Check responses to question 1.4. If the answer is neither 2 nor 3, *skip to next section.*			

8.7	Are the following tests available onsite at any location in this facility?			
		1. Yes	2. No	
8.7.1	Human immunodeficiency virus	☐	☐	
8.7.2	Tuberculosis	☐	☐	
8.7.3	Haemoglobin	☐	☐	
8.7.4	Blood typing and cross-matching	☐	☐	
8.7.5	Blood creatinine	☐	☐	
8.8	For tests conducted onsite, are the associated items (equipment and supplies) required for each of the following test available and functional today?			
		1. Yes	2. No	3. Not applicable
8.8.1	Human immunodeficiency virus	☐	☐	☐
8.8.2	Tuberculosis	☐	☐	☐
8.8.3	Haemoglobin	☐	☐	☐
8.8.4	Blood typing and cross-matching	☐	☐	☐
8.8.5	Blood creatinine	☐	☐	☐
8.9	Does this facility conduct imaging examinations?	1. Yes 2. No – *skip to next section*		
8.10	Are the following imaging examinations available onsite at any location in this facility?			
		1. Yes	2. No	
8.10.1	X-ray	☐	☐	
8.10.2	Magnetic resonance imaging	☐	☐	
8.10.3	Ultrasound	☐	☐	
8.11	Are the associated items (equipment and supplies) required for the following imaging examinations available and functioning today?			
		1. Yes	2. No	3. Not applicable
8.11.1	X-ray	☐	☐	☐
8.11.2	Magnetic resonance imaging	☐	☐	☐
8.11.3	Ultrasound	☐	☐	☐

Section 9: Interview result

No.	Question	Response options
9.1i	If the data is collected through face-to-face interview, THANK the participant for responding to the interview, and *skip to question 9.4*.	
9.1	Thank you for responding to the interview. We would like to speak with you again in about three months. Do you have a better number we can use to reach you in case we follow up with you in the future?	1. Yes 2. No, the current number is the best - *skip to question 9.4*
9.2	What is the alternative number?	
9.3	Can you repeat the number?	
9.4	Record the result of the interview.	1. Completed 2. Postponed 3. Partly completed and postponed 4. Partly completed 5. Refused 6. Other _____

Annex 1. Routine data on key performance indicators

The questions in this Annex are intended to provide information on the number of services provided by the facility in the past few months to compare the current and previous year. Where feasible, please provide data on outpatient attendance, inpatient admissions, facility-based births, and diphtheria-tetanus-pertussis (DTP3) immunization coverage.

No.	Question	Response options[a]								
A1	According to your registries/HMIS report, how many of the following services were recorded in the previous four complete months in the current and previous year?	Past 4 months				Corresponding 4 months in the previous year				Put **NA** (Not applicable) here – If the service is not provided
		Month 1	Month 2	Month 3	Month 4 (last month)	Month 1	Month 2	Month 3	Month 4	
A1.1	Reporting month (MM/YYYY)	02/2021	03/2021	04/2021	05/2021	02/2020	03/2020	04/2020	05/2020	
A1.2	Total no. of outpatient visits (numeric entry)									
A1.3	Total no. of inpatient admissions (numeric entry)									
A1.4	Total no. of facility-based births (numeric entry)									
A1.5	Total no. of DTP3 doses (numeric entry)									
A1.6	Total no. of ANC visits (6th visit)									
A1.7	Total no. of PNC visits (1st visit)									
A1.8	Total no. of people presenting with mental health symptoms									
A1.9	Total no. of tuberculosis cases									

HMIS: health management information systems; DTP, diphtheria-tetanus-pertussis; ANC, antenatal care; PNC, postnatal care

[a] Illustrative example of reporting months: If the assessment is conducted in March 2021, the reporting months are: 11/2020, 12/2020, 01/2021 and 02/2021 (the preceding 4 months), and the corresponding reporting months from the previous year are 11/2019, 12/2019, 01/2020, and 02/2020.

Appendix 3: Weight Calculation

Design Weight

The sampling method for the essential health service delivery assessments in Bhutan involved two-stage clustered probability sampling. At the first step, clusters or districts from each region were selected using the probability proportional to size (PPS) – probability of selecting a district is proportional to the number of health facilities.

This step was followed by selecting health facilities using simple random sampling from a representative number of districts. Design weights were calculated for each cluster based on separate sampling probabilities of each sampling stage (Feed the Future FEEDBACK, 2014; ICF International, 2012).

P1 = first-stage sampling probability or cluster selection
P2 = second-stage sampling probability within the cluster (health facility selection)

P1 for each cluster in respective region was calculated following a published guideline on calculating weights based on PPS sampling (World Health Organization). P2 represented the values generated from dividing the number of selected health facilities by the number of health facilities listed in each cluster. P2 was calculated differently for hospitals and PHCs.

The overall selection probability is the product between P1 and P2. Design weights were then calculated as the inverse of its overall selection probability.

$$Design\ weight = \frac{1}{P1xP2}$$

Sampling Weight

The sampling weight was calculated using the design weight adjusted for non-response for each type of health facility in each cluster.

The proportion or probability of non-response for each type of health facility was calculated by dividing the number of health facilities of which their data were successfully collected by the number of health facilities that were planned to be selected in the first place.

Design weight was then multiplied with the inverse probability of non-response to generate sampling weight.

