THE PRIMARY HEALTH CARE SYSTEM OF BANGLADESH

A PRIMARY HEALTH CARE PERFORMANCE INITIATIVE ASSESSMENT

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WORLD BANK GROUP
Health, Nutrition & Population

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August 2022

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ACKNOWLEDGMENTS

This report was written by a World Bank team led by Manuela Villar Uribe, Jose Carlos Gutierrez, and Cameron Feil. Data analysis was conducted by Marwa Ramadan and Manuela Villar Uribe. Nazme Sabina and Zakir Hussain contributed extensively to data collection and contextualizing Bangladesh's health care system. Revision and feedback were provided by the larger World Bank team, including Shiyong Wang, Tamer Rabie, Atia Hossain, Kathryn Gilman, and Owen K. Smith. E. Gail Richardson. Rianna Mohammed-Roberts, Aissatou Diack, and Asib Nasim provided invaluable guidance and support throughout the data collection and analysis.

The team wishes to thank Gianluca Cafagna and Carmen Carpio who peer reviewed the report, providing very insightful comments with an international perspective. Mercy Tembon, Trina Haque, Sybille Crystal and Iffat Mahmud provided invaluable comments and guidance for the completion and dissemination of this report.

The team is also extremely grateful to the key informants interviewed, the Steering Committee for this work, and the participants of the validation workshop held in February 2020 (see list of names in appendix F).

The team at the Primary Health Care Performance Initiative also supported this work. The authors would like to thank Lucy Hartshorn, Hannah Ratcliffe (Ariadne Labs), and Chelsea Taylor (World Health Organization) for their review and contributions to the Vital Signs Profile that forms the initial basis of this report.

ABBREVIATIONS

CHW	Community health worker
COPD	Chronic Obstructive Pulmonary Disease
CVD	Cardiovascular Disease
DGFP	Directorate General of Family Planning
DGHS	Directorate General of Health Services
DALY	Disability-Adjusted Life Years
DHIS2	District Health Information Software v2
DOTS	Directly Observed Therapy, Short-course
eLMIS	Electronic Logistics Management Information System
DPT3	Diptheria-pertussis-tetanus, third dose
GBD	Global Burden of Disease
GDP	Gross Domestic Product
HMIS	Health Management Information System
IHME	Institute for Health Metrics and Evaluation
MIS	Management Information System
MNC&AH	Maternal, Neonatal, Child, and Adolescent Health
MOHFW	Ministry of Health and Family Welfare
MOLGRD&C	Ministry of Local Government, Rural Development and Co-operatives
NCD	Noncommunicable Disease

NGO	Non-Governmental Organization
NIPORT	National Institute of Population Research and Training
OOPS	Out-Of-Pocket Spending
ORS	Oral Rehydration Salts
PHC	Primary Health Care
PHCPI	Primary Health Care Performance Initiative
PPP	Purchasing Power Parity
QIS	Quality Improvement Secretariat
RMNCH	Reproductive, Maternal, Newborn, And Child Health
TB	Tuberculosis
UHC	Universal Health Coverage
USAID	United States Agency for International Development
VSP	Vital Signs Profile
WHO	World Health Organization

EXECUTIVE SUMMARY

This report presents the findings of the Vital Signs Profile (VSP) exercise conducted by the World Bank and the Primary Health Care Performance Initiative (PHCPI) in collaboration with Bangladesh's Ministry of Health and Family Welfare (MOHFW). The VSP provides an opportunity to assess the state of the primary care system in Bangladesh, highlighting areas of strength and challenges through the lens of the PHCPI framework. The framework organizes various domains and subdomains of primary care service through a logic model approach that encompasses the traditional inputs and outputs of primary care systems, and it also places a strong focus on the processes of service delivery and performance of the primary health care (PHC) system.[1] Notably, while PHCPI recognizes the role of social determinants of health and intersectoral health promotion and prevention efforts as important factors influencing population health, the VSP is primarily focused on aspects of health service delivery.

Bangladesh has experienced remarkable improvements in health over the past five decades, but challenges remain. The findings of the VSP indicate that PHC performance has improved: coverage, quality, and access to services have improved significantly from 1994 to 2019. However, persistent challenges to improving the quality of care and ensuring equitable access to services limit the system's overall effectiveness, and these challenges have been amplified by disruptions to service delivery and access caused by the COVID-19 pandemic. Geographic and financial barriers to care can lead people to forego needed care, and such challenges are felt more acutely by vulnerable populations. Further, the growing burden of noncommunicable diseases (NCDs), partially driven by urbanization and population aging, represents a growing challenge and underscores the need to strengthen and adapt primary care.

The capacity of PHC in Bangladesh—including measures of governance, the availability of inputs, and population health and facility management—demonstrates important strengths as well as areas of opportunity. Substantial political will from the government of Bangladesh and other important stakeholders has contributed to investments in PHC,

including recent investments in health information systems that allow for better monitoring and disease surveillance. The availability of essential inputs such as drugs and supplies at PHC facilities has increased, although significant room for improvement remains. The availability of health workers specifically remains an important challenge to universal, high-quality health services. Further, key stakeholders interviewed throughout the exercise emphasized that systems and processes for facility organization and management represent an area of opportunity to drive performance improvements.

The following policy recommendations have been developed to address the challenges identified and achieve universal and effective PHC coverage in Bangladesh. Considering the VSP's focus on the delivery of health services (which forms the basis for the recommendations), it is also important to note that efforts to strengthen the health system must also be accompanied by efforts to strengthen health promotion and prevention and address social determinants of health, particularly to address the growing burden of NCDs.

1. **Implement new, people-centered models of care that rely on health systems delivery networks:**

   Health service delivery networks would allow Bangladesh to adapt to its diverse health needs, enable effective utilization of care, and promote high-quality care. When health service delivery networks are organized around the provision of multidisciplinary team-based care for a defined population, health facilities can empanel their assigned population to better understand and plan for their health needs. Health service delivery networks also provide opportunities to strengthen referral and counter-referral systems, ultimately contributing to better care coordination and continuity of care.

2. **Cultivate the next generation of PHC personnel to work in multidisciplinary teams and strengthen their competencies:** Health workers form the backbone of the health system, and

ensuring they are adequately trained and managed is key to the provision of quality PHC services. Specifically, Bangladesh could update its human resources for health strategy, last published in 2015, to identify the competencies, skill mix, and distribution of the workforce and to develop policies and plans to address gaps in health worker deployment, compensation, retention, and training in PHC. Efforts to expand task shifting and supportive supervision also have the potential to use the workforce more efficiently and strengthen performance management, ultimately contributing to a more effective workforce.

