



**A QUALITATIVE ASSESSMENT OF THE
ESSENTIAL HEALTH AND NUTRITION
SERVICE DELIVERY IN THE CONTEXT OF
COVID-19 IN BANGLADESH: THE
PERSPECTIVE OF DIVISIONAL DIRECTORS**

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EXECUTIVE SUMMARY

BACKGROUND

Bangladesh suffered from severe essential health and nutrition services (EHNS) utilization disruptions during the first few months of the COVID-19 pandemic. Prior studies (ref 1-3) documented that Bangladesh faced a sharp decline in EHNS, particularly between April and May 2020. From a supply side, there were problems in the provision of services related to the disruption of supply chains of medicines and contraceptives, reduced hours for essential services at clinics and hospitals, strain on health human resources and reallocation of resources towards COVID-related activities. From a demand side perspective, problems included avoidance of health facilities by the population due to fear, lockdown policies affecting mobility, and reduced ability to pay for health services.

Health systems in Bangladesh, as many others globally, were overwhelmed by the pandemic impacting both EHNS and COVID-19 related services, but little has been documented on the narratives of health administrators at the local levels about these experiences. At the national level, instructions and guidelines to address essential health and family planning services during the pandemic were established in Bangladesh between January to December 2020. These guidelines were distributed to the subnational units to maintain service structure and ensure the safety and capacity of the health services during the pandemic. While the guidelines intended to provide a homogenous national response, application at the divisional level faced challenges. Hence, it is fundamental to document the experiences at the divisional level in providing EHNS and COVID-19 related services through the narratives of those in charge of managing local services.

OBJECTIVES

1. Undertake a qualitative assessment of Division-level capacity to identify the lessons learned, successes, and bottlenecks faced in the continuous provision of Essential Health and Nutrition Services (EHNS) during the COVID-19 pandemic in Bangladesh.
2. Document the narratives of health administrators at the local level about the provision of EHNS during the COVID-19 pandemic.

METHODS

A qualitative descriptive study was conducted through semi-structured interviews with the Health and Family Planning Divisional Directors of the Ministry of Health and Family Welfare (MOHFW) from each of the eight Divisions in the country. The interviews were held in Bangla by a local consultant, applying interview questions developed in conjunction with the World Bank. The interviews took place virtually, via video call, between February 22, 2021 and March 16, 2021; these were recorded, transcribed, and translated to English.

To perform the analysis, the Primary Health Care System Framework was used. This framework is based on: i) service delivery, ii) communication and community outreach, and iii) surveillance. This analytical framework, although designed for Primary Health Care (PHC), resonates with Bangladesh's 2018 Act for the prevention, control and elimination of infectious diseases outbreak, which defined the basis for a National Preparedness and Response Plan for COVID-19 and a Country Preparedness and Response Plan in support of the Health Emergency Response.

The analysis followed a content analytical approach, for which codes and sub-categories were developed. These codes encompassed: i) the three main roles of the health system (i.e., service delivery, communication and community outreach, and surveillance), ii) the factors associated with the provision of services (i.e., financing, guidance, human resources, training and technology), and iii) the barriers encountered. All analyses were conducted in Dedoose, a web application for managing and analyzing qualitative data.

RESULTS

All key informants completed the interviews: 8 Divisional Directors from the Directorate of Health and 8 Divisional Directors from the Family Planning Directorate.

SERVICE DELIVERY

There was low care seeking due to fear of getting infected with COVID-19. People perceived they would be safer at home and that attending health services would be risky. Health workers suffered stigmatization as people saw them as carriers of the virus, which also led to lower care seeking. There was a notion that hospitals and clinics were only for COVID-19 related services. These beliefs could have been reinforced by social media and mouth-to-mouth communication.

The government officially discouraged unnecessary visits to clinics and encouraged remote ways of getting in touch with patients. This strategy led to several disruptions in service delivery. Community outreach service provision and activities were also reduced. The government encouraged the use of telemedicine and technology to support service provision. However, there was a high degree of heterogeneity regarding the adaptations to telemedicine in each Division. Information systems played an important role in strengthening/maintaining service delivery.

Lockdown measures limited transportation to clinics for patients, as well as distribution of medical supplies, since movement restrictions and travel bans were imposed around the country. In health facilities with inadequate infrastructure to implement COVID-19 protocols, it was been challenging to cope with EHNS and COVID-19 related services in parallel. The collaboration with NGOs was fruitful to reinstate services, particularly outreach activities. Guidelines played a role in ensuring the continuity of EHNS delivery across Divisions. Nonetheless, guidance was particularly centered on COVID-19 information and safety protocols among health providers, with less information delivered on EHNS.

The inflexibility of the spending capacities at Divisional and clinic levels hindered prompt delivery of protective equipment. It also reduced human resources adaptations according to local and contextual needs. There was an important gap in the availability of specific cadres of human resources. Moreover, health professionals faced an extra burden on their tasks, which caused exhaustion. Limitations on personnel recruitment worsened workload. Divisions faced challenges in coping with paying for the new technologies needed for service provision and coordination.

COMMUNICATION AND COMMUNITY OUTREACH

Misinformation spread rapidly through social media and was difficult for Divisions to contain. This problem also stemmed from communication voids, particularly the inability to communicate effectively that EHNS were still in place. Mobile phones were particularly useful for outreach communication, as well as other traditional mechanisms, such as flyers and megaphones. Social media was also used to deliver key messages and information.

Outreach messages and guidelines for communicating with the population were defined by national authorities and mostly contained COVID-19 information, but they were not tailored for specific needs.

Due to being trusted sources of information in communities, community health workers (CHWs) played a crucial role in reaching out to patients and communities to explain that health services were still available. NGOs and religious institutions were particularly helpful by coordinating awareness programs and communicating key messages.

SURVEILLANCE AND SERVICE MONITORING

Only one Division reported shortages of lab technicians and infrastructure for adequate disease surveillance, especially COVID-19 testing. Some Divisions reported using information systems to monitor logistics and service provision. Regular in-person supervision decreased during the first months of the pandemic.

DISCUSSION

The results of this study suggest that the continuity of EHNS services was not guaranteed during the COVID-19 pandemic in Bangladesh –especially during the initial months– due to demand and supply limitations. The most salient demand limitation was the discontinuation in the use of services based on fears of infection and misinformation about service availability. On the supply side, this study identified barriers to service delivery, difficulties in communication, and limitations in local monitoring of disease and service delivery.

This study documents efforts to adapt service provision and improve coordination, highlighting mobile phones, social media and zoom as key tools. The results also demonstrate opportunities for improvement. For instance, the role of guidelines was important to standardize service provision under the new and challenging circumstances, but they were not adapted for specific populations and situations. The analysis did not reveal distinct patterns per Division. In addition, there was scant information on surveillance and service monitoring.

RECOMMENDATIONS

The following key recommendations emerged from the current study:

1. **Mechanisms for more flexible local budgeting and human resource management, at least during emergencies, need to be available in order to facilitate effective response according to Division's contexts and needs.**
2. **While it is evident that the use of mobile phones, social media and communication platforms like Zoom were feasible during the pandemic in Bangladesh, there is a need to disentangle three different types of interventions:** services using mobile phones, use of social media for information dissemination, and actual implementation of telemedicine and mHealth. The latter are promising if correctly structured (i.e. adequate platforms for providers and patients' continuity of service) and if conceived as a complement to traditional face-to-face EHNS. In addition, confidentiality issues need to be addressed in any form of digital-technological intervention.
3. **There is a fundamental need to invest in human resources for health and rethink how to build capacity for service provision and management, as this would improve service delivery in general, as well as attention during emergencies.** The pandemic showed the fragility of the health services' human resources. There are not enough health providers and during the emergency they faced issues in terms of incentives, quality of the workplace environment and stigmatization by the general population. In terms of human resources, CHWs served a fundamental role in communication outreach. Thus, there should also be an investment in improving their capacities in areas such as use of technology and emergency services.
4. **Looking ahead, it will be of relevance to identify the service delivery gaps generated by the pandemic in EHNS at each Division and to plan strategies for catching up.** While doing so, it will also be key to consider the needs imposed by COVID-19 related services in terms of human resources, physical infrastructure, surveillance and medical supplies.
5. **As the pandemic evolves, Divisions should be pro-active in establishing public health guidelines that comply with those determined at the national level, but also consider the contextual needs of the Divisions.** Dissemination of key messages could profit from the digital resources (i.e. social media and mobile phones), as well as the traditional outlets available locally (including CHW).
6. **Partnerships with NGOs needs to be an integral part of the pandemic response and recovery.** In this sense, coordination at the Division level should be promoted, as this is likely to increase the efficiency of the available resources and maximize service delivery and health outcomes.
7. **Use of information and monitoring systems for disease and service delivery needs to improve at the local level.** Although there was limited information in this area, the few references from Divisional Directors suggested that information and monitoring systems need to be more articulated. In addition, such systems need to move towards integrated digital solutions with the capacity to aid Division's decision making. Achieving this would likely require a training and capacity building component.