Appendix 4: Research Ethics Board of Health (REBH) Waiver

ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF HEALTH
RESEARCH ETHICS BOARD OF HEALTH
THIMPHU : BHUTAN
P.O. BOX : 726

Ref. No. REBH/ PO/2021/056 26th April 2021

EXEMPTION LETTER

Protocol No: PO/2021/056
Protocol Title: Essential health service delivery assessments: strengthening health system response to delivery of essential health services and monitoring during and post COVID-19 pandemic to accelerate UHC

Version Number: "1" dated: 23/04/2021

Principal Investigator: Mr. Tashi Dendup
Institute: WHO Country Office

Co-Investigators: 1. Dr. Karma Lhazeen, 2. Mr. Tashi Penjor, 3. Mr. Dil Kumar Subba, 4. Mr. Tandin Dendup, 5. Mr. Mongal Singh Gurung, 6. Mr. Kinley Dorjee, 7. Mr. Kencho Wangdi and 8. Ms. Thinley Zangmo

This is to state that Research Ethics Board of Health (REBH) has determined that the above protocol, submitted to REBH for ethical approval, qualify for exemption from ethics review based on the criteria specified in the Standard Operating Procedures (SOP) of REBH - SOP/007 DETERMINATION OF RESEARCH QUALIFYING FOR EXEMPTION FROM ETHICS REVIEW.

Therefore, the need for REBH approval is exempted for the protocol. Nonetheless, the investigator(s) shall be responsible to:

1. Seek all other clearances/approvals required by law/policy including permission from the study sites before conducting the study,
2. Submit Final Report of the study, at the end of the study, for review and protocol file closure.

Note: Technical and ethical soundness of protocols are not assessed by REBH for the protocols that qualify for exemptions of REBH review.

(Dr. Neyzang Wangmo)
Chairperson

For further information please contact: *REBH Secretary:* at *Tel: +975-2-322602* or email at rebhsecretary@gmail.com

PABX: + 975-2-322602, 322351, 328091, 328092, 328093 (Extension 333) Fax: 324649

Appendix 5: Supplementary materials

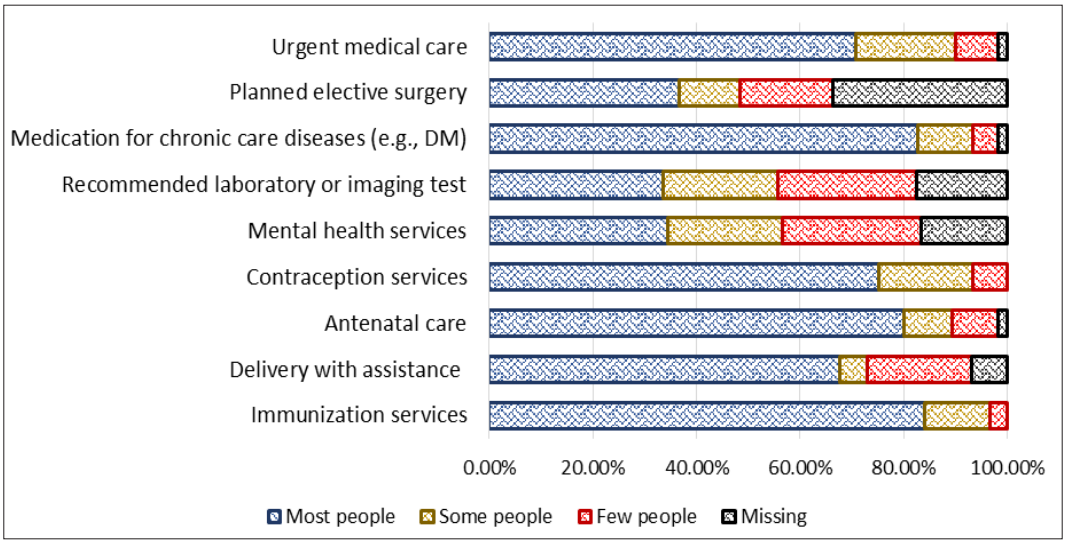
Supplementary Table S1: Region wise and southern districts estimates for some key questions

Impact of COVID-19	Overall	Region			Southern districts*
		Western N (%)	Central N (%)	Eastern N (%)	N (%)
Impact on people's experience in getting health care					
Remained stable	229 (48.8)	63 (44.4)	71 (50.5)	94 (51)	60 (50.7)
Moderately affected	229 (48.8)	71 (50.3)	70 (49.5)	87 (47.2)	56 (47.2)
Strongly affected	11 (2.3)	8 (5.4)	0 (0)	3.4 (1.8)	2 (2.1)
Economic impact of the COVID-19 pandemic on the community					
Limited	127 (27.2)	18 (12.8)	53 (37)	57 (30.7)	42 (35.4)
Moderate	262 (55.8)	86 (60.9)	78 (54.9)	98 (52.6)	57 (47.8)
Significant	79.7 (16.9)	37 (26.2)	11 (8.0)	31 (16.7)	20 (16.8)

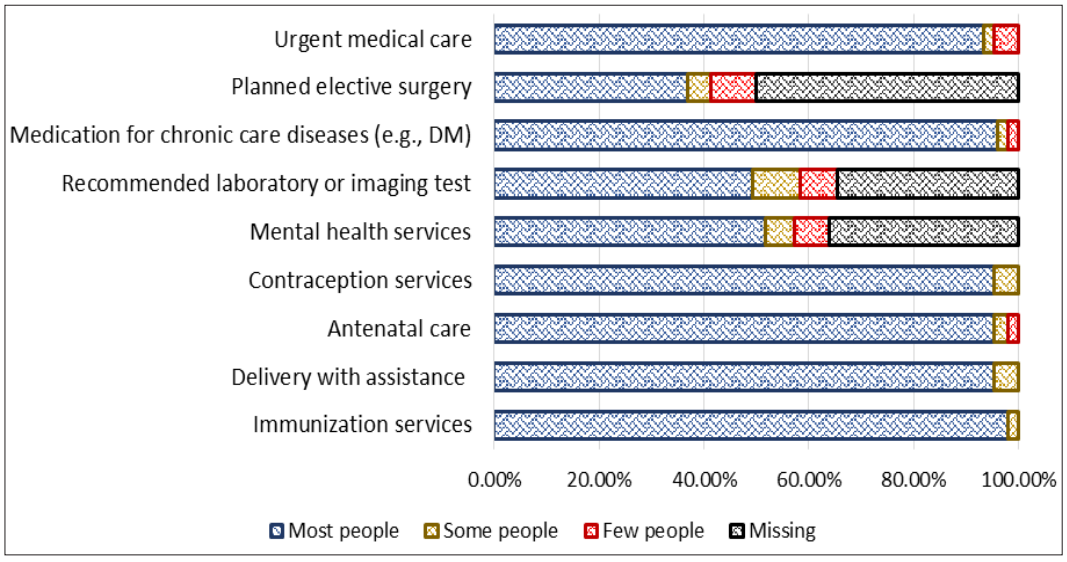
**Chukha and Sarpang*

Supplementary Figure S1 (1-4): Health services received by the community in the past 3 months by region and in two southern districts