3. **Capitalize on investments in health management information systems to drive quality improvement through care coordination, performance measurement, and evidence-based decisions:** Building on recent investments in information systems for disease surveillance and vital statistics registration, Bangladesh could continue to invest in information systems to improve key health system functions. Information systems are important in the development and implementation of patient-centered care management approaches, as well as for monitoring the quality of clinical service provision. Strengthening information systems for logistics and supply chain management, and for human resources for health, may also yield dividends for health systems performance, contributing to the efficient use of inputs such as medicines and supplies while better tracking health worker needs and performance.

4. **Invest in health system infrastructure to ensure accessible care and strengthen the quality of care:** The physical infrastructure of health facilities and the amenities they contain are a key component of safe, high-quality services. Amenities such as electricity, safe water, and sanitation are not always available at PHC facilities (community clinics, upazila health complexes, union health and family welfare centers, satellite clinics, and Expanded Program on

Immunization outreach sites). Developing a long-term infrastructure plan would provide an opportunity to address existing deficiencies and guide future investment plans to ensure that the country's PHC capacity grows as the population does. Investments in health facility infrastructure could also incorporate measures for climate resilience and adaptation as well as investments in equipment for e-health and information systems.

5. **Strengthen PHC governance and explore financing reforms that boost resources for PHC to improve access to services and incentivize performance:** The existing fragmentation of the health system creates challenges for a coordinated and strategic approach to PHC. Strengthening institutions for the collaboration between the MOHFW and its partners in the provision of health services—including the Ministry of Local Government, Rural Development and Co-operatives (MOLGRD&C) and the private sector—would strengthen the stewardship role of the MOHFW and improve health sector governance; it would also be a necessary step toward the implementation of health service delivery networks. In addition, Bangladesh could explore health financing reforms that increase public financing for the health sector to reduce out-of-pocket spending (OOPS), which accounted for 74 percent of total health expenditure in 2018 and mitigate financial barriers to care. Further reforms for consideration include the development of new pooling and purchasing arrangements that contribute to spreading the risk of illness more equitably across the population and could also contribute to more strategic purchasing of health services. Measures such as demand-side financing schemes, needs-based budget allocation, and an assessment and mitigation of public financial management bottlenecks provide opportunities to improve the efficiency and effectiveness of health financing in the production of health services.

INTRODUCTION

ACHIEVEMENTS

Bangladesh has made impressive achievements in population health in the fifty years since it achieved independence in 1971. Life expectancy at birth has increased from 46.5 years in 1971 to 72.6 years in 2019. Over the same period, under-five mortality declined from 222 deaths per 1,000 live births to 30.8 deaths per 1,000 live births, and the total fertility rate has steadily declined from 6.9 in 1975 to 2.01 births per woman in 2019.[2] These gains in health and quality of life are largely attributed to a focus on gender equity, increased access to education, and health interventions targeting reproductive, maternal, newborn, and child health (RMNCH) and infectious diseases.[3]

The speed of Bangladesh's mortality reduction has led it to be considered an example of "Good health at low cost." [4] Life expectancy at birth is nearly three years higher than the lower-middle-income country average of 69.6 years (2019). Bangladesh's under-five mortality rate (30.8 deaths per 1,000 births) and total fertility rate (2.01 births per woman) are also considerably better than the lower-middle-income country average of 48.9 deaths per 1,000 births and 2.69 births per woman. Among other lower-middle-income countries in the South Asia region, Bangladesh performs comparably to Bhutan, India, and Nepal across both indicators. Sri Lanka is the only South Asian country that outperforms Bangladesh in terms of under-five mortality rate (7.1 deaths per 1,000 live births).[5]

Although population health has greatly improved over previous decades, some important challenges remain. In 2017, the maternal mortality ratio in Bangladesh was estimated at 173 deaths per 100,000 live births—noticeably higher than other South Asian countries such as India (143 deaths per 100,000 live births), Pakistan (140 deaths per 100,00 live births), and Sri Lanka (36 deaths per 100,000 live births).[6] From 2000 to 2020, total tuberculosis (TB) incidence has remained constant at 218 cases per 100,000 population.[7] In addition, Bangladesh is facing a "double

burden of malnutrition," referring to the continuously high rates of children with nutritional deficiencies and the increasing rates of overweight and obese adults. According to 2017–18 household data, 21.9 percent of children in Bangladesh were underweight. Among adults, the percentage of women who are overweight or obese increased from 2.8 percent in 1996–97 to 32.4 percent in 2017–18, while the percentage of men who are overweight or obese increased from 6.2 percent in 2011 to 17.6 percent in 2017–18.[8]

Bangladesh's political commitment to expanding access to preventive and curative health services (and expanding educational opportunities for women and girls) has played a key role in improving health outcomes. Bangladesh offers free, universal health care coverage to all through government-funded primary, secondary, and tertiary services. Though challenges persist in the availability and quality of service provision, and the legal framework supporting the right to health could be further strengthened, the Constitution of Bangladesh asserts that "the State shall regard the raising of the level of nutrition and the improvement of public health as among its primary duties." [9] This commitment has underpinned the country's efforts in medium-term planning processes and its iterative sector-wide approaches to the health sector dating back to 1998. The latest five-year plan (2020–25) guiding the government to advance toward universal health coverage (UHC) calls for increased budget allocation for health from 0.7 percent of gross domestic product (GDP) to 2.0 percent of GDP by 2025.

Bangladesh's commitment to health has been enabled in part by rapid economic growth and sizable reductions in poverty over the last 30 years. GDP per capita was estimated at $1,968 in 2019, and in 2016, 24 percent of the population lived below the national poverty line—a significant decrease from 40 percent in 2005.[10] This economic growth has translated into greater overall health spending over the last decade. Between 2010 and 2018, total health expenditure per capita nearly doubled from US$20.80 per capita to US$41.08 per capita.[11]

THE HEALTH SYSTEM

The health system of Bangladesh is governed by the MOHFW; however, the MOLGRD&C also plays an important role in the oversight and provision of PHC in urban areas. In addition, the private sector plays an important role in the health sector through for-profit providers, nongovernmental organizations (NGOs), and practitioners of traditional medicine. Among for-profit entities, private pharmacies represent a frequent source of medicines for the population. In the public sector, the MOHFW is responsible for the financing and management of the district hospitals and the rural PHC system, while the MOLGRD&C manages the provision of urban PHC clinics. Though urban PHC centers are managed by local governments, decision-making authority is rarely transferred to this level and typically remains with the MOLGRD&C.