8. **If the pandemic requires future lockdown measures, Divisions should consider mechanisms to make transportation available to patients trying to reach services, as well as to those in charge of distributing medical supplies.** This is a preventable barrier to supply and demand side limitations to accessing health services.

LIST OF ABBREVIATIONS

ANC	Antenatal Care
CHWs	Community Health Workers
EHNS	Essential Health and Nutrition Services
LMICs	Low- and Middle-Income Countries
MCH	Maternal and Child Health
MIS	Management and Information System
MOHFW	Ministry of Health and Family Welfare
NGOs	Non-governmental organizations
PHC	Primary Health Care
PPE	Personal protective equipment
TB	Tuberculosis
UN	United Nations
UNICEF	United Nations Children's Fund
WHO	World Health Organization

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BACKGROUND AND OBJECTIVES

Bangladesh suffered from severe essential health and nutrition services (EHNS) utilization disruptions during the first few months of the COVID-19 pandemic. Prior studies (ref 1-3) documented that Bangladesh faced a sharp decline in EHNS, particularly between April and May 2020. The local media linked such decline to supply and demand factors. From a supply side, there were problems in the provision of services related to the disruption of supply chains of medicines and contraceptives, reduced hours for essential services at clinics and hospitals, strain on health human resources and reallocation of resources towards COVID-related activities. From a demand side perspective, problems comprised avoidance of health facilities by the population due to fear, lockdown policies affecting mobility, and reduced ability to pay for health services.

Health systems in Bangladesh, as many others globally, were overwhelmed by the pandemic affecting EHNS as well as COVID-19 related services, but little has been documented on the narratives of health administrators at the local levels about these experiences. At the national level, instructions and guidelines to address essential health and family planning services during the pandemic were established in Bangladesh between January to December 2020. These guidelines were distributed to the subnational units to maintain service structure and ensure the safety and capacity of the health services during the pandemic. While the guidelines intended to provide a homogenous national response, application at the divisional level faced challenges. Hence, it is fundamental to document what were the experiences at the divisional level in providing EHNS and COVID-19 related services through the narratives of those in charge of managing the local services.

This study aimed to undertake a qualitative assessment of Division-level capacity to identify the lessons learned, successes, and bottlenecks faced in the continuous provision of EHNS during the COVID-19 pandemic in Bangladesh. This analysis was centered in three domains of the provision of EHNS, based on the Primary Health Care (PHC) System Framework: (i) service delivery, (ii) communication and community outreach, (iii) surveillance and service monitoring.

METHODS

STUDY DESIGN

A qualitative descriptive study was conducted with Divisional directors of health and family planning in each of the eight Divisions of Bangladesh. Qualitative description is a ‘method of naturalistic inquiry that uses low inference interpretation to present results in everyday language’ (ref 4). It facilitates the understanding of health outcomes and their interactions with the health care system and seeks to improve clinical care and health systems (ref 5).

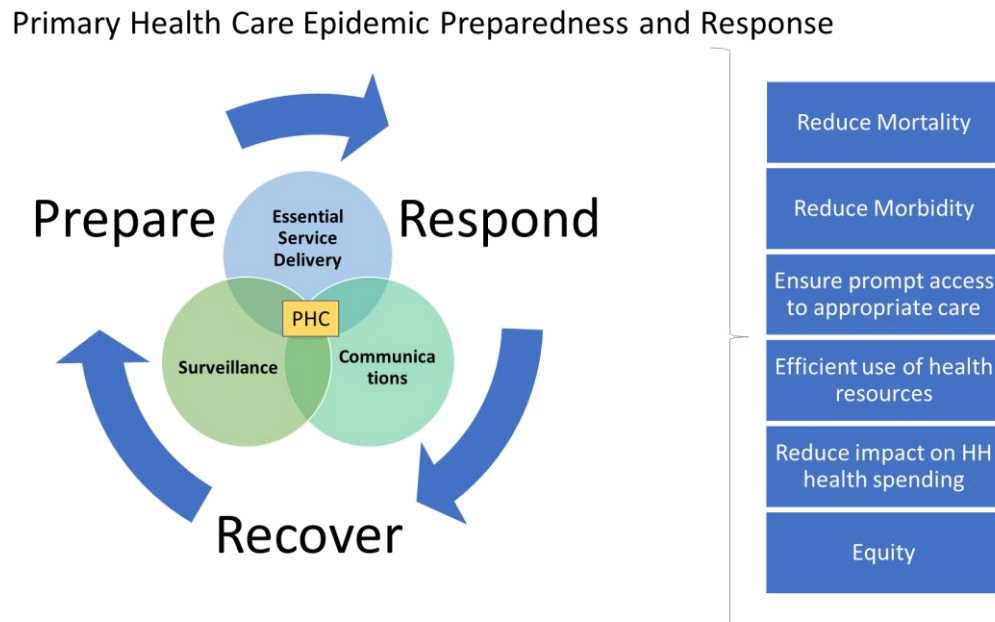
DATA SOURCES

Semi-structured interviews were conducted with the Health and Family Planning Divisional Directors of the Ministry of Health and Family Welfare (MOHFW) from each of the eight division of the country. The interviews followed a semi-structured interview guide, which can be found in Appendix 2, and were conducted in Bangla by a local consultant. Interview questions were collaboratively developed with the World Bank with the overarching aim to understand the perceptions, contexts and narratives of key informants around service delivery, communication and community outreach, and surveillance and service monitoring during the pandemic. Interviews were conducted virtually via video call between February 22, 2021 and March 16, 2021, with an average call duration of 42 minutes. In most cases, the interviews were recorded and subsequently transcribed and translated to English for analysis. For cases in which the respondent did not grant permission to record the interview, detailed notes were taken in Bangla, which were subsequently translated to English.

ANALYTICAL FRAMEWORK

The analysis of the information was based on the PHC System Framework, which posits that PHC can contribute to pandemic preparedness, response and recovery by maintaining and reinforcing three interconnected core functions: (i) service delivery to prevent, treat and follow-up common and uncomplicated illnesses, (ii) communication and community outreach to disseminate information for prevention, treatment and care coordination among patients and communities; and (iii) surveillance for the systematic collection, analysis and dissemination of health and service delivery data for the planning, implementation and evaluation of health interventions and strategies (Figure 1). This analytical framework, although designed for PHC, resonates with Bangladesh's 2018 Act for the prevention, control and elimination of infectious diseases outbreak. The 2018 Act defined the basis for a National Preparedness and Response Plan for COVID-19 and a Country Preparedness and Response Plan in support of the Health Emergency Response, both of which focus on key actions in (i) service delivery, (ii) risk communication, and (iii) surveillance.

Figure 1: Primary Health Care Pandemic Preparedness and Response Schematic



METHODS FOR ANALYSIS

The PHC System Framework guided the qualitative analysis that followed a content analytical approach (ref 6). When reviewing the interviews, codes and sub-categories were developed to identify: (i) the three main roles of the health system (i.e., service delivery, communication and community outreach and surveillance); (ii) the factors associated with the provision of services (i.e., financing, guidance, human resources, training and technology), and (iii) the barriers encountered. All analyses were conducted in Dedoose Version 8.3.47, a web application for managing, analyzing, and presenting qualitative research data.

RESULTS

Sixteen key informants completed interviews, including 8 Divisional Directors from the Directorate of Health and 8 Divisional Directors from the Family Planning Directorate. Key informants were primarily male (87.5%) and had a mean age of 55.8 years (SD=1.8). Most of them (43.75%) have held their position for 1-3 years and 50% of them are medical doctors (specifically the Divisional directors from the Directorate of Health). Full demographic information of the key informants can be found on Table 1.