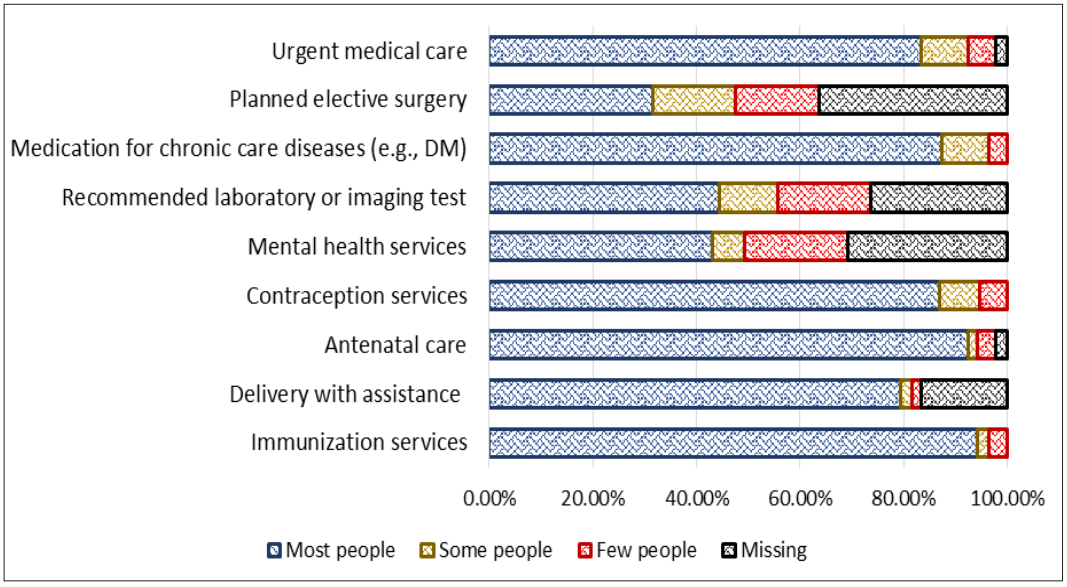
Western



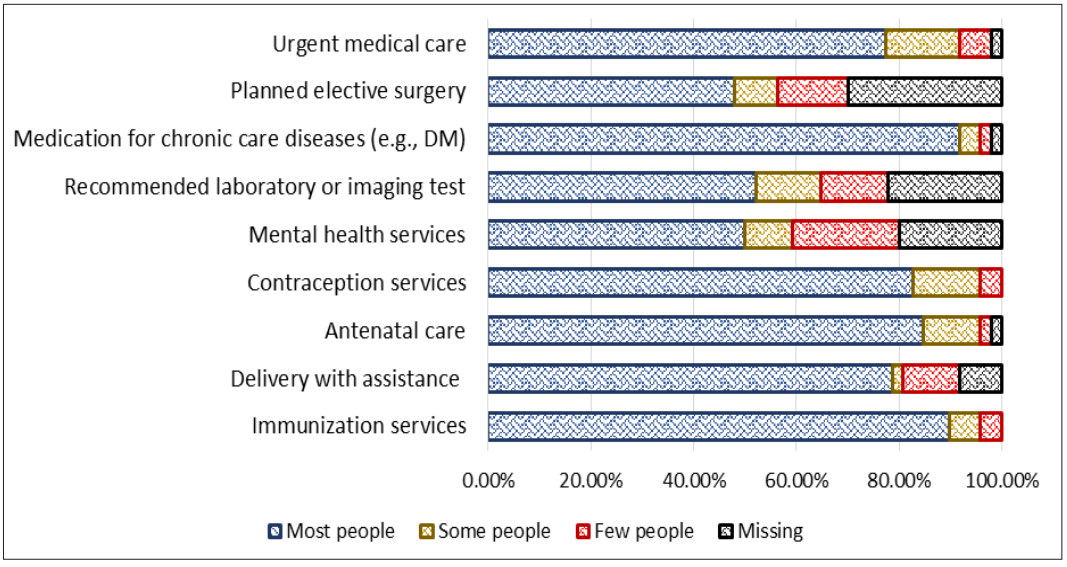
Central



Eastern



Southern districts (Sarpang and Chukha)



Supplementary Table S2: Number of workers at health facilities

Type of workers at health facilities	n=71	Diagnosed with COVID-19 (n)
Medical doctors Mean; SD	1.77; 11.17	0
Nursing personnel Mean; SD	8.91; 45.87	0
Medical technologists Mean; SD	6.49; 35.54	0
Health assistants (including clinical officers) Mean; SD	2.78; 2.95	0
Drungthso/ sMenpa Mean; SD	0.75; 1.39	0
Clinical Counsellors Mean; SD	0.04; 0.24	0
Administrative and support staff Mean; SD	9.62; 36.49	0
Other Mean; SD	0.72; 1.86	0

Supplementary Table S3: Health service delivery during the COVID-19 and availability

By region

Service delivery and utilization (n=72)	Region (weighted %)		
	Central (n=21)	Western (n=23)	Eastern (n=28)
The facility has been completely closed temporarily because of a COVID-19 outbreak in the last 3 months			
Yes	0	0	0
No	100.00	100.00	100.00
Missing	0	0	0
The facility service hours have been changed because of a COVID-19 outbreak in the last 3 months			
Yes	6.53	4.83	10.07
No	93.47	95.17	89.93
Missing	0	0	0
Disruption of the services provided by the facility in previous months	30.02		
Yes	65.28	16.37	25.11
No	4.70	83.63	72.81
Missing		0	2.08
The capacity to provide certain services has been disrupted due to supply stock out			
Yes	8.67	7.19	7.90
No	91.33	92.81	92.10
Missing	0	0	0