The health care infrastructure in Bangladesh consists of six tiers: national, division, district, upazila (sub-district), union, and ward. As defined for this assessment, the PHC system in Bangladesh consists of all outpatient care delivered in public and private facilities[1] at the upazila level and below. The 'PHC system' in this report therefore refers to all outpatient service delivery activities provided at upazila health complexes, union-level hospitals, subcenters, and health and facility welfare centers; along with community clinics. Upazila health complexes provide secondary and primary health care services, although they are significantly smaller (50 to 10 beds) than district hospitals. Union levels facilities employ medical doctors and community medical officers who provide outpatient primary health care services. At the ward level, community-clinics provide basic PHC services and each serves an average of 6,000 people. Community clinics provide a smaller package of primary health care services to the community, consisting of RMNCH services, immunization, nutrition education and

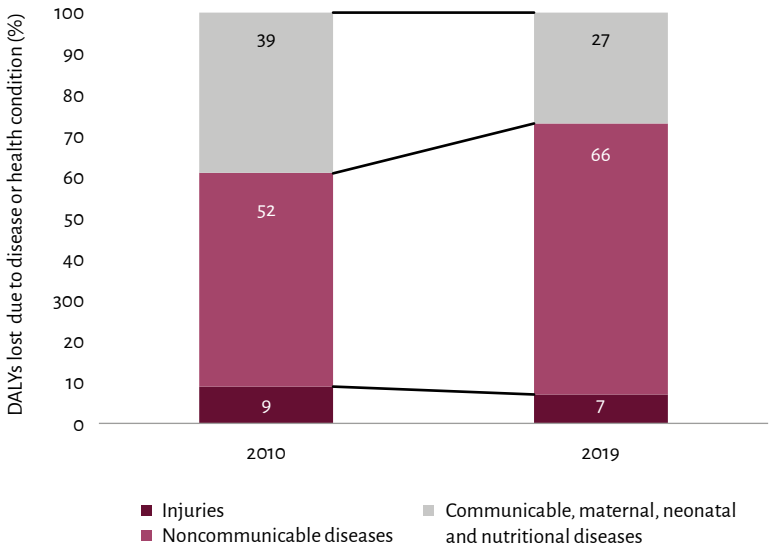
1 In Bangladesh, availability of data on the private for profit and not-for-profit health service delivery system is limited and included in the assessment to the extent that was possible.

services, health education and counseling and communicable disease control. It is important to note that district hospitals deliver secondary and primary health care services through their outpatient departments. The VSP assessment, however, was unable to distinguish the service delivery levels at these facilities. The assessment therefore categorized district hospitals as secondary care.

FUTURE CHALLENGES

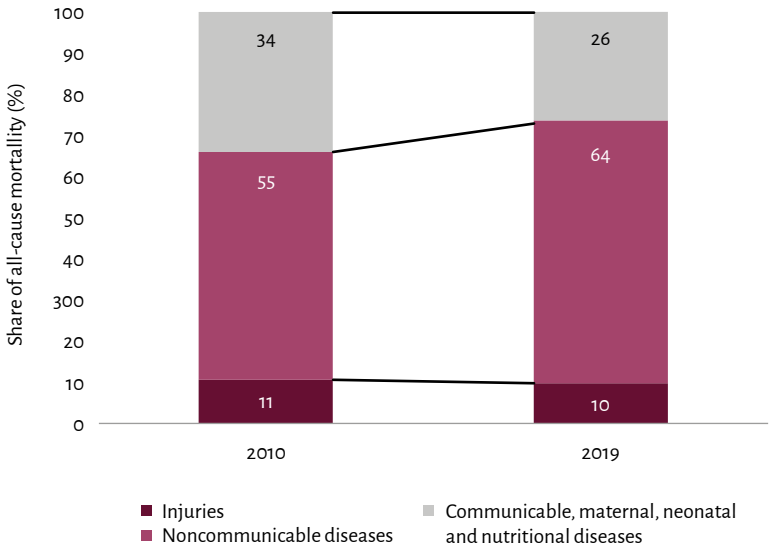
Despite Bangladesh's progress in population health and health service provision, significant challenges remain in the health sector, particularly regarding equity in coverage, quality of service provision, the growing burden of NCDs, and the need to bolster financial protection. With a population of 163 million people, Bangladesh is one of the densest countries in the world with 1087 people per square kilometer. While still predominately rural, Bangladesh is rapidly urbanizing; by 2019, 37 percent of the population lived in urban settings, compared with 23.5 percent in 2000. The process of urbanization, together with population aging, presents evolving challenges for the health sector. Bangladesh is currently undergoing an epidemiolocal transition, as the burden of disease is shifting from predominately communicable to noncommunicable diseases. In 2019, six of the top 10 causes of death were NCDs, including stroke, ischemic heart disease, chronic obstructive pulmonary disease (COPD), diabetes, cirrhosis, and malignant neoplasms.[12] Disability-adjusted life year (DALYs) rates for communicable, neonatal, maternal, and nutritional diseases has declined from 18.3 million DALYs lost in 2010 to 11.67 million DALYs lost in 2019.[13] Meanwhile, NCDs make up an increasingly larger proportion of DALYs lost (figure 1) and cause-specific mortality, increasing from 55 percent of all-cause mortality in 2010 to 64 percent in 2019 (see figure 2). The rise in the burden of NCDs is associated with increased OOPS on health and represents a threat to poverty reduction efforts. Safeguarding financial protection for those with chronic and NCDs will likely require the adoption

Figure 1. DALYs Lost Due to Injuries, Noncommunicable Disease, and Communicable, Maternal, Neonatal, and Nutritional Diseases, 2010 and 2019



Source: IHME 2020.
Note: DALYs = disability-adjusted life years.

Figure 2. Cause-Specific Morbidity and Mortality Due to Injuries, Noncommunicable Disease, and Communicable, Maternal, Neonatal, and Nutritional Diseases, 2010 and 2019



Source: IHME 2020.

of new strategies to ensure the continuity of primary care service provision as well as timely and affordable access to medicines.

The COVID-19 pandemic put enormous strain on Bangladesh's health system, resulting in significant service disruption and setbacks in the reduction of maternal and child mortality. Throughout the world, the COVID-19 pandemic has revealed weaknesses throughout health systems, including in PHC. In Bangladesh, on the demand side, the population decreased service utilization for fear of COVID-19 infection, while the government also discouraged unnecessary facility visits. On the supply side, disruptions to the supply chain and facilities' hours of operation also constrained visits.[14] Tragically, the illness and deaths of health workers also impacted the workforce. With the easing of travel restrictions after the first few months of the pandemic in 2020 and the implementation of safety protocols, health service provision bounced back to pre-pandemic levels to some extent, and community health workers (CHWs) were instrumental in continuing to provide outreach services and reliable safety information to the community. Nonetheless, the disruptions related to COVID-19 have significant consequences. A recent analysis based on decreased utilization of health services estimates that due to the disruptions, an additional 11,337 child deaths and an additional 387 maternal deaths may have occurred in 2020, increases of 12.8 percent and 7.6 percent respectively, compared with the expected number of deaths if there had been no pandemic-related service disruptions.[15] It is critical that Bangladesh continues to mitigate the effects of the pandemic on access to essential health and nutrition services while implementing safety precautions to limit the spread of COVID-19.