Table 1. Characteristics of interviewed key informants

Variables	
Age , mean (sd)	55.8 (1.8)
Gender , % (n)	
Female	12.5 (2)
Male	87.5 (14)
Education (highest degree), % (n)	
Medical doctor	50 (8)
Postgraduate	50 (8)
Current position , % (n)	
Divisional Director – Health	50 (8)
Divisional Director – Family Planning	50 (8)
Years in the current position , % (n)	
Less than 1 year	37.5 (6)
1-3 years	43.75 (7)
More than 10 years	6.25 (1)
Currently retired	12.5 (2)
Duration of the interview , mean (sd)	41.9 (16.2)

RESULTS ON SERVICE DELIVERY

Appendix 3 summarizes the key findings for service delivery. Findings highlight some general aspects of this core component, as well as some specific aspects linked to the model (i.e., financing, guideline, human resources, technology and training).

GENERAL FINDINGS ON SERVICE DELIVERY

The interviews with Divisional directors suggest that EHNS disruptions were due to both supply and demand side factors, nonetheless some innovations have allowed for a continuity of services and a reduction in the disruptions as the pandemic progresses.

LOW CARE SEEKING DUE TO FEAR OF GETTING INFECTED WITH COVID-19

There was a general perception of the population that people would be safer at home, even if services such as delivery or vaccines were needed, and that attendance to a clinic would be risky. As the Director of the

Health Directorate in Barisal stated, “at the beginning (from the end of March to April), people did not visit health care centers fearing the COVID.” Such fear was also mentioned by both the Directors of Health and Family Planning in Dhaka and the Director of Family Planning in Rajshahi. In fact, families that needed to hospitalize a member often requested early discharges. Informants from Sylhet division underscored that there was a generalized panic in the population that affected perceptions and service utilization, but in the Directorate, they lacked mechanisms to address this. An aspect that helped to mitigate the fear of COVID-19 was the actual low mortality rates that were observed.

There was a belief – which has been documented in other countries – that health workers were carriers of the virus, which led to lower care seeking due to fear of getting infected. In Khulna, where 200 doctors and field-level healthcare assistants became infected with COVID-19, such fear made pregnant women deliver their babies at home, and in Sylhet, families discontinued newborns’ care. In fact, some health providers suffered *stigmatization*. These beliefs and sentiments of fear might have been reinforced by (social) media or mouth-to-mouth communication propagating the perception that COVID-19 was spreading in clinics through infected personnel.

In addition to such challenges, misinformation exacerbated the notion that hospitals and clinics were only for COVID-19, leading to a sharp decrease in utilization of services. In divisions like Barisal and Mymensingh, social media or awareness campaigns were put in place to counteract some of these barriers; however, it is currently unclear if these were effective.

DISRUPTIONS IN SERVICE DELIVERY

During the initial months of the pandemic, most services were disrupted across all divisions and provision of services mainly focused on emergency and COVID-19 specific care. In fact, according to interviewees, the government officially discouraged unnecessary visits to clinics and encouraged remote ways of getting in touch with patients (using mobile phones, online platforms). This strategy led to several disruptions in service delivery, including vitamin supplementation, in-person examination during pregnancy, outreach activities to promote immunizations, receipt of contraceptives (mainly due to delivery mechanism issues), tuberculosis screening and treatment, and services for chronic conditions. In addition, according to the divisional directors from Chittagong, some strategies used by the government made utilization even harder, such as mandating a COVID-19 test for pregnant women (even when asymptomatic) when getting close to delivery.

During the first months of the pandemic, community outreach service provision and activities were also reduced. Emergency and essential services, such as some house visits to provide contraceptives and vaccination campaigns, continued; however, scheduled outreach events, door-to-door visits and courtyard meetings were cancelled or postponed due to social distancing measures. For example, the Director of Family Planning of Rajshahi mentioned that most of their community outreach services are traditional, informal and rely on physical contact. Therefore, those services shrank to comply with the social distancing measures.

PROVIDING SERVICES BEYOND THE CLINICS AND ADAPTING WITH ALTERNATIVE SERVICE DELIVERY

Due to some of the aforementioned challenges, health personnel looked for alternative ways of providing services, such as telemedicine - a common adaptation directed by governmental guidelines during the

pandemic. Nevertheless, it is unclear how telemedicine has been defined and what it encompasses. Many providers also shifted to online services through Zoom. However, this shift was not always easily accomplished, as budget and connectivity were not always available. In Divisions like Khulna, online services were often paid for out-of-pocket by providers directly. Moreover, several Divisions complained of the scarce guidance on how to provide telemedicine services. Facebook was also used as a resource for patients and providers to communicate. Mobile phones have also been greatly used; as highlighted by a key informant from Mymensingh: “most people have access to mobile phones,” which can be used to contact doctors.

Health administrators and personnel also looked for alternative ways to communicate and coordinate service provision. For example, Zoom was used not only for service provision, but also to coordinate service-related activities between health professionals.

Information systems were commonly identified as an element to help service delivery during the pandemic. Information systems provided by MIS were helpful. Key informants mentioned “Shashthya Batayan”, “Gorbhobotir Aina”, and the “Kapasia” pilot models as elements of support to health service delivery.

DELAY IN HEALTHCARE SEEKING LINKED TO CONTEXTUAL FACTORS

Lockdown measures had important consequences for service delivery in two ways: (i) limiting transportation to clinics for patients, and (ii) limiting transportation for the distribution of medical supplies, since movement restrictions and travel bans were imposed. As highlighted by a key informant from Rajshahi, special transportation arrangements were needed to get supplies delivered to different areas. Furthermore, a key informant from Barisal stated that the strict transport restriction during April and May and the inability to leave the containment zone prevented pregnant women from going to their routine visits. In addition, natural disasters, such as floods (during August and September 2020), hampered how services were conducted in Rangpur and Sylhet.

RETURN TO MORE STABLE SERVICE PROVISION

Even as lockdown measures have relaxed, service provision has not been easy at clinics. Returning to a more open service delivery mode at clinics has required following COVID-19 protocols that are difficult to enact, including the need to cope with EHNS and COVID-19 related services in parallel. This has been particularly challenging in health facilities that have inadequate infrastructure to implement protocols (i.e. isolation areas) without disruptions to space and human resources for routine care. A positive aspect has been the sustained collaboration with NGOs to reinstate services, including outreach activities.

After the initial lockdown phase, community outreach services resumed, albeit with service modifications to adapt to the COVID-19 safety protocols. Door-to-door visits and outreach events restarted when danger was perceived as ‘low’ based on low death rates. Outreach sessions originally involved social gatherings but have been modified to comply with COVID guidelines for social distancing.

SPECIFIC ASPECTS ABOUT SERVICE DELIVERY

Four factors, addressed below, help to explain disruptions in the delivery of EHNS across Divisions in Bangladesh.

FINANCING

The late arrival and initial low quality of protective equipment led providers to buy their own, highlighting the inflexibility of Divisional and clinic level spending capacities. In the initial stages of the pandemic, several Divisions stated that protective equipment arrived late and that it was of low quality. Due to the risk that this posed, providers often decided to buy their own protective equipment through personal resources, as Divisions and clinics did not have flexibility in spending decisions. Slowly, distribution and budgets adapted to the new needs of COVID-19, including aspects like sanitizers, gloves, etc. This adaptation was reinforced by donations of protective equipment from NGOs and the improvement in quality of such equipment.

The pandemic also highlighted the inflexibility of budgets for human resources adaptations according to local and contextual needs. More specifically, the inflexibility of budgets made needed adaptations of human resources required by the pandemic unfeasible, leading to solutions such as hiring of paid volunteers. Two Divisions stressed that they had insufficient infrastructure to deal with the pandemic and no budgetary alternatives to face it.

Additionally, Divisions faced challenges in coping with paying for the new technologies needed for service provision and coordination. In Divisions like Dhaka, the cost of new technologies was addressed by the office, while in other Divisions, like Chittagong, payment for new technologies was covered through providers' out-of-pocket financial contributions. CHWs reported the need to pay for unexpected costs (i.e., the internet required for telemedicine in Sylhet and Barisal).