By health facility

Service delivery and utilization (n=72)	Region (weighted %)		
	PHCs (n=55)	District-level hospital (n=14)	Referral hospital (n=3)
The facility has been completely closed temporarily because of a COVID-19 outbreak in the last 3 months			
Yes	0	0	0
No	100.00	100.00	100.00
Missing	0	0	0
The facility service hours have been changed because of a COVID-19 outbreak in the last 3 months			
Yes	3.28	20.08	66.67
No	96.72	79.92	33.33
Missing	0	0	0
Disruption of the services provided by the facility in previous 3-4 months	20.20		
Yes	78.03	39.15	33.33
No	1.77	60.85	33.33
Missing		0	33.33
The capacity to provide certain services has been disrupted due to supply stock out			
Yes	7.72	9.68	0
No	92.28	90.32	100.00
Missing	0	0	0

By two southern districts (Chukha and Sarpang)

Service delivery and utilization (n=23)	Weighted %
The facility has been completely closed temporarily because of a COVID-19 outbreak in the last 3 months	
Yes	0
No	100.00
Missing	0
The facility service hours have been changed because of a COVID-19 outbreak in the last 3 months	
Yes	7.25
No	92.75
Missing	0
Disruption of the services provided by the facility in previous 3-4 months	
Yes	28.60
No	65.71
Missing	5.69
The capacity to provide certain services has been disrupted due to supply stock out	
Yes	5.69
No	94.31
Missing	0

Supplementary Table S4: Changes made in health service delivery that are not related to COVID-19

By region

Changes in services that are not directly related to Covid-19 care and management (n=72)	Region (weighted %)					
	Central (n=21)		Western (n=23)		Eastern (n=28)	
	Non-lockdown	Lockdown	Non-lockdown	Lockdown	Non-lockdown	Lockdown
Reduced the scope of specific services						
Yes	09.40	55.47	13.32	44.45	0	29.57
No	90.60	44.53	86.68	48.36	100.00	66.91
Missing	0	0	0	7.19	0	3.53
Reduced the volume of specific services						
Yes	13.37	47.14	9.90	40.50	0	33.94
No	86.63	47.30	90.10	59.50	100.00	62.53
Missing	0	5.56	0	0	0	3.53
Suspended the provision of specific services						
Yes	0	43.17	9.90	42.05	0	41.63
No	94.44	56.83	90.10	57.95	100.00	54.84
Missing	5.56	0	0	0	0	3.53
Redirected patients to alternative health care facilities						
Yes	0	16.01	17.09	32.16	13.60	21.58
No	100.00	83.99	82.91	67.84	86.40	74.89
Missing	0	0	0	0	0	3.53
Given priority to seeing high-risk patients						
Yes	44.58	88.77	69.91	86.15	50.04	77.83
No	55.42	11.23	30.09	13.85	46.43	18.65
Missing	0	0	0	0	3.53	3.53

Provided all care in a single visit for multiple morbidities						
Yes	76.78	80.91	78.61	86.68	66.31	89.34
No	23.33	19.09	21.39	13.32	33.69	10.66
Missing	0	0	0	0	0	0
Supported self-care interventions wherever appropriate						
Yes	62.31	86.04	83.44	86.68	77.91	77.83
No	37.69	13.96	16.56	13.32	18.56	22.17
Missing	0	0	0	0	3.53	0
Provided home-based care for certain patients						
Yes	62.84	95.30	73.70	89.92	61.38	66.14
No	37.16	4.70	26.30	10.08	38.62	33.86
Missing	0	0	0	0	0	0
Shifted clinical encounters to digital platforms such as teleconsultations						
Yes	21.08	46.66	17.80	45.88	3.53	44.99
No	78.92	53.34	82.20	54.12	96.47	55.01
Missing	0	0	0	0	0	0
Provided electronic or tele prescriptions						
Yes	2.78	22.93	7.19	18.49	7.05	24.17
No	97.22	77.07	92.81	81.51	92.95	75.83
Missing	0	0	0	0	0	0
Extended prescriptions of medicines for long-term use						
Yes	45.22	53.42	33.86	86.34	40.14	84.88
No	54.78	46.58	66.14	13.66	59.86	11.51
Missing	0	0	0	0	0	3.61
Used innovative dispensing approaches for medicines						
Yes	8.67	71.89	24.12	58.11	20.65	82.20
No	91.33	28.11	75.88	41.89	79.45	17.80
Missing	0	0	0	0	0	0

By health facility

Changes in services that are not directly related to Covid-19 care and management (n=72)	Facility (weighted %)					
	PHCs (n=55)		District-level hospital (n=14)		Referral hospital (n=3)	
	Non-lockdown	Lockdown	Non-lockdown	Lockdown	Non-lockdown	Lockdown
Reduced the scope of specific services						
Yes	5.99	31.93	11.57	79.92	0	100.00
No	94.01	63.61	88.43	20.08	100.00	0
Missing	0	4.45	0	0	0	0
Reduced the volume of specific services						
Yes	7.49	30.44	5.78	75.52	0	100.00
No	92.51	67.82	94.22	15.09	100.00	0
Missing	0	1.74	0	9.39	0	0
Suspended the provision of specific services						
Yes	2.44	40.24	5.78	44.57	0	100.00
No	97.56	58.02	84.83	55.43	100.00	0
Missing	0	1.74	9.39	0	0	0
Redirected patients to alternative health care facilities						
Yes	08.68	20.61	20.08	29.84	0	66.67
No	91.32	77.65	79.92	70.16	100.00	33.33
Missing	0	1.74	0	0	0	0
Given priority to seeing high-risk patients						
Yes	58.72	84.00	29.84	80.20	100.00	100.00
No	39.54	14.26	70.16	19.80	0	0
Missing	1.74	1.74	0	0	0	0