WHY PHCPI

PHCPI is a global partnership which is dedicated to transforming the global state of primary health care. PHCPI believes that strong PHC systems is the cornerstone of sustainable development and essential for achieving

UHC; and that improving PHC begins with better measurement. PHCPI partners include the World Bank, Bill and Melinda Gates Foundation, World Health Organization, UNICEF, the Global Fund, Results for Development, and Ariadne Labs. The partnership is dedicated to transforming the global state of primary health care by working closely with governments and development partners looking to strengthen PHC, helping them analyze data, and providing them with information and support they need to drive evidence-based improvements.

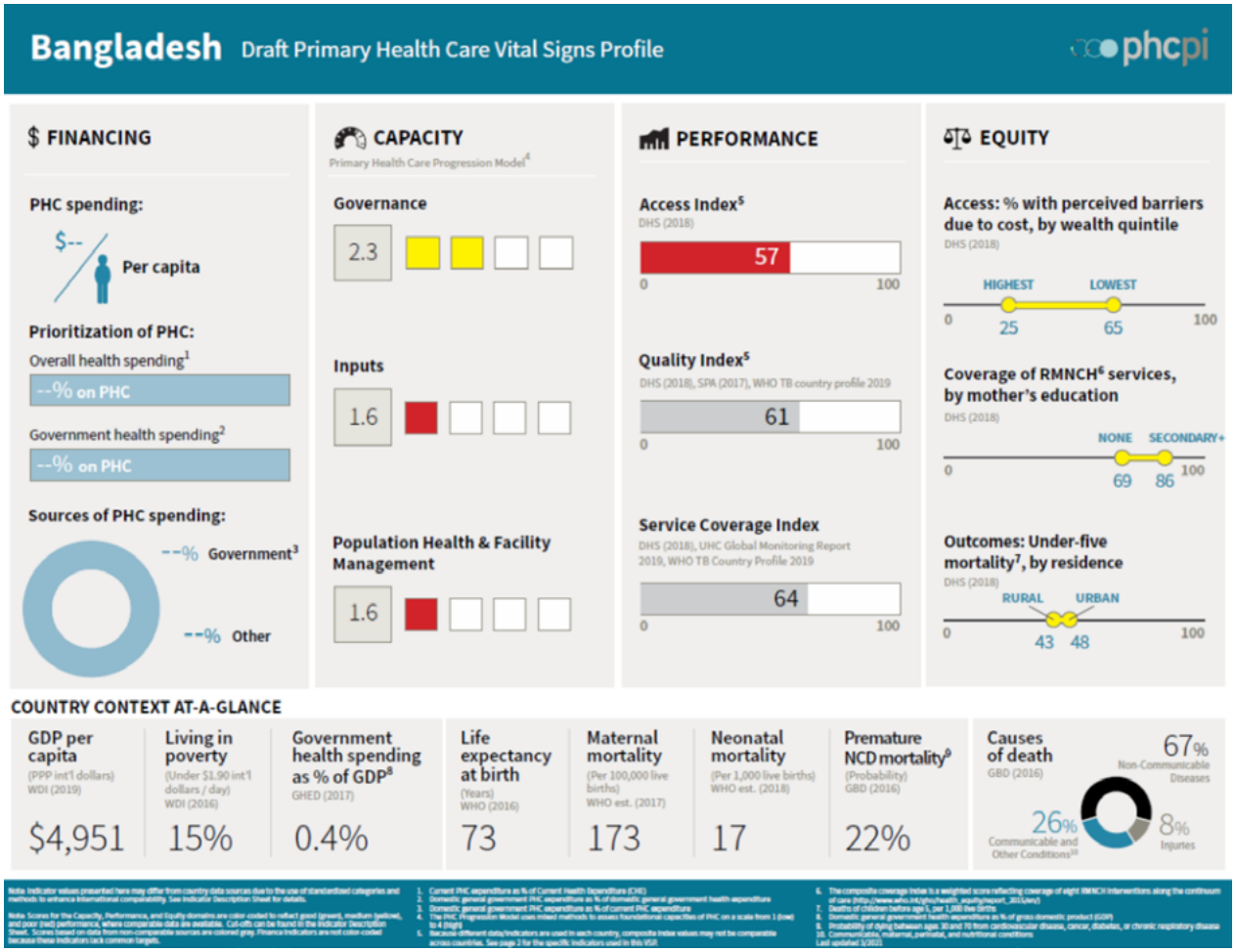
PHCPI uses technical tools to support countries in improving the performance of their primary health care systems. PHCPI's Conceptual Framework was developed to describe the critical components of a strong primary health care system**.** The Conceptual Framework defines five core domains of a primary health care system and serves as the foundation of the initiatives activities. The framework is operationalized in the Vital Signs Profile (VSP), which provides a snapshot of PHC systems in individual countries, shining a light on where systems are strong and where they have challenges. It is designed to help countries and development partners identify priority areas for improvement, and to track improvements over time.

In Bangladesh, a Vital Signs Profile (VSP) has been created using the latest available survey data and information gathered from an extensive document review and interviews with multiple health sector actors. As such, the VSP for Bangladesh currently includes information on the PHC system's capacity, performance and equity, and it provides important insights on issues across multiple levels in the system.

The VSP (figure 3) illustrates the strengths and weaknesses of Bangladesh's PHC system and provides the foundation for highly actionable policy recommendations for improvement. The results are presented using the core dimensions of PHC as identified by the PHCPI VSP. Additional detail on the VSP domains and corresponding results for Bangladesh are presented in appendices A and B. The following results

have been mapped to five domains of PHC: coverage, access, equity, capacity, and financing. Each domain's performance is measured through a collection of best-practice indicators derived from selected qualitative and quantitative data sources. Presenting the findings in such a manner provides a comprehensive and nuanced analysis of Bangladesh's PHC system. The results can be used by policy makers, donors, advocates, and citizens to better understand and ultimately improve PHC in Bangladesh.

Figure 3. Vital Signs Profile



Source: Author's calculations based on multiple data sources as noted in diagram.

KEY FINDINGS FROM THE VSP

COVERAGE

The PHCPI measures coverage by assessing the effectiveness of service delivery on RMNCH, NCDs, and infectious diseases. Table 1 presents the VSP indicators selected to measure the coverage of PHC services in Bangladesh. The indicators were chosen through extensive literature reviews and consultations with international experts.[16] For this report, three additional indicators were included to capture the coverage of nutrition services: the percentages of children under 5 years old with stunting or wasting or who are underweight. Bangladesh's advancements in health are reflected by substantial improvements in PHC service coverage. Notable improvements have been made in the coverage of infectious diseases and RMNCH coverage from 1994 to 2019. However, several challenges require actions to further advance the coverage of RMNCH, infectious disease, nutrition, and NCD service coverage at the PHC level. Table 1 outlines the coverage of services for RMNCH, infectious diseases, NCDs, and nutrition using data from the most recent household surveys and monitoring reports.