GUIDELINES

It is clear that guidelines played a role in ensuring the continuity of essential health service delivery across Divisions. However, the narratives of Directors were often unclear, as they suggested the receipt of various guidelines but they rarely mentioned specific ones by name. Some general mentions of the relevance of the guidance provided centrally were highlighted by the Health Divisional Directors of Chittagong, Rajshahi, and Sylhet.

Guidance was also centered on COVID-19 information and safety protocols among health providers. While such guidelines were useful, key informants also emphasized that some of them backfired and complicated service provision. For example, a request for COVID-19 tests before going into labor when testing availability was low reduced incentives for delivering in health facilities.

HUMAN RESOURCES

There was an important gap in the availability of specific cadres of human resources. There is a relevant narrative regarding the role, needs, and conditions for health professionals during COVID-19. For instance, key informants from Barisal, Chittagong and Sylhet expressed the need for specific human resources, such as public health experts and virologists, amongst others. This has been an ongoing problem magnified by the pandemic, which has required the performance of new tasks in addition to routine ones. As highlighted by an informant from Chittagong, "workload has increased as never before," affecting clinical and community services. Along the same vein, one informant from Mymensingh relayed the following when describing health staff: "they were superhuman beings as they had to perform all of their own and others' duties as well".

While health professionals have worked with determination, provider exhaustion has increased as they have assumed a burden of extra tasks. Health professionals faced unexpected challenges that disrupted their performance in health provision and placed pressure on their workload, such as colleagues getting infected or even dying. As observed in other countries, such extra efforts have imposed a high psychological burden, an increased risk of infection, and compromised work environments, leading to provider strikes demanding better pay. While the government promised an incentive, this had not been fulfilled at the time the interviews for this study took place.

Limitations for personnel recruitment worsened workload and exhaustion of health professionals. As shown in the section on financing, there have been limitations in human resources management, specifically related to the lack of autonomy of Divisions to recruit personnel as needed during the emergency and fill vacant positions. Despite these challenges, one advantage of the reliance on existing personnel has been their grassroots experience, which has helped with engagement of community and religious leaders to distribute COVID-19 information, search for active cases, and prevent specific risks (i.e., funerals).

TRAINING AND TECHNOLOGY

The government encouraged to use of telemedicine and technology to support service provision; Divisions were supported by the MIS Department and third parties (i.e., NGOs) to do so. Technology was used in different forms and actually portrays previously existing positive trends. In Chittagong, for example, an e-registry of pregnant women that facilitates follow-up and monitoring is now online: “Before COVID, workers would fill up this information on a specific format and send it to us. Then, we would include that information in union and district levels reports after calculating them manually. However, the Family Planning Directorate now has Electronic Management Information System so our health workers can update the information online. It saved our time, and we could input data such as number of items in stock, action plan and which work was done.” However, telemedicine is still limited in conception, as it means different things to different actors – ranging from posting mobile phones of health providers on Facebook to the provision of services through Zoom.

In terms of training, there were two important phases linked to service delivery. In the initial months of the pandemic, training focused on aspects such as using protective equipment, testing, etc. As services resumed in the later stages of the pandemic, however, training was targeted at service delivery ensuring safety measures.

Table 2 summarizes the main barriers for service delivery. As was shown in the previous paragraphs, the most common barriers from the demand side were the fear of going to the clinic or a hospital due to the risk of getting infected and transportation restrictions. The prominent barriers from the supply side were the service delivery disruptions, shortages of health providers, and the late arrival and low quality of protective equipment. The barriers were similar by Division and no clear pattern emerged that suggests differential impact.

Table 2. Barriers identified for service delivery by Division

Barriers	Rangpur	Chittagong	Khulna	Barisal	Dhaka	Mymnesingh	Rajshahi	Sylhet	
Fear of going to clinic or hospital									
Transportation restrictions									
Service disruptions and prioritization of COVID-19 specific care									
Health worker shortage									
Late arrival and low quality of protective equipment									
Scarce guidance on telemedicine									
Private clinics closed									
Resource restrictions									
Insufficient infrastructure									
Low connectivity									
Floods									
Stigmatization									
Legend:									
Demand Factors	6-8 Divisions			4-5 Divisions			2-3 Divisions		
Supply Factors	6-8 Divisions			4-5 Divisions			2-3 Divisions		

RESULTS ON COMMUNICATION AND COMMUNITY OUTREACH

Appendix 4 summarizes the key findings for communication and community outreach. Findings highlight some general aspects about this core component, as well as some specific aspects linked to the model (i.e., financing, guidelines, human resources, technology and training).

GENERAL FINDINGS ON COMMUNICATION AND COMMUNITY OUTREACH

This section summarizes the extent to which health providers and other actors tried to reach out to patients and communities to explain that health services were still available and that they should continue to seek care despite the COVID-19 pandemic. In this respect, CHWs played a crucial role and benefited from being trusted sources for the communities. However, misinformation also spread rapidly through social media and was difficult for Divisions to contain.

Misinformation, which spread through social media, was a problem both for health providers and for the general population in most Divisions. Misinformation also stemmed from communication voids, as when “lots of people falsely thought hospitals provided COVID-treatment only.” Some key informants reported misinformation affected service provision. Authorities were unable to stop the misinformation and could not manage it properly, as the Mymensingh’s Health Director said: “it was beyond our capacity to control social media and the internet.” The Sylhet’s Health Director also mentioned that the Division office did not have any mechanism to address misinformation panic.

Mobile phones were used for outreach communication as well as other traditional mechanisms such as flyers and megaphones. Phone calls, messages, and social media were key tools used to communicate with the population. In Rangpur, for example, doctors posted their phone numbers online on social media platforms, such as Facebook, to facilitate people contacting them for service provision, which was effective for reaching out to those that needed attention. Flyers and leaflets were also common means of communication. In addition, outreach campaigns used vans to communicate messages about unwanted pregnancy prevention during COVID-19 and family planning services. However, only a few Divisions reported using this strategy, and in some places, such as Mymensingh, megaphones were actually not authorized.

SPECIFIC ASPECTS ABOUT COMMUNICATION AND COMMUNITY OUTREACH

Two specific factors addressed disruptions in the communication strategies to reach out to patients and communities promoting health services use during the pandemic.

GUIDELINES

Outreach messages and guidelines for communicating with the population were defined by national authorities and mostly contained COVID-19 information, but they were not tailored for specific needs. While

some NGOs directed messages for special populations to motivate people to get ANC and PNC services, as well as institutional deliveries, there were areas, such as maternal health, for which tailored guidance was not addressed. This lack of outreach messages and guidelines lead to controversial recommendations, such as a recurrent request to avoid pregnancies during the COVID-19 pandemic.

HUMAN RESOURCES

CHWs played a vital role for outreach by communicating COVID information, visiting households from the target population, motivating people to get services, and organizing catch-up campaigns. They benefited from being trusted sources of information for the communities. CHWs reported fear at the beginning of the pandemic, mainly due to deaths amongst CHWs. These fears subsided after a few months (June) when they understood safety protocols. Partnerships with NGOs and religious institutions were made. NGOs supported the strained health system by coordinating awareness programs and communicating key messages, for instance, about preventing unwanted pregnancies. In addition, several Divisions joined forces with Imams to raise COVID-19 awareness, communicate safety protocols, and encourage service utilization.

The summary of the most common barriers reveals that misinformation was widespread throughout Divisions (Table 3). Authorities commonly viewed guidelines as necessary but insufficient and thus required local modifications. Most Divisions also explained that outreach services were suspended and then adapted to the safety protocols. Overall, Divisions experienced disruption on communication and community outreach in a similar way.

Table 3. Barriers identified for communication and community outreach by Division

	Rangpur	Chittagong	Khulna	Barisal	Dhaka	Mymensingh	Rajshahi	Sylhet
Misinformation								
Guideline modifications and/or insufficient information								
Guidelines not tailored for specific needs								
Outreach service interruptions								

Legend:

Demand Factors	6-8 Divisions	4-5 Divisions	2-3 Divisions
Supply Factors			

RESULTS ON SURVEILLANCE AND SERVICE MONITORING

Appendix 5 summarizes the key findings for surveillance. Findings highlight some specific aspects linked to the model (i.e., financing, human resources, technology and training).