Provided all care in a single visit for multiple morbidities						
Yes	75.26	87.02	63.28	84.10	66.67	66.67
No	24.74	12.98	36.72	15.90	33.33	33.33
Missing	0	0	0	0	0	0
Supported self-care interventions wherever appropriate						
Yes	74.34	83.50	78.75	78.75	66.67	100.00
No	23.92	16.50	21.25	21.25	33.33	0
Missing	0	0	0	0	0	0
Provided home-based care for certain patients						
Yes	64.43	84.60	70.96	69.07	66.67	100.00
No	35.57	15.40	29.04	30.93	33.33	0
Missing	0	0	0	0	0	0
Shifted clinical encounters to digital platforms such as teleconsultations						
Yes	14.15	37.90	10.12	74.85	0	100.00
No	85.85	62.10	89.88	25.15	100.00	0
Missing	0	0	0	0	0	0
Provided electronic or tele prescriptions						
Yes	6.20	17.40	4.69	38.85	0	66.67
No	93.80	82.60	95.31	61.15	100.00	33.33
Missing	0	0	0	0	0	0
Extended prescriptions of medicines for long-term use						
Yes	33.21	71.96	64.75	90.32	66.67	100.00
No	66.79	26.25	35.25	9.68	33.33	0
Missing	0	1.78	0	0	0	0
Used innovative dispensing approaches for medicines						
Yes	14.21	68.11	37.43	85.19	0	100.00
No	85.79	31.89	62.57	14.81	100.00	0
Missing	0	0	0	0	0	0

By two southern districts (Chukha and Sarpang)

Changes in services that are not directly related to Covid-19 care and management (n=23)	Weighted %	
	Non-lockdown	Lockdown
Reduced the scope of specific services		
Yes	27.50	59.20
No	72.50	40.80
Missing	0	0
Reduced the volume of specific services		
Yes	23.36	63.12
No	76.64	36.88
Missing	0	0
Suspended the provision of specific services		
Yes	11.98	55.06
No	88.02	44.94
Missing	0	0
Redirected patients to alternative health care facilities		
Yes	11.98	19.81
No	88.02	80.19
Missing	0	0
Given priority to seeing high-risk patients		
Yes	59.57	83.15
No	40.43	16.85
Missing	0	0
Provided all care in a single visit for multiple morbidities		
Yes	70.13	71.98
No	29.87	28.02
Missing	0	0
Supported self-care interventions wherever appropriate		
Yes	71.17	78.19
No	28.83	21.81
Missing	0	0

Provided home-based care for certain patients		
Yes	55.37	82.11
No	44.63	17.89
Missing	0	0
Shifted clinical encounters to digital platforms such as teleconsultations		
Yes	7.25	26.47
No	92.75	73.53
Missing	0	0
Provided electronic or tele prescriptions		
Yes	0	15.08
No	100.00	84.92
Missing	0	0
Extended prescriptions of medicines for long-term use		
Yes	33.70	69.41
No	66.30	30.59
Missing	0	0
Used innovative dispensing approaches for medicines		
Yes	26.18	58.25
No	73.82	41.75
Missing	0	0

Supplementary Table S5: Changes in outpatient attendance

By region

Changes in outpatient attendance (n=72)	Region (weighted %)					
	Central (n=21)		Western (n=23)		Eastern (n=28)	
	Non-lockdown	Lockdown	Non-lockdown	Lockdown	Non-lockdown	Lockdown
Services for undifferentiated symptoms						
Yes, increased	7.48	21.70	17.27	26.98	15.04	2.08
Yes, decreased	2.56	35.77	3.24	31.13	6.46	44.94
No change	89.96	42.53	79.49	41.89	78.50	52.98
Not applicable	0	0	0	0	0	0
Missing	0	0	0	0	0	0
Family planning and contraception						
Yes, increased	2.78	0	13.13	13.51	7.99	0
Yes, decreased	2.56	19.76	0	17.59	4.37	12.36
No change	94.66	80.24	86.87	68.90	87.64	87.64
Not applicable	0	0	0	0	0	0
Missing	0	0	0	0	0	0
Antenatal care						
Yes, increased	6.75	4.70	13.13	6.85	14.44	0
Yes, decreased	2.56	29.28	0	23.75	0	30.25
No change	90.69	66.02	86.87	69.40	85.56	69.75
Not applicable	0	0	0	0	0	0
Missing	0	0	0	0	0	0

Postnatal care						
Yes, increased						
Yes, decreased	2.78	4.70	13.13	6.85	10.07	0
No change	2.56	51.77	0	30.94	0	29.40
Not applicable	94.66	43.53	86.87	62.21	89.93	70.60
Missing	0	0	0	0	0	0
	0	0	0	0	0	0
Routine immunization						
Yes, increased	2.56	0	3.24	6.85	12.36	0
Yes, decreased	0	13.32	0	6.47	0	35.21
No change	97.44	86.77	96.76	83.44	87.64	64.79
Not applicable	0	0	0	3.24	0	0
Missing	0	0	0	0	0	0
Care for sick children						
Yes, increased	0	0	16.90	7.19	3.61	0
Yes, decreased	6.53	9.10	3.42	19.61	7.90	22.94
No change	93.47	86.94	72.49	66.02	88.49	77.06
Not applicable	0	0	7.19	7.19	0	0
Missing	0	3.97	0	0	0	3.97
Prevention, diagnosis and treatment of HIV						
Yes, increased	0	0	0	0	0	4.37
Yes, decreased	0	3.87	0	19.48	0	0
No change	48.35	39.68	68.72	42.77	58.11	53.74
Not applicable	51.65	56.35	31.28	37.75	38.27	38.27
Missing	0	0	0	0	3.61	3.61
Tuberculosis case detection and treatment						
Yes, increased	10.90	8.33	3.42	0	8.75	4.37
Yes, decreased	0	0	3.42	6.85	0	0
No change	27.24	29.80	42.46	42.46	44.99	49.36
Not applicable	61.24	61.68	50.70	50.70	46.26	46.26
Missing	0	0	0	0	0	0