Table 1. Service Coverage for RMNCH, Infectious Diseases, NCDs, and Nutrition

Indicator	Percent (2014)	Percent (2017)	Percentage point change	Source
RMNCH				
Demand for family planning satisfied with modern methods	72.6	70	↓ 2.6	DHS
Antenatal care coverage (4+ visits)	31.2	47	↑ 15.8	DHS
Coverage of DPT3 Vaccination	90.9	96	↑ 5.1	DHS
Percentage of children under 5 years of age with symptoms of acute respiratory infection, for whom advice or treatment was sought	42	40	↓ 2	DHS

Indicator	Percent (2014)	Percent (2017)	Percentage point change	Source
Infectious disease				
TB cases detected and treated with success	93***	94*	↑ 1	WHO TB Country Profile
People living with HIV receiving antiretroviral treatment	13**	19*	↑ 6	UHC Global Monitoring Report
Children under 5 with diarrhea receiving oral rehydration salts	77	83	↑ 6	DHS
NCDs				
Prevalence of high blood pressure (age 18+)	n/a	25	-	DHS
Population with elevated fasting blood glucose (age 18+)	n/a	10	-	DHS
Nutrition				
Child under 5 stunting prevalence	36	30.8	↓ 5.2	DHS
Child under 5 wasting prevalence	14	8.4	↓ 5.6	DHS
Child under 5 underweight prevalence	33	21.9	↓ 11.1	DHS
Children 6–59 months old who received vitamin A supplements in the six months before the survey	61	79	↑ 18	DHS

Sources:
Note: DHS = Demographic and Health Survey; DPT3 = Diptheria-Pertussis-Tetanus, Third Dose; NCDs = noncommunicable diseases; RMNCH = reproductive, maternal, newborn, and child health; TB = tuberculosis; UHC = universal health coverage WHO = World Health Organization.
*Data from 2019
** Data from 2017
***Data from 2015

Bangladesh has achieved significant improvements in RMNCH coverage between 1994 and 2017. Impressively, among the RMNCH indicators, 96 percent of children under the age of five had received the three doses of a diphtheria-pertussis-tetanus (DPT3) vaccine in 2017. From 1994 to 2017, the demand for family planning satisfied with modern methods

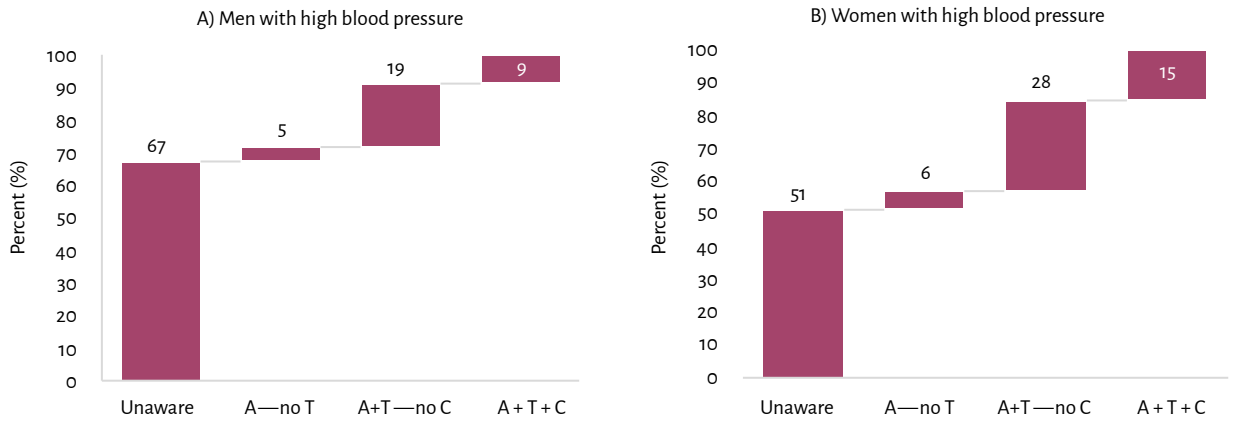
increased from 55 to 70 percent, and the number of women receiving at least one antenatal care visit from a provider increased from 64 to 92 percent. However, less than half of women receive four or more antenatal care visits (47 percent), comparatively lower than Sri Lanka (92.5 percent), Bhutan (85 percent), Nepal (69 percent), Pakistan (51 percent) and India (58 percent). Moreover, only 40 percent of children with acute respiratory infection symptoms sought care or advice from a health care provider, according to 2017 household data.

Indicators of TB and diarrhea treatment highlight Bangladesh's achievements in infectious disease coverage. In 2017, 94 percent of individuals diagnosed with TB were treated successfully and 83 percent of children with diarrhea were given oral rehydration salts. Challenges to infectious disease coverage remain, however. While the prevalence of HIV is generally low compared with TB and diarrhea, less than one-fifth (19 percent) of persons diagnosed with HIV receive antiretroviral treatment. For pregnant women with HIV, another important dimension of HIV treatment and prevention is antiretroviral treatment to prevent mother-to-child transmission; however, data on PMTCT treatment coverage is unavailable.

Childhood nutrition, measured by the proportion of children who have wasting or stunting or are underweight, has made significant progress in Bangladesh between 2004 and 2017. Over this period, the proportion of children who are stunted declined from 50.6 percent to 30.8 percent, while the proportion of children with wasting declined from 14.5 percent to 8.4 percent, and the proportion of underweight children declined from 42.5 percent to 21.9 percent. In fact, one of the most effective interventions at preventing childhood stunting, Vitamin A supplementation among children ages 6–59 months also improved, increasing from 61 percent in 2014 to 79 percent in 2017–18.

The coverage of NCD services, including the diagnosis and treatment of hypertension and diabetes, requires attention as the prevalence of these conditions increases. According to 2017 household data, one-quarter of the adult population has high and uncontrolled blood pressure and 1 in 10 has diabetes; an issue that could be targeted through improved and greater service provision to patients with cardiovascular illnesses in primary care. Moreover, based on the same data, roughly one-quarter of the population ages 18 years and older is estimated to suffer from hypertension, yet roughly half of women and two-thirds of men are unaware of their elevated blood pressure. For those who are diagnosed, roughly 15 percent do not take medication, but as evidenced by the treatment cascade, only about one-third of those under treatment achieve control of their blood pressure. Of the population of men and women with hypertension, only 9 percent of men and 15 percent of women have received a diagnosis and treatment and achieved blood pressure control. Figure 4 displays the hypertension treatment cascade among the population ages 18 years and older as outlined above. Like the pattern observed with hypertension, only 4 in 10 people with diabetes are aware of their elevated blood glucose.

Figure 4. Hypertension Treatment Cascade among Population 18 and Older, by Sex



Source: DHS 2017–18.
Note: A = Aware; T = receiving treatment; C = controlled blood pressure.