GENERAL FINDINGS ON COMMUNICATION AND COMMUNITY OUTREACH

This analysis revealed relatively scarce information on surveillance and service monitoring as compared to service delivery modalities and challenges. The main topics that emerged were localized limitations with infrastructure for COVID-19 testing and the disarticulated use of information systems. Directors emphasized their difficulty with switching from in-person meetings to online communication for supervision purposes.

SPECIFIC ASPECTS ABOUT SURVEILLANCE

Surveillance and monitoring were seldom addressed in the interviews despite being a fundamental function of health systems. The few aspects that emerged pointed towards shortages in human resources and infrastructure to adequately perform surveillance. In addition, some disarticulation in the use and collection of data through information systems and surveys was also highlighted.

FINANCING

Only one Division (Chittagong) reported shortages of lab technicians and infrastructure for adequate disease surveillance, especially COVID-19 testing.

HUMAN RESOURCES

Regular in-person supervision decreased during the first months: “by half during the year; none during lockdown.” Prior to the pandemic, supervision relied on face-to-face meetings and checklists, but during the pandemic they had to substitute these strategies for virtual meetings, relying heavily on virtual platforms, such as Zoom, phone and text messages to do so.

TRAINING AND TECHNOLOGY

Some Divisions reported using information systems (MIS and specifically the Batayan system) to monitor logistics and service provision. Information systems are used to record process outcomes related to services, staff and locations. However, two informants mentioned they do not have access to recent health data about their Divisions. In Dhaka, they complained that there is “no formal and organized survey data for our Division or Directorate”. Likewise, in Barisal, they underscored how the office does not have “any mechanism to collect information”. It is likely that the pandemic may be an area of opportunity to improve information systems, as reflected in the previously mentioned example of an e-registry of pregnancy that was implemented in some areas.

As in the previous dimensions, surveillance barriers were similar across Divisions and no distinct pattern emerged (Table 4).

Table 4. Barriers identified for surveillance and service monitoring by Division

Barriers	Rangpur	Chittagong	Khulna	Barisal	Dhaka	Mymensingh	Rajshahi	Sylhet
In-person supervision decreased								
Lack of information systems								
Outdated health survey								

Legend:

Supply Factors	6-8 Divisions	4-5 Divisions	2-3 Divisions
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DISCUSSION

The results of this study suggest that, during the pandemic and especially during the initial months, continuity of EHNS could not be ensured in Bangladesh. Demand and supply limitations for service delivery, difficulties in communication, and limitations in local monitoring of disease and service delivery were some of the primary causes of service disruptions.

Demand and supply-side limitations were identified and were common in most of the Divisions. Although the current study focused on interviewing Divisional Directors –hence limiting the information and narrative more to a supply side perspective – discontinuation in the use of services due to fears of infection and misinformation about service availability were identified. On the other hand, this study was rich in identifying supply side limitations, including disruptions in service delivery, especially during the initial months of the pandemic, as services mainly focused on tackling the COVID-19 emergency. Outreach services and activities were also disrupted. The lockdown measures affected service supply through indirect mechanisms such as limitations in transportation, which negatively impacted patients’ ability to reach services as well as the distribution of medical inputs. Once the lockdown measures were relaxed, health services faced supply limitations due to the protocols that needed to be enforced for safety reasons and oftentimes required unfeasible human resources and physical infrastructure to execute. The aforementioned factors were further exacerbated by the inflexibility in budgeting and human resource management, as well as the lack of autonomy at the Division level in providing services and human resources needed at different stages of the pandemic (i.e. protective equipment, increased numbers of health providers).

The narratives and content analysis revealed efforts to adapt service provision and coordination. Adaptation was mainly achieved through the use of mobile phones, social media and zoom. While no formal

telemedicine seems to have been implemented, the ubiquity in the use of digital resources highlights the feasibility of future formal telemedicine and Health interventions. On the other hand, such adaptations also emphasize the fragility of information systems and the need for improvement in this area.

While Divisional Directors acknowledge the importance of national guidelines, their specific role in service delivery, communication and surveillance at the local level remain unclear. A relevant finding was that such guidelines were not adapted for specific populations and, in some specific cases, might have also discouraged the use of services (such as the testing protocols required for pregnant women). Similarly, it was unclear how monitoring of diseases and service delivery was used to ensure further decision making at the Upazila or Division levels.

An important finding is that this analysis did not reveal distinct patterns per Division. In fact, there were relevant problems which were faced nation-wide, with only small differences identified at District level. Despite differences across Divisions in terms of COVID-19 and health care services capacity, such homogeneity might have resulted from the implementation of top-down measures at the national level.

In the following sections, specific lessons and recommendations related to the unintended consequences and areas of opportunity brought by the lockdown measures and subsequent COVID-19 related protocols in the provision of EHNS in Bangladesh are presented.

LESSONS

- **The pandemic imposed variable and evolving needs in terms of human resources, training and technology that the administration processes could not address in a timely and adequate manner. Thus, at least during emergencies, such administrative processes need to respond in a timelier manner.** The administrative inflexibility and lack of Divisional autonomy affected adaptation responses, leading to a lack of human resources and subsequent hiring of short term/volunteer personnel that curtailed the health system long-term capacity building process. Similarly, the incapacity of flexible budgeting generated slow responses in aspects such as acquiring protective equipment or technology for remote solutions, which were commonly covered instead by health professionals themselves. During emergencies, administrative processes need to allow for more flexibility and autonomy at the Division level.
- **Mobile phones, social media and communication platforms were widely used throughout Bangladesh's Divisions during the pandemic.** This technology was used for service delivery, outreach services and communication between providers, demonstrating that these are important resources for health promotion and service delivery. Continuous mHealth and telemedicine interventions seem feasible to complement traditional health services, which is particularly relevant considering the ubiquity and affordability of mobile phones and social media. In addition, administrators and providers can also benefit from the use of such technology for communication and planning.

- **There were pre-COVID-19 gaps in health services' human resources in terms of quantity, quality and specialty that aggravated the challenges in service delivery during the pandemic.** These gaps were particularly problematic considering the large share of providers who got infected, died or could not provide services due to their age or pre-existing conditions. All these factors contributed to a large burden on active health providers and to negative impacts in their wellbeing. Such fragility of human resources should be a focus of attention for improvement, as it was persistent across Divisions.
- **Previous experience in grassroots work performed by CHWs was fundamental to promote COVID-19 public health measures and health service promotion.** Communities trusted CHWs, who were able to work with community and religious leaders for communication outreach. CHWs are an important figure who should be recognized, and their roles adapted according to the context of each Division.
- **Despite positive performance, the use of CHWs in communication outreach was limited, especially in light of all the misinformation about COVID-19 and health service delivery that rapidly spread through social media.** Some Divisional directors recognized that they did not have the means to counteract the spread of misinformation that oftentimes contradicted government guidance. Although it is unclear if this rapid spread of misinformation was due to a lack of an intervention strategy or the novelty of the COVID-19 phenomenon, it is very relevant to have active and rapid mechanisms to counterbalance social media information during emergencies. The tailoring of these strategies to the local needs and specific characteristics of populations relying on misinformation will be an important strategy to consider over the next months and in preparation for another emergency.
- **According to document review, several guidelines were established to somehow ensure the provision of EHNS during the pandemic. While Directors generally referred to them in a positive light, there was no mention of specific guidelines.** This raises concerns of whether they were actually implemented at the Divisional level. In addition, despite the positive references, Directors acknowledged some secondary negative effects, such as the discouragement of delivering at the hospital due to the request of COVID-19 testing for pregnant women. Thus, while national guidelines are needed, their implementation and adaptation need to be monitored.
- **Partnerships with NGOs were relevant to fill gaps in areas such as protective equipment and human resources, amongst others.** While partnering with NGOs is common in Bangladesh's social protection arena, including EHNS, it was unclear if there was any coordination during the pandemic. Due to the need for rapid responses in the face of changing conditions, coordination is fundamental.
- **Little information arose regarding monitoring and surveillance of service delivery and diseases at the local level during the pandemic.** While it is unclear why this topic was not salient during the conversations with Directors, it should be a highly relevant area at the Divisional level.
- **The current study could not capture the perspectives of key actors, such as frontline workers and health service users.** The former would probably have a detailed knowledge of the daily limitations and adaptive strategies to conduct essential services in emergency settings that would be valuable for designing intervention strategies. The latter would have likely increased the understanding of demand side

limitations in the use of health services and the reasons behind health service disruption. Authorities stress how the “fear of contagion” deterred assistance to the clinics. With the available information, little is known about the risk assessments of the population, which may illuminate blind spots in health service provision.