Prevention, diagnosis and treatment of STIs						
Yes, increased	2.56	0	0	0	5.69	0
Yes, decreased	2.56	13.28	0	13.13	0	3.61
No change	76.94	68.79	89.57	73.02	86.40	88.49
Not applicable	13.96	13.96	10.43	10.43	3.53	3.53
Missing	3.97	3.97	0	3.42	4.37	4.37
Diagnosis and treatment of malaria						
Yes, increased	7.26	4.70	0	0	0	0
Yes, decreased	2.56	5.13	3.42	3.42	0	0
No change	50.49	50.49	61.37	54.90	32.24	32.24
Not applicable	39.68	39.68	33.80	40.27	64.23	64.23
Missing	0	0	1.41	1.41	3.53	3.53
Diagnosis and treatment of CVD						
Yes, increased	5.56	3.97	0	0	4.37	0
Yes, decreased	6.53	9.31	0	6.85	0	4.37
No change	56.61	55.42	56.49	49.65	56.24	56.24
Not applicable	31.30	31.30	43.51	43.51	39.38	39.38
Missing	0	0	0	0	0	0
Diagnosis and treatment of chronic respiratory disease						
Yes, increased	9.52	5.56	7.19	7.19	6.46	6.46
Yes, decreased	2.56	17.25	0	17.96	0	0
No change	73.95	63.24	69.44	51.47	82.79	82.79
Not applicable	13.96	13.96	20.14	20.14	10.75	10.75
Missing	0	0	3.24	3.24	0	0
Diabetes screening, diagnosis and treatment	12.82	4.70	6.47	0	21.58	2.08
Yes, increased	6.53	31.66	0	34.02	0	25.11
Yes, decreased	71.39	54.38	73.39	38.65	64.15	58.54
No change	9.26	9.26	16.90	24.09	14.27	14.27
Not applicable	0	0	3.24	3.24	0	0
Missing						

Cancer screening, diagnosis and treatment						
Yes, increased	0	0	3.42	0	0	0
Yes, decreased	0	30.42	6.47	14.23	0	9.22
No change	58.66	28.24	42.46	17.80	43.67	34.45
Not applicable	41.34	41.34	47.65	67.97	56.33	56.33
Missing	0	0	0	0	0	0
Diagnosis and treatment of mental health disorders (including substance abuse)						
Yes, increased	12.09	10.68	0	3.42	11.51	6.46
Yes, decreased	0	16.01	0	9.59	0	7.14
No change	47.94	33.34	66.92	40.25	60.11	58.03
Not applicable	39.97	39.97	33.08	46.74	28.38	28.38
Missing	0	0	0	0	0	0
Intimate partner and sexual violence - prevention and response						
Yes, increased	0	10.26	0	0	7.99	4.37
Yes, decreased	3.97	3.97	6.16	0	0	7.14
No change	76.27	66.02	62.40	58.13	59.86	59.86
Not applicable	19.76	19.76	30.03	40.46	32.16	28.63
Missing	0	0	1.41	1.41	0	0
Rehabilitation (disability services)						
Yes, increased	5.56	7.94	0	10.43	3.61	2.08
Yes, decreased	3.97	18.78	0	9.59	0	5.69
No change	62.51	45.31	58.13	38.12	77.83	73.66
Not applicable	27.97	27.97	40.46	40.46	18.56	18.56
Missing	0	0	1.41	1.41	0	0

By health facility

Changes in outpatient attendance (n=72)	Facility (weighted %)					
	PHCs (n=55)		District-level hospital (n=14)		Referral hospital (n=3)	
	Non-lockdown	Lockdown	Non-lockdown	Lockdown	Non-lockdown	Lockdown
Services for undifferentiated symptoms						
Yes, increased	10.97	12.64	12.64	30.26	0	0
Yes, decreased	1.22	34.79	34.79	54.27	0	33.33
No change	87.81	52.57	52.57	15.47	100	66.67
Not applicable	0	0	0	0	0	0
Missing	0	0	0	0	0	0
Family planning and contraception						
Yes, increased	5.45	1.22	20.16	17.35	0	0
Yes, decreased	0	14.38	14.02	23.70	0	33.33
No change	94.55	84.40	65.82	58.95	100	66.67
Not applicable	0	0	0	0	0	0
Missing	0	0	0	0	0	0
Antenatal care						
Yes, increased	6.94	1.77	34.46	11.57	0	0
Yes, decreased	0	19.36	4.33	67.48	0	33.33
No change	93.06	78.87	61.21	20.96	100	66.67
Not applicable	0	0	0	0	0	0
Missing	0	0	0	0	0	0
Postnatal care						
Yes, increased	5.45	1.77	24.77	11.57	0	0
Yes, decreased	0	32.29	4.33	57.79	0	33.33
No change	94.55	65.93	70.90	30.64	100	66.67
Not applicable	0	0	0	0	0	0
Missing	0	0	0	0	0	0