QUALITY

Two promising areas of PHC quality in Bangladesh lie in the comprehensiveness and continuity of RMNCH services; however, important challenges remain. In the PHCPI framework and the VSP, PHC quality encompasses not only clinical quality but also core principles of service provision that have been shown to impact PHC quality (see appendices A to C); these include comprehensiveness, continuity, and person-centeredness of service delivery as well as aspects such as provider competence and safety. In this vein, there are substantial gaps in the availability of infectious disease and NCD services, [17] and weak care coordination mechanisms present challenges for continuity of care. Limited availability of human resources for health, and gaps in provider competence also present challenges to strengthening the quality of care.

Success in the continuity of care for RMNCH and infectious diseases services suggests that Bangladesh has the potential to strengthen the quality of NCD services and other areas of PHC. Demographic and Health Survey (DHS) data suggest significant improvements have been made in continuity of care, as demonstrated through DPT3 dropout and TB treatment success rates. Only 3 percent of the 96 percent of children who received their first DPT3 vaccination did not receive a third, and the number of patients diagnosed with TB who successfully completed their treatment regime increased from 81 to 95 percent between 2000 and 2019. [18] The successful completion of the TB drug regimen is commonly attributed to Bangladesh's direct observation therapy with short-course chemotherapy program (DOTS), which provides case identification, directly-observed therapy, identification of complications, and record keeping through CHWS. Between 1993 and 2006, the DOTS program covered TB services for over 80 million people in Bangladesh. [19] These successes present an important contrast to the more modest results seen in achieving blood pressure control among the hypertensive population (figure 4).

The comprehensiveness of care in Bangladesh is characterized by widely available RMNCH services; however, the availability of infectious disease and NCD services varies by type of facility. Comprehensive PHC refers to the provision of holistic and appropriate care across a broad spectrum of health problems, age ranges, and treatment modalities. Measures of the availability of tracer RMNCH, infectious disease, and NCD services are used to measure the comprehensiveness of a PHC system. Higher scores in these indicators are associated with more efficient PHC systems and better patient experiences. According to the 2017 Bangladesh Health Facility Survey (which uses the Service Provision Assessment methodology), 94 percent of facilities provide basic maternal and child services, yet only 42 percent provide services for basic infectious disease care and only 52 percent provide services for common NCDs.

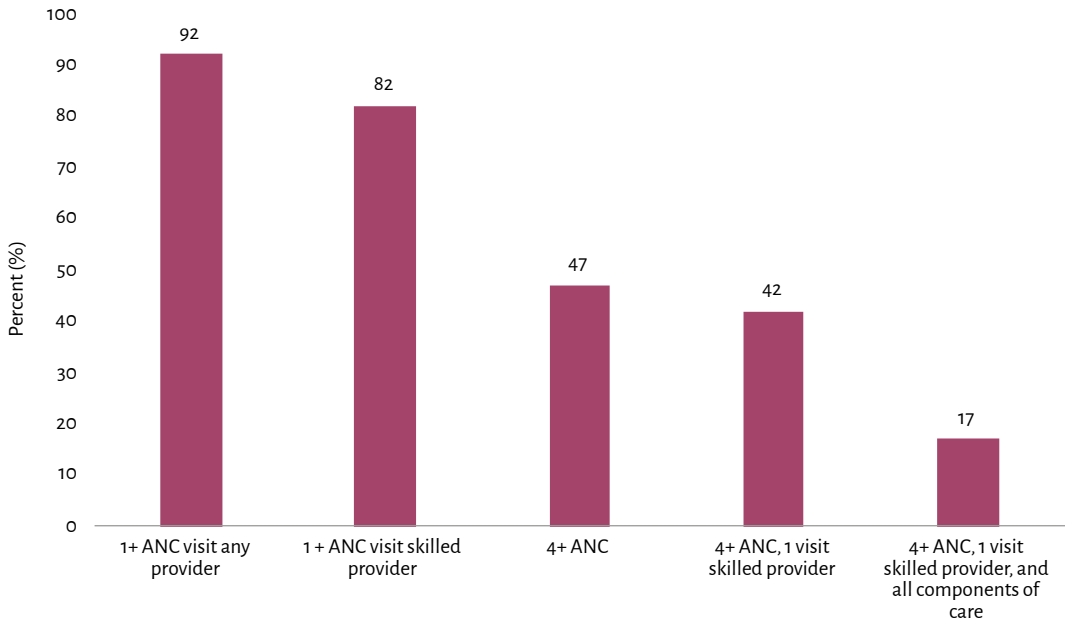
The availability of services for some NCD tracer conditions improved significantly from 2014 to 2017. The VSP methodology measures service availability of the four most prevalent NCDs; Diabetes Mellitus type 2, Chronic Obstructive Pulmonary Disease (COPD), and Cardiovascular Disease (CVD) globally. These tracer items also accurately represent the prevalence and distribution of NCDs and NCD-related mortality in Bangladesh. During this time, the availability of diabetes services increased from 18 percent to 53 percent, and the availability of cardiovascular disease services increased from 16 percent to 42 percent. Also, 62 percent of facilities had chronic respiratory disease services available in 2017, the highest level of service availability among the NCD tracer conditions (no measure reported in 2014). Additional progress in the availability of NCD services has the potential to increase the number of people with hypertension and diabetes who are aware of their status (see figure 4). Identifying people suffering from chronic conditions such as hypertension and diabetes and enabling timely access to treatment requires a more comprehensive approach to the availability of PHC services as well as efforts to improve care coordination and continuity.

The availability of trained health care providers at PHC facilities is an essential component of PHC quality. In Bangladesh, nearly one in three households (28 percent) do not have a trained doctor with a Bachelor of Medicine, Bachelor of Surgery (MBBS) degree available in the health facility nearest to them. There is a stark difference in the availability of such doctors across geographic areas, as 33.4 percent of people living in rural areas do not have a trained MBBS doctor available in a health facility, compared with 14.8 percent of people living in urban areas.[20] Additional measures of provider availability such as the percentage of family planning, antenatal care, and sick child visits over 10 minutes in length and the provider absence rate are unavailable.

A high proportion of health workers do not always provide services in accordance with evidence-based clinical guidelines, suggesting that providers' competence is a major challenge to high-quality PHC in Bangladesh. Specifically, 42 percent of women received four antenatal care (ANC) visits with at least one visit completed by a skilled health care provider, and only 17 percent of women receiving four ANC visits also received all basic components of ANC. This varied substantially across wealth quintiles, as 37 percent of women in the highest quintile received four ANC visits and all ANC components compared with only 7 percent in the lowest. Figure 5 presents an ANC cascade, comparing the number of women who received the most basic level of ANC (at least one ANC visit from any provider) to the most complete level of ANC (at least four visits, one of which was conducted by a skilled provider who completed all components of care).