RECOMMENDATIONS

The following key recommendations emerged from the current study:

1. Mechanisms for more flexible local budgeting and human resource management, at least during emergencies, need to be available in order to act according to Division contexts and needs.
2. While it is evident that the use of mobile phones, social media and communication platforms like Zoom were feasible during the pandemic in Bangladesh, there is a need to disentangle three different types of interventions: services using mobile phones, use of social media for information dissemination, and actual implementation of telemedicine and mHealth. The latter are promising if correctly structured (i.e. adequate platforms for providers and patients’ continuity of service) and if conceived as a complement to traditional face-to-face EHNS. In addition, confidentiality issues need to be addressed in any form of digital-technological intervention.
3. The pandemic showed the fragility of health services’ human resources. There are not enough health providers and during the emergency they faced issues in terms of incentives, quality of the workplace environment and stigmatization by the general population. There is a fundamental need to invest in this area and rethink how to build capacity, as this would improve service delivery in general, as well as attention during emergencies. In terms of human resources, CHWs were a fundamental piece for communication outreach and thus there should also be an investment in improving their capacities in areas such as use of technology and emergency attention.
4. Looking ahead, it will be of relevance to identify the service delivery gaps generated by the pandemic in EHNS at each Division and to plan strategies for catching up. While doing so, it will be key to consider the needs imposed by COVID-19 related services in terms of human resources, physical infrastructure, surveillance and medical supplies.
5. As the pandemic evolves, Divisions should be pro-active in establishing public health guidelines that comply with those determined at the national level, but also consider the contextual needs of the regions. Dissemination of key messages could profit from the digital resources (i.e. social media and mobile phones), as well as the traditional outlets available locally (including CHW).
6. Partnerships with NGOs need to be an integral part of the pandemic response and recovery; in this sense, coordination at the Division level should be promoted, as this is likely to increase the efficiency of the available resources and maximize service delivery and health outcomes.

7. Information and monitoring systems for disease and service delivery need to improve at the local level. Although there was limited information in this area, the few references from Divisional Directors suggested that information and monitoring systems need to be more articulated. In addition, such systems need to move towards integrated digital solutions with the capacity to aid Division decision making. Achieving this will probably require a training and capacity building component.
8. If the pandemic requires future lockdown measures, Divisions should consider mechanisms to make transportation available to patients trying to reach services, as well as to those in charge of distributing medical supplies. This is a preventable barrier to supply and demand side limitations to accessing health services.

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APPENDIX 1: SEMI-STRUCTURED INTERVIEW GUIDELINE FOR DIVISIONAL DIRECTORS

Greetings!

The COVID-19 pandemic may have had effects on essential health, nutrition, and family planning services together with tuberculosis (TB) and non-communicable diseases at the national and sub-national levels of Bangladesh. I, Nazme Sabina, have been contracted by the World Bank to assess the situation across the different divisions and to identify lessons learned, successes and bottlenecks in the provision of the above mentioned services from your perspective and experience as a divisional director during the pandemic.

I express my gratitude to provide me your valuable time to know your experience and insights on this. It would be highly appreciated if you consider different phases of pandemic situation in Bangladesh while you describe the experience: such as a) pre-‘general holiday’ (lockdown) level and no transport movement restriction (January 1-March 24); b) during -‘general holiday’ (lockdown) and transport restriction (March 25-May 31); c) Post -‘general holiday’ (lockdown); lifting transport restriction (June 1-August 31); and finally when everything except education institutions became open. Your answers will be kept confidential.

Service delivery:

1. We have seen that across all divisions in Bangladesh, COVID19 caused disruptions to the ability of health facilities/local health systems to provide EHNS; could you tell me what was the case for this division? Were there any changes in the services provided? Why?
2. What changes were observed? How did this change in service provision affect utilization? Was there any specific potential impact that you’d think of these changes in service availability could fetch for health of people in your division?
3. What was the guidance you received from the MOHFW and other authorities for maintaining EHNS? Was it clear? Did it help you decide what to do in your division? [Probe: When did you get the Guidelines? How useful they were and why? What was implemented and what couldn’t be? Did you develop your own guidelines? Do you have the capacity to develop your own guidelines?]
4. Could you please tell me whether you receive the financing, technology or technical support necessary to help implement the guidance that you received from the authorities/ MOHFW? Did you receive or have available funds to buy protective equipment for community health workers, community centers, union level facilities, etc. so that they could continue providing EHNS?
5. Could you please tell me how you organize your staff and those you supervise in the districts and below, to undertake any specific tasks related to EHNS? [Probe: designating a few facilities only for antenatal care or some health workers only for child vaccinations? How did you coordinate with the others (local administration, law enforcing agencies, etc)?]
6. Could you please tell me whether (and how) you and/or your staff and those you supervise in the districts and below, receive any training or support to tackle the challenges faced for the continued provision of ENHS throughout this past year? Did you receive any technological support?
7. How will the lessons that you and your team learned for the continuous maintenance of EHNS during the pandemic in current vaccine roll out, other services?

Communication and community outreach

1. COVID 19 has changed the way we all communicate. Could you tell me what the experience of this division was in improving its communication to the population to promote their continued use of essential health services? For example, communication for ensuring diabetics or pregnant mothers continue their scheduled consultations or children get their next vaccination?
2. What was the guidance you received from the MOHFW for establishing or maintaining this communication with the population in your division? Was it clear? Did it help you decide what to do in terms of communication in your division?
3. Was there a public media inter-action strategy developed? How was mis information managed and what was the impact? What was the level of trust in official statements? Any tracking done to assess? Why lack of trust or was media satisfied?
4. Could you please tell me whether you receive the financing, technology or technical support necessary for communication campaigns/efforts?
5. How did you organize your staff to ensure the best communication?
6. How did you or your staff receive training or support?
7. How the lessons that you learned on communication strategies to reach out to the population and reduce misinformation in current vaccine related communication, future communication?

Surveillance

1. Having a very clear understanding of the COVID situation in your own division can often help facilities and divisional directors decide on the best actions for ensuring the availability of essential health and nutrition services to their populations. How were you and your division staff able to monitor the extent of the pandemic in your division over the past year, for deciding on the best strategies for the population?
2. How was the system of disease and service provision tracked during the COVID period? How did/does it vary across districts, upazilas, unions? [Probe: How were notifiable incidents, symptoms identified? For example, TB dose, high risk pregnancy, IUD expiry date? What was the format (Paper-based? Electronic?)]
3. How the preparation and submission of reports take place? If there was a disruption in data reporting, how long was it for? How is it now? Did you adopt measures to improve reporting? Please explain, how.
4. Could you please tell me about any guidance to help you better monitor and reporting the situation and make decisions?
5. Could you please tell me whether you receive the financing, technology or technical support to help you better monitor the COVID situation and the EHNS delivery?
6. How did you or your staff receive training or support in surveillance in pandemic?
7. How do the lessons that you learned on monitoring, surveillance for better decision-making during the pandemic time apply in the current vaccine monitoring, surveillance, etc. situation?