Routine immunization						
Yes, increased	3.01	0	23.70	11.57	0	0
Yes, decreased	0	16.18	0	38.73	0	0
No change	96.99	82.60	76.30	49.70	100	100
Not applicable	0	1.22	0	0	0	0
Missing	0	0	0	0	0	0
Care for sick children						
Yes, increased	8.16	2.71	0	0	0	0
Yes, decreased	3.24	14.61	19.80	29.48	0	33.33
No change	85.89	78.47	80.20	70.52	100	66.67
Not applicable	2.71	2.71	0	0	0	0
Missing	0	1.50	0	0	0	0
Prevention, diagnosis and treatment of HIV						
Yes, increased	0	0	0	9.68	0	0
Yes, decreased	0	3.94	0	21.98	0	0
No change	52.18	44.03	81.37	49.71	100	100
Not applicable	46.03	50.25	18.63	18.63	0	0
Missing	1.78	1.78	0	0	0	0
Tuberculosis case detection and treatment						
Yes, increased	0	0	43.56	23.76	0	0
Yes, decreased	0	0	5.78	11.57	0	0
No change	34.68	34.68	50.65	64.67	100	100
Not applicable	65.32	65.32	0	0	0	0
Missing	0	0	0	0	0	0
Prevention, diagnosis and treatment of STIs	1.78	0	8.94	0	0	0
Yes, increased	0	8.44	0	14.81	33.33	0
Yes, decreased	85.78	79.12	81.37	69.72	66.67	100
No change	10.94	10.94	0	0	0	0
Not applicable	1.50	1.50	9.68	15.47	0	0
Missing						

Diagnosis and treatment of malaria						
Yes, increased	1.77	1.77	0	0	33.33	0
Yes, decreased	0	0	10.12	10.12	0	33.33
No change	42.38	39.94	65.91	65.91	33.33	33.33
Not applicable	54.10	56.54	23.98	23.98	0	0
Missing	1.74	1.74	0	0	33.33	33.33
Diagnosis and treatment of CVD						
Yes, increased	0	1.50	19.07	0	0	0
Yes, decreased	1.50	1.50	4.33	30.28	0	0
No change	50.83	49.33	76.60	69.72	100	100
Not applicable	47.68	47.68	0	0	0	0
Missing	0	0	0	0	0	0
Diagnosis and treatment of chronic respiratory disease						
Yes, increased	4.21	2.71	23.68	23.68	0	
Yes, decreased	0	8.15	4.33	20.60	0	0
No change	76.40	69.74	71.99	55.72	100	33.33
Not applicable	18.17	18.17	0	0	0	66.67
Missing	1.22	1.22	0	0	0	0
						0
Diabetes screening, diagnosis and treatment	9.53	1.77	33.36	4.61	33.33	0
Yes, increased	1.50	24.13	4.33	51.46	0	66.67
Yes, decreased	70.84	53.24	62.30	43.93	66.67	33.33
No change	16.92	19.63	0	0	0	0
Not applicable	1.22	1.22	0	0	0	0
Missing						
Cancer screening, diagnosis and treatment						
Yes, increased	0	00	5.78	0	0	0
Yes, decreased	2.44	16.22	0	16.20	0	66.67
No change	42.66	22.50	65.11	48.91	100	33.33
Not applicable	54.90	61.28	29.10	34.89	0	0
Missing	0	0	0	0	0	0

Diagnosis and treatment of mental health disorders (including substance abuse)						
Yes, increased	5.02	0	19.07	29.19	33.33	66.67
Yes, decreased	0	8.52	0	20.89	0	0
No change	53.40	44.76	80.93	49.92	66.67	33.33
Not applicable	41.58	46.73	0	0	0	0
Missing	0	0	0	0	0	0
Intimate partner and sexual violence - prevention and response						
Yes, increased	1.78	1.77	9.68	19.07	0	0
Yes, decreased	1.50	5.02	0	10.41	0	0
No change	64.31	62.53	80.20	60.40	66.67	66.67
Not applicable	32.41	30.67	10.12	10.12	0	0
Missing	0	0	0	0	33.33	33.33
Rehabilitation (disability services)						
Yes, increased	1.78	6.93	9.39	4.61	0	0
Yes, decreased	1.50	6.77	0	25.58	0	33.33
No change	67.20	56.78	66.12	45.31	66.67	33.33
Not applicable	29.52	29.52	24.49	24.49	0	0
Missing	0	0	0	0	33.33	33.33

By two southern districts (Chukha and Sarpang)

Changes in outpatient attendance (n=23)	Weighted %	
	Non-lockdown	Lockdown
Services for undifferentiated symptoms		
Yes, increased	17.89	35.33
Yes, decreased	7.02	22.91
No change	75.09	41.75
Not applicable	0	0
Missing	0	0
Family planning and contraception		
Yes, increased	15.89	16.35
Yes, decreased	3.10	22.69
No change	81.00	60.97
Not applicable	0	0
Missing	0	0
Antenatal care		
Yes, increased	15.89	13.98
Yes, decreased	3.10	22.69
No change	81.00	63.34
Not applicable	0	0
Missing	0	0
Postnatal care		
Yes, increased	15.89	13.98
Yes, decreased	3.10	22.69
No change	81.00	63.34
Not applicable	0	0
Missing	0	0
Routine immunization		
Yes, increased	7.02	8.29
Yes, decreased	0	7.83
No change	92.98	79.96
Not applicable	0	3.92
Missing	0	0
Care for sick children		
Yes, increased	11.75	0
Yes, decreased	7.25	29.93
No change	81.00	70.07
Not applicable	0	0
Missing	0	0

Prevention, diagnosis and treatment of HIV		
Yes, increased	0	0
Yes, decreased	0	16.12
No change	73.33	44.12
Not applicable	26.23	39.76
Missing	0	0
Tuberculosis case detection and treatment		
Yes, increased	7.25	0
Yes, decreased	4.14	8.29
No change	24.91	28.02
Not applicable	63.70	63.70
Missing	0	0
Prevention, diagnosis and treatment of STIs		
Yes, increased	3.10	0
Yes, decreased	3.10	19.00
No change	84.19	67.25
Not applicable	9.61	9.61
Missing	0	4.14
Diagnosis and treatment of malaria		
Yes, increased	8.79	5.69
Yes, decreased	7.25	10.35
No change	60.46	52.63
Not applicable	23.50	31.34
Missing	0	0
Diagnosis and treatment of CVD		
Yes, increased	0	0
Yes, decreased	3.10	11.39
No change	44.58	36.29
Not applicable	52.32	52.32
Missing	0	0
Diagnosis and treatment of chronic respiratory disease		
Yes, increased	0	0
Yes, decreased	3.10	23.14
No change	71.62	51.59
Not applicable	21.36	21.36
Missing	3.92	3.92