Upazila health complexes have the highest concentrations of higher-skill health care providers, revealing a gap in the quality of care at the local and community levels. According to 2017 Health Facility Survey data, only 60 percent of upazila health complexes, 50 percent of union health and family welfare centers, and 44 percent of community clinics offering ANC services had guidelines. The percentage of facilities offering ANC services where staff had received any training on ANC varied, with such staff in 85

Figure 5. Antenatal Care Cascade



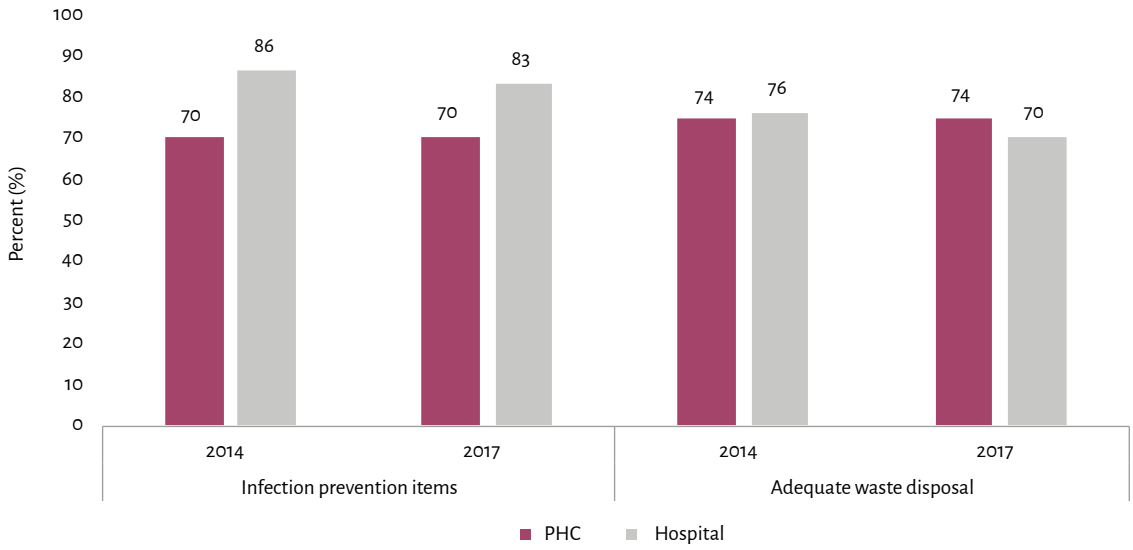
Source: DHS 2017–18.

percent of upazila health complexes, 53 percent of union health and family welfare centers, and 84 percent of community clinics. This number decreased across all facility types when examining the timeliness of training, where 46 percent of upazila health complexes, 16 percent of union health and family welfare centers, and 30 percent of community clinics had staff who had been trained in ANC in the last 24 months. Other measures of quality of care such as patient-centeredness, including the percent of caregivers told their sick child's diagnosis, are notably absent from data sources.

The 2017 Health Facility Survey indicates modest adherence to patient safety practices, with limited progress in this area since 2014. PHCPI uses two measures to determine patient safety at health facilities: adequate infection prevention and control, and adequate waste disposal. Adequate infection prevention and control refers to the proportion of rooms (family planning, sick child, antenatal care, and NCD) where all infection control tracer items are present. The items include soap and running water or hand disinfectant, storage for sharps waste, gloves, and surface disinfectant

availability. In 2017, 70 percent of government PHC facilities had adequate infection prevention and control, compared with 83 percent of government hospitals (see figure 6). Adequate waste disposal refers to the adherence to standards for disposing of medical and hazardous waste, sharps, and the availability of guidelines for waste disposal at the facility. In 2017, 74 percent of government PHC facilities had adequate waste disposal practices, compared with 70 percent of government hospitals. Notably, the percentage of government PHC facilities with adequate infection control and waste disposal in 2017 did not change from 2014.

Figure 6. Government PHC and Hospital Facility Safety, 2014 and 2017



Source: Bangladesh Health Facility Survey 2017.
Note: PHC = primary health care.

ACCESS

Access to care in the PHCPI framework encompasses the patient's perspective in receiving care, capturing whether individuals can receive appropriate PHC when they need it and receive it without undue financial or geographic barriers. Access to care is an important dimension of PHC performance, as PHC cannot be considered high-performing if patients are faced with barriers to accessing care—no matter how comprehensive,

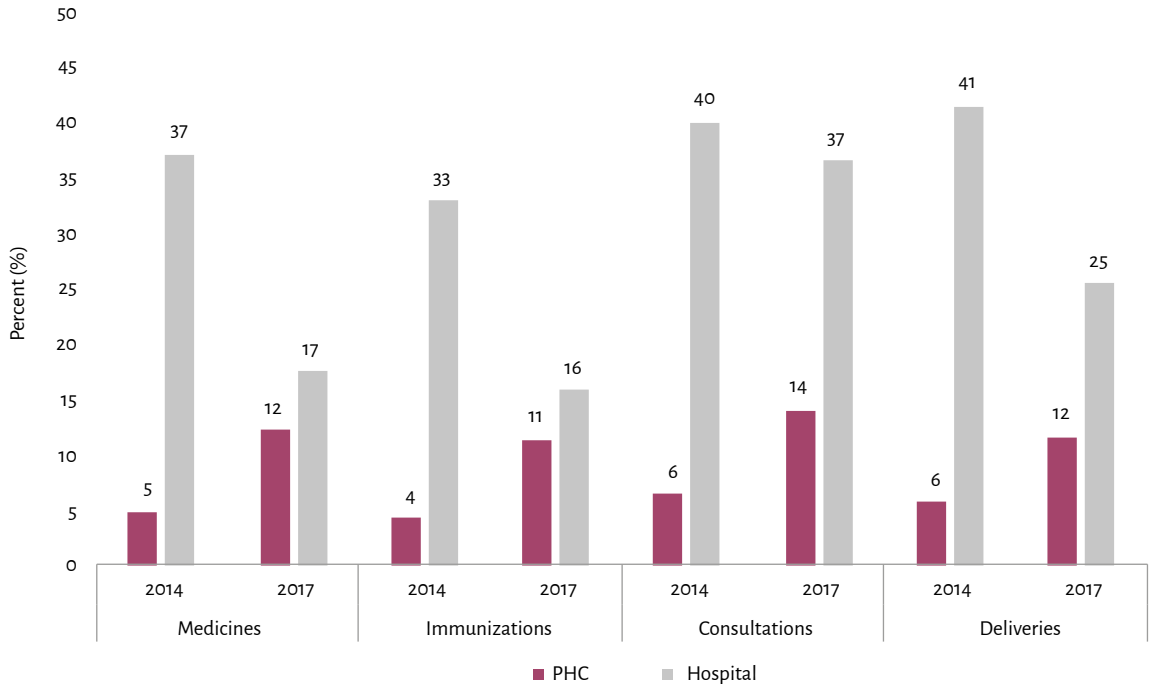
coordinated, continuous, or person-centered PHC services are considered on the supply side. Reducing real and perceived barriers to care is typically an important priority for policy makers seeking to improve PHC performance.