APPENDIX 2: CONTENT ANALYSIS OF SERVICE DELIVERY

General aspects about service delivery		
Node	Sub node	Examples
Not attending health services due to fear of getting infected with COVID-19	-Feeling safer at home	-Delivering a baby at home safer than at the clinic (Chittagong) -Did not take children to get vaccinated due to fear (Barisal)
	-Health workers as carriers of the virus	-People would not go to the clinics fearing that they would be infected by health care providers (Barisal)
	-Stigmatization	- Some health-care providers faced stigmatization because they worked in hospital: “The staff, specifically women working in the health facilities, also faced emotional abuse for being healthcare workers and working in the COVID-19 pandemic situation in a hospital” (Dhaka)
	-Misinformation affected service utilization	-Perceptions about COVID-19 being spread in clinics increased fear and affected utilization (Barisal) -Families who needed hospitalizations (i.e., delivery) often requested early discharge (Sylhet) -Wrong communications exacerbated the notion that hospitals and clinics were only for COVID-19 (Barisal)

		-Receiving misleading information through social media affected decisions about accessing services, a social media campaign was put in place (Barisal)
	-Difficulties in counterbalancing socially constructed perceptions	-There was generalized panic that affected health services delivery, it was difficult because there were no mechanisms to address this (Sylhet)
	-Low mortality reduced fear	-Seeing low mortality rates, reduced fear and help re-starting health care services use (Rajshahi)
Disruptions in service delivery	-Services focused mainly for emergencies	-During the worse months (March-April), most services were disrupted (all Divisions)
	-Government discouraged unnecessary visits	-Government suggested avoiding unnecessary visits to clinics and, when possible, encouraged use of telemedicine (i.e., online, phone consultation) (Sylhet, Dhaka)
	-Different types of services disrupted	-Supplementation during pregnancy (Barisal) -Lack of in-person examinations during pregnancy (Khulna) -Immunizations, including outreach activities commonly performed, and shortages of vaccines (Rangpur, Khulna) -Reduction in contraception recipients (there was no shortages of contraceptives, the problem was more focused on the delivery (Rangpur) -Diabetes (which was often managed through the phone and self-management such as glucose monitoring) (Dhaka) -Tuberculosis vaccination and diagnosis (Khulna)

	-Some instructions made it harder to getting services	-Instruction to check women close to delivery for COVID-19 (even if they were asymptomatic) (Chittagong)
	-Challenges of available health workers	-Many health workers were infected or died, this increased the pressure for the other health workers (Khulna) -Those providers 55 and older, with comorbidities or pregnant had flexible tasks and increased workload for others (Khulna)
	-Affections on outreach activities	-No door-to-door activities reduced outreach (Barisal) -Activities in houses and courtyard meetings were disallowed to enforce measures of social distancing (Barisal, Rangpur) - During the critical period, community clinics provided regular services and health complexes continued treatments. They implemented schedule reductions: Health clinics reduced daily schedule (9-3) and Health assistants worked 3 out of 5 days (Khulna) - Door-to-door visits and outreach sessions were cancelled during first months of lockdown. They resumed “when the death rate was slowing down in this division” (Dhaka) - In-person motivation activities were substantially reduced compared to normal times (Mymensingh)
	-Challenges and alternative collaborations	-Private clinics and NGOs didn’t come forward to provide services until later, when collaboration was achieved (most Divisions) -It was problematic to distribute contraceptives, but drug stores were always open, although products cost (Khulna)

<p>Health professionals looking how to provide services beyond clinics and adapting medical alternatives</p>	<p>-Telemedicine</p>	<p>-Services provided through telemedicine (as directed in governmental guidelines) (Dhaka)</p> <p>- They used a help hotline, “Shashthya Batayan”, where people call for a consultation with the doctor and to get information (Dhaka)</p> <p>- Tele consultation increased a lot. “We became highly dependent on tele-consultation and telemedicine; this worked when we had better connectivity” (Khulna)</p> <p>- Teleconsultations were encouraged (Chittagong)</p>
	<p>-Other online services (i.e., zoom)</p>	<p>-Problems of connectivity and zoom solved by providers paying for these services out of pocket (Khulna)</p> <p>-Facebook pages of clinics with doctors’ phones so patients could reach them (Mymensingh)</p> <p>-Use of Zoom not only to provide services but to coordinate service-related activities between providers (Mymensingh)</p>
	<p>-Mobile phones helped</p>	<p>-“Most people have access to mobile phones and they can contact the numbers of community health care workers... mobile phones helped a lot” (Mymensingh)</p> <p>-Telephone numbers of doctors were circulated in the community. “Most people now have access to telephone, they somehow contacted doctors when they were in need” (Sylhet)</p>
<p>Delay in healthcare seeking linked to contextual factors</p>	<p>-Movement restrictions linked to lockdown rules</p>	<p>-Restrictions included travel bans, limiting transportation for healthcare seeking (Chittagong)</p>

		-Special transportations arrangements were needed to get medical supplies moving to different areas (Rajshahi)
	-Economic effects of the lockdowns	- Lockdowns produced economic hardship for many, leading to face difficulties in aspects such as buying medicines. Hence, role of community workers in distributing medicines was fundamental (Dhaka) -Lockdown increased the risk of losing jobs, which increased internal migration (i.e., people employed elsewhere in the country returning home), as well as the risk of contagion (Sylhet)
Getting back to more stable service provision	-COVID-19 rules for service provision	-Strict mask wearing and explicit COVID-19 rules at clinics and hospitals helped reduced fear and increase utilization (Dhaka)
	-Outreach measures	-Outreach measures such as mobile immunization campaigns were launched (with support from NGOs) (Dhaka) -Lack of fairs and interactive events might have enlarged the perceptions that hospitals were for COVID (Barisal)
	-Targeting groups who were known to had been affected	-WHO and UNICEF helped identifying children who missed immunizations (Chittagong)
	-Difficulties in service provision	-Not easy to maintain protocols in health facilities that have infrastructure not designed for this (i.e., inadequate access to water) (Barisal) -Setting isolation units reduced the space for routine care (Rajshahi) -Hospital reconversion has been difficult (Khulna) -COVID-19 as an extra task, without extra human resources (Sylhet)

	Collaboration with other actors	-Coordination with NGOs to help getting services back (Sylhet)
Specific aspects about financing service delivery		
Protective equipment (PE)	-Initially arrived late and with low quality	-PE arrived late, and this placed health care professionals at risk, doctors and other workers had to buy their own PE (Rangpur) -Issue was not lack of budget, but time (i.e., PE arriving late) (Chittagong) -Initial PE was of low standard, doctors bought their own (Dhaka)
	-Re-budgeting and donations	-Slowly budgets considered equipment at the upazila level (Rajshahi) and allocation of resources was set for hand sanitizers, gloves, etc. (Chittagong) -NGOs increasingly donated PE (Chittagong) -They did not have funds for PPE. Received them from the Central Medical Stores (Khulna)
Inflexible budgets for human resources	-Human resources gap needed alternative resources	-Despite the need, there was no support. An alternative was paid volunteers (Chittagong)
Technology	-Paying new technological needs	-Costs of new technological needs were addressed by the office (Dhaka) -While the MIS Department provided support and orientation, practical issues were often solved through personnel money (Chittagong) - They had to pay for the internet (Sylhet) - CHWs occasionally had to cover costs of tele-consultations (Barisal)

Specific aspects about guidelines		
“Keep providing all services”	-Guidelines to keep providing all services	<ul style="list-style-type: none"> -Cleaning, social distancing, temperature, history of illness, mask wearing (Chittagong, Khulna) -Encourage online treatment (Sylhet) - “Most of the guidelines and instructions helped us”
	-Communication	<ul style="list-style-type: none"> -Regular meetings with the Directorate to discuss challenges and follow-up of guidelines (Rajshahi) -WhatsApp groups with all Directors to help communications about decisions (Rajshahi)
Specific aspects about human resources		
Health professional workforce during COVID	-Need for specific human resources	<ul style="list-style-type: none"> -Experts on occupational safety (Barisal) -No public expert in the Division, no virologist (Chittagong) -More medical technologists needed (Sylhet)
	-Important support from NGOs after lockdown	<ul style="list-style-type: none"> -Help training service providers (Barisal) -Provide basic clinic and preventive services in urban public health clinics (Dhaka)
	-Not enough human resources to provide all services	-Lack of human resources was always an issue but it became more salient with COVID (Rangpur)

		<ul style="list-style-type: none"> -New centers (i.e., alternative sites) were put together without extra staff (Chittagong) -Lack of human resources also affected community services (Khulna) -“Workload has increased as never before... leads to swamped work” (Chittagong)
	-Workload has been exhausting	<ul style="list-style-type: none"> -Health professionals working with devotion and determination (Khulna) - Health professionals “superhuman beings” (Khulna) -Needed to face unexpected situations such as death bodies brought to clinics (Mymensingh) -Burden of health professions during the worst part of the crisis related to not seeing their loved ones, a mental health issue. Technology was a booster (Khulna)
	-Demands for better pay	<ul style="list-style-type: none"> -In November, “they actually went on strike” in different parts of the country to demand better pay and work conditions (Dhaka) -Government offered incentives of 1-month bonus for their extra effort, but did not arrive (Khulna)
Administrative aspects in human management	-Divisions could not recruit	<ul style="list-style-type: none"> -No authority at the divisional office to recruit people during the emergency (Mymensingh) -Lack of autonomy for recruiting needed personnel (Rangpur) -Some personnel whose task was linked to outreach could not performed the job due to COVID restrictions and were not paid (Khulna)