Diabetes screening, diagnosis and treatment		
Yes, increased	16.63	5.69
Yes, decreased	3.10	35.12
No change	64.60	43.53
Not applicable	11.75	11.75
Missing	3.92	3.92
Cancer screening, diagnosis and treatment		
Yes, increased	4.14	0
Yes, decreased	7.83	8.06
No change	30.60	18.62
Not applicable	57.42	73.32
Missing	0	0
Diagnosis and treatment of mental health disorders (including substance abuse)		
Yes, increased	3.10	10.35
Yes, decreased	0	4.14
No change	42.80	23.58
Not applicable	54.09	61.93
Missing	0	0
Intimate partner and sexual violence - prevention and response		
Yes, increased	0	5.69
Yes, decreased	0	0
No change	69.25	63.56
Not applicable	30.75	30.75
Missing	0	0
Rehabilitation (disability services)		
Yes, increased	0	3.92
Yes, decreased	0	4.14
No change	53.96	45.90
Not applicable	46.04	46.04
Missing	0	0

Supplementary Table S6: Changes in inpatient admission

By region

Changes in inpatient admissions (n=65)	Region (weighted %)					
	Central (n=20)		Western (n=18)		Eastern (n=27)	
	Non-lockdown	Lockdown	Non-lockdown	Lockdown	Non-lockdown	Lockdown
Yes, increased	0	8.46	0	13.98	5.82	2.16
Yes, decreased	4.13	17.96	22.06	36.29	4.54	14.02
No change	91.74	69.45	77.94	49.73	89.64	83.82
Missing	4.13	4.13	0	0	0	0

By health facility

Changes in inpatient admissions (n=65)	Facility (weighted %)					
	PHCs (n=48)		District-level hospital (n=14)		Referral hospital (n=3)	
	Non-lockdown	Lockdown	Non-lockdown	Lockdown	Non-lockdown	Lockdown
Yes, increased	1.99	3.09	4.61	19.50	0	33.33
Yes, decreased	4.49	13.28	27.04	46.75	0	66.67
No change	91.81	81.92	68.35	33.74	100.00	0
Missing	1.71	1.71	0	0	0	0

By two southern districts (Chukha and Sarpang)

Changes in inpatient admissions (n=20)	Weighted %	
	Non-lockdown	Lockdown
Yes, increased	0	8.21
Yes, decreased	22.96	30.92
No change	77.04	60.87
Missing	0	0

Supplementary Table S7: Comparison of routine data on key performance indicators

Key performance indicators	Past 4 months (2021)				Corresponding 4 months in the previous year			
	Month 1 (Feb)	Month 2 (Mar	Month 3 (Apr)	Month 4 (May)	Month 1	Month 2	Month 3	Month 4
Number of outpatient visits Min; Max Mean; SD N	31; 10294 704.82; 1291.52 70	38; 12710 897.60; 1632.10 71	39; 22109 952.47; 2024.38 71	48; 28629 970.77; 2351.89 71	22; 19787 918.73; 2038.78 70	44; 33431 1082.72; 2697.23 70	24; 39567 952.73; 2867.62 70	18; 43161 974.92; 3095.51 70
Number of inpatient visits Min; Max Mean; SD N	0; 1115 22.42; 90.47 68	0; 1470 27.63; 114.17 68	0; 3167 52.26; 313.94 68	0; 1380 25.03; 104.11 68	0; 1372 24.79; 105.78 67	0; 1406 26.18; 109.34 67	0; 1228 25.49; 98.17 67	0; 1281 25.94; 100.75 67
Number of facility-based births Min; Max Mean; SD N	0; 263 5.46; 22.28 70	0; 307 6.32; 26.49 70	0; 297 5.71; 24.04 70	0; 239 4.40; 18.69 70	0; 242 4.72; 19.80 69	0; 285 5.21; 22.07 69	0; 236 4.42; 19.01 69	0; 222 5.01; 22.30 69

Number of DTP3 doses Min; Max Mean; SD N	0; 119 4.63; 10.73 70	0; 99 5.17; 10.35 70	0; 162 6.42; 15.74 70	0; 94 4.82; 9.70 70	0; 100 4.63; 10.08 70	0; 97 4.43; 9.12 70	0; 95 4.61; 9.31 70	0; 111 4.73; 10.09 70
Number of ANC visits (6th visit) Min; Max Mean; SD N	0; 171 5.80; 19.12 69	0; 144 5.62; 17.95 69	0; 90 5.06; 12.91 69	0; 99 4.05; 9.50 69	0; 85 4.82; 12.21 69	0; 91 4.69; 12.83 69	0; 92 4.43; 12.73 69	0; 101 4.36; 13.07 69
Number of PNC visits (1st visit) Min; Max Mean; SD N	0; 564 5.03; 37.71 71	0; 759 5.68; 50.41 71	0; 735 5.83; 48.85 71	0; 649 4.71; 43.07 71	0; 118 2.57; 9.44 70	0; 139 3.06; 10.94 70	0; 127 2.34; 9.41 70	0; 131 2.21; 9.84 70
Number of people with mental health symptoms Min; Max Mean; SD N	0; 256 3.70; 25.87 59	0; 826 9.66; 70.62 60	0; 770 8.38; 66.97 60	0; 897 9.93; 76.14 60	0; 368 4.26; 36.75 58	0; 479 8.06; 58.34 59	0; 870 8.82; 70.98 59	0; 918 9.08; 74.52 59
Number of TB cases Min; Max Mean; SD N	0; 10 0.37; 1.33 60	0; 27 0.62; 2.42 60	0; 19 0.52; 1.88 60	0; 18 0.44; 1.69 60	0; 12 0.44; 1.55 59	0; 31 0.53; 2.63 59	0; 25 0.55; 2.32 59	0; 24 0.57; 2.27 59