		-Vacant positions unable to be filled (Chittagong)
Pre-COVID strengths of the personnel	-Grassroot experience	-Health workers worked with community leaders to distribute information about COVID and search for active cases (Dhaka) -It was also feasible to work with religious leaders to help with education, risk reduction of transmission during funerals, and outreach (Dhaka)
Specific aspects about training and technology		
Government encouraged the use of telemedicine	-Technology support from third parties	-Technology support came from agencies like UNICEF (Khulna) -Support from the MIS Department in zoom, telemedicine and online services (Barisal) -Support from the MIS Department in installing online platforms and orientation about digital systems (Dhaka)
Uses of technology	-Support of technology during the pandemic	-Mobile phones have helped a lot as a contact mechanism with community health workers for consultation (Mymensingh) -Facebook accounts were set for each clinic, which allowed communicating with patients via messenger (Chittagong)
	-Positive long-term effect in the use of technology	-Increased use of online services such as registration of vaccinations online and follow-up of pregnant women via e-registration (Chittagong) -Most people now have a mobile phone that can be used to receive health services and health information (Barisal)

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		<ul style="list-style-type: none">-Mobile phones from health providers were put at visible public places for patients to be able to call them (Chittagong)-Use of media facilitated administration and meetings (Dhaka)
Trainings related to service delivery	<ul style="list-style-type: none">-During the initial months of the pandemic	<ul style="list-style-type: none">-Training in the use of protective equipment (Barisal)-Training about keeping patients in isolation and testing (Mymensingh)
	<ul style="list-style-type: none">-When services resumed	<ul style="list-style-type: none">-How to resume outreach activities (Mymensingh)

APPENDIX 3: CONTENT ANALYSIS OF COMMUNICATION AND COMMUNITY OUTREACH

General aspects about communication and community outreach		
Node	Sub node	Examples
Adaptations during pandemic	Modifications	<ul style="list-style-type: none"> -In Sylhet “we discouraged people from attending health facilities and motivated community services through counselling”. -Traditional social gatherings and door-to-door visits are against COVID-19 guidelines. In Mymensingh, fear amongst CHW decreased until June, when they saw elders were not getting infected and not dying as often even if they were. - Social distancing was protective but hard to keep for CHW, especially in social gatherings (Khulna). -In Rangpur, localized and communication catch-up campaigns were conducted to recover vaccination coverage with door-to-door outreach campaigns and phone calls and texting. - They posted in Mymensingh doctor’s phone numbers from each upazila on Facebook. “It was effective to request treatment.”
Specific aspects about guidance		
Node	Sub node	Examples
Communication with population	Messages	<ul style="list-style-type: none"> - Authorities agreed on messages and guidelines to be distributed by posters and leaflets (Rajshahi)

		<ul style="list-style-type: none"> - Messages to community were not adapted (Chittagong). Conversely, NGOs and UN agencies adapted messages to local dialects, for example, in “Rohingya camps and Chittagong hill tracts.” - A consistent message in Barisal, Mymensingh, Rangpur, and Khulna was to avoid and postpone pregnancies: “We asked people not to get pregnant during COVID and promoted 15-20 slogans, selected by the Directorate's information and communication team”.
	Tools	<ul style="list-style-type: none"> - In Rangpur mobile phones played an “important role.” Official work was also done via Facebook. -Community health workers in Barisal relied on text messages and phone calls - In Chittagong and Barisal, they used a van to run awareness programs - Sylhet circulated doctor’s phone numbers in the community. “We discouraged patients from going to the hospital and doctors provided services by phone.”
	Misinformation	<ul style="list-style-type: none"> - In Rangpur social media “created confusion... People believed any news and welcome negative news...We told CHW not to believe and spread incorrect news.” - In Chittagong, Rajshahi, Sylhet and Mymensingh, they were unable to stop misinformation, affecting both service providers and seekers: “There was misinformation encouraging unscientific practices to prevent COVID.” -In Barisal “Lots of people falsely thought hospitals provided COVID-treatment only.”
Communication between health providers	Guidelines	<ul style="list-style-type: none"> - Guidance was centered on COVID prevention in Rangpur - Guidelines were mostly with COVID info, but in Sylhet they added contraceptives and family. They handed flyers for unwanted pregnancies with slogans. - An instruction that pregnant women with signs of labor had to present a covid test within 5 days, even if asymptomatic, generated “chaos and additional trauma” in Mymensingh. Some women were sent back without

		results. The instruction then corrected that those deliveries should not be delayed in asymptomatic patients when tests were unavailable. Still, “women faced difficulties”.
	Motivation	- In Barisal communication “between levels helped reduce fear, gain confidence and solve problems”. - In Dhaka constant communication helped boost mental health and motivation
Specific aspects about financing		
Node	Sub node	Examples
Resources	Modifications	-Additional budget comes from Directorate and Civil Surgeon. Chittagong received funds for catch-up vaccination events. - CHW informed the community in Mymensingh there was not a shortage of contraceptives supply
Specific aspects about human resources		
Node	Sub node	Examples
Community health workers (CHW)	Roles	-In Khulna, CHW played a “vital role” mobilizing and motivating people to get essential services. They visited households with pregnant women and children under 5 years to collect updates on health status and provide covid information. - In Barisal, CHW were key for “setting up localized communication, catch-up campaigns, [...and] immunization campaigns” -The Rajshahi community trusts CHW and it helped when they encouraged immunization sessions, updates, and info sessions. They even communicated by mobile phone (most have one).

Partnerships	NGOs	<ul style="list-style-type: none"> - While government staff was busy with covid management, CHW from NGOs in Rangpur helped with coordination and communication of awareness programs and preventing unwanted pregnancies. - In Sylhet “we always worked in close coordination with NGOs (i.e., Marie Stopes) [...] We kept supplies and they collect contraceptives from family planning offices.”
	Religious institutions	<ul style="list-style-type: none"> - Instructions in Chittagong underscored the involvement of Imams to raise covid awareness and encourage service utilization. - Motivated service via the Imams in mosques because in Barisal “people continued to go to mosques defying the government’s instructions on social gathering”.
Specific aspects about training and technology		
Node	Sub node	Examples
Technology	Information systems	<ul style="list-style-type: none"> - In Barisal, there was “center level guidance at each upazila for communication, remote follow-up, and flexible reporting due to connectivity problems... This was helpful.” - Information systems were used an expanded and perceived as helpful; in Dhaka “A database software called ‘Gorbhobotir Aina’ (roughly translated as pregnant woman’s mirror) has been created to implement the Kapasia model in reducing maternal mortality.”

APPENDIX 4: CONTENT ANALYSIS OF SURVEILLANCE

Specific aspects about human resources	
Supervision	<ul style="list-style-type: none"> - No in-persons supervision during first months because offices closed so in Sylhet, Rajshahi, and Chittagong they turned to monthly virtual meetings. - Physical monitoring not possible so they turned to virtual meetings in Dhaka; they would have been more successful if started earlier on. Monitoring was conducted via quarterly supervision meetings.
Specific aspects about financing	
Laboratory Shortages	<ul style="list-style-type: none"> - In Chittagong, 6 districts have lab machines to examine blood tests in 40 minutes. They combined COVID and TB testing. Machines were not ready to be used; they used only 2 at Sadar hospital. They also need lab technicians for COVID-19 testing. There is no virologist or public health expert in the division.
Specific aspects about training and technology	
Monitoring systems	<ul style="list-style-type: none"> - In Barisal, disease surveillance depended on passive reporting of health facilities, which was reduced during the pandemic. - In Khulna and Mymensingh, they developed a “system” to monitor field-level family planning workers, services, and locations. Results show missed routine checks and perceived reductions in ANC, but they do not have the data.