Women in Bangladesh report high levels of perceived barriers to accessing health care, especially women living in rural areas and those from lower socioeconomic backgrounds. According to the 2017-2018 DHS, 67 percent of women 15 to 49 years old reported at least one problem with accessing health care. Sixty-seven percent of women in Pakistan reported facing at least one problem in accessing health care according to 2017-18 population survey data. In India, 50.3 percent of women facing at least one problem in accessing health care in 2019-21, comparatively lower than Bangladesh. The most common reasons for not accessing health care in Bangladesh included not wanting to go alone (45 percent), needing money for treatment (44 percent), and distance from a health facility (41 percent). These results varied substantially across social strata, with a greater percentage of women living in rural areas reporting challenges in accessing health care because of money (46 percent) and distance (45 percent) than women in urban areas (38 and 31 percent, respectively). In addition, 80 percent of women in the lowest wealth quintile reported financial barriers to accessing health care compared with women in the highest wealth quintile (49 percent). Similarly, 55 percent of women in the lowest quintile reported a perceived geographic barrier compared with 27 percent of women in the highest.

The number of public PHC facilities charging user fees increased between 2014 and 2017. Specifically, the percentage of public PHC facilities charging user fees (additional charges paid at the point of care by the patient to access health services) increased for medications (5 to 12 percent), immunizations (4 to 11 percent), consultations (6 to 14 percent), and deliveries (6 to 12 percent). Interestingly, the percentage of public hospitals charging user fees decreased from 2014 to 2017. Figure 7 displays the percentage of government PHC and hospital facilities that charge user fees, including "ticket fees" that are charged even though the consultation

services are technically free. The increase in the percentage of public PHC facilities charging user fees may be contributing to the high levels of perceived financial barriers to accessing care. Anecdotally, stakeholders report that some patients also incur additional out-of-pocket expenses through informal payments to support staff to speed up the consultation process and bypass queues—a phenomenon also documented in household surveys.[21]

Figure 7. Government Health Facilities That Charge User Fees



Source: Bangladesh Health Facility Survey 2017.
Note: PHC = primary health care.

EQUITY

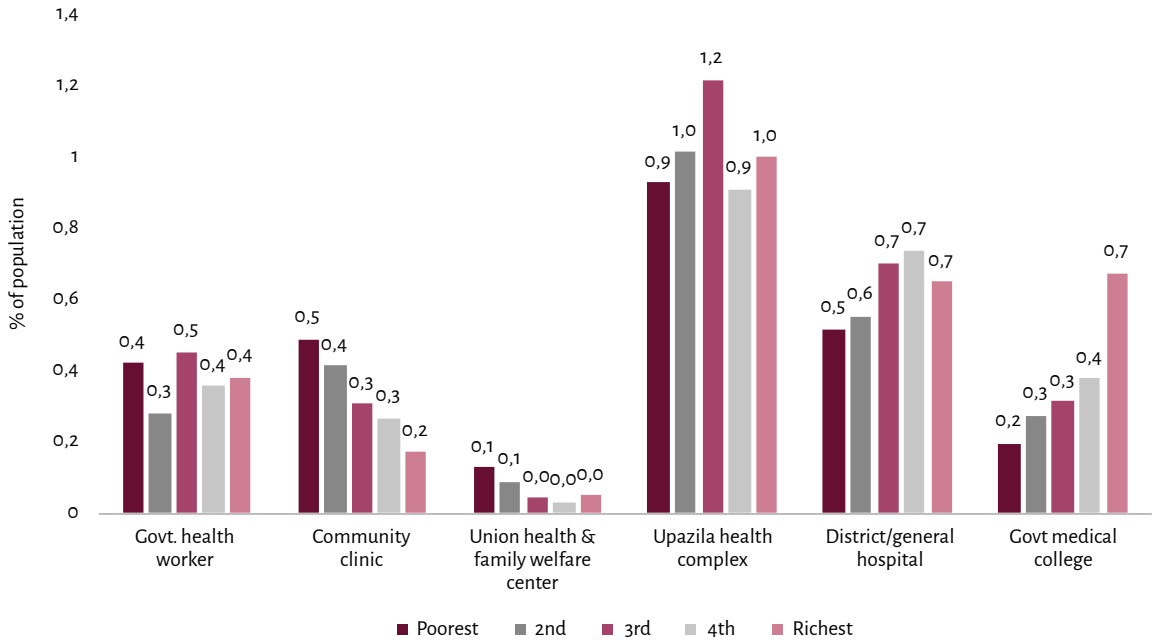
Equitable PHC coverage and access aim to reduce disparities in health outcomes across populations. The VSP measures equity across access, coverage, and outcomes, with each aspect of equity comprising indicators disaggregated by socioeconomic status, including wealth, mother's

education, and place of residence indicators. Equity in access looks at the difference in perceived financial barriers to care between the highest and lowest wealth levels, equity in coverage examines the difference in effective coverage of maternal and child health care services based on a mother's level of education, and equity in outcomes examines the differences in urban and rural children's mortality.

While public PHC facilities are used less frequently than higher-level facilities, PHC facilities serve primarily lower-income populations. Differences in care-seeking between patients of higher and lower income quintiles highlight patients' preferences and accessibility of care. A high proportion of patients receiving outpatient services provided by government health workers, community clinics, or union health and family welfare centers come from low-income households (see figure 8). The opposite pattern is evident for the utilization of services at district, general, or medical college hospitals, where higher-income patients seek care more often than patients from lower income quintiles. This pattern suggests a preference for care at higher-level facilities rather than PHC facilities and the presence of important financial barriers for lower-income patients in accessing preferred care. The low utilization observed for union health and family welfare centers may be partly explained by the targeted focus of services provided (primarily reproductive and maternal care) as compared with the broader set of services offered at community clinics and partly by the lower number of facilities in the country (roughly 4,000 facilities in 2017 compared with more than 13,000 community clinics).[22]

Women in the lowest wealth quintiles report greater barriers to accessing health services. According to the 2017 DHS, 25 percent of women in the highest wealth quintile report perceived barriers to accessing health care because of the cost compared with 44 percent in the second quintile, 43 percent in the third, 54 percent in the fourth, and 65 percent in the lowest. The fact that close to half of all women and over two-thirds of women in the lowest levels of wealth quintiles report perceived barriers to accessing

Figure 8: Outpatient Care-Seeking at Government Facilities in Last 30 Days, by Income Quintile (2016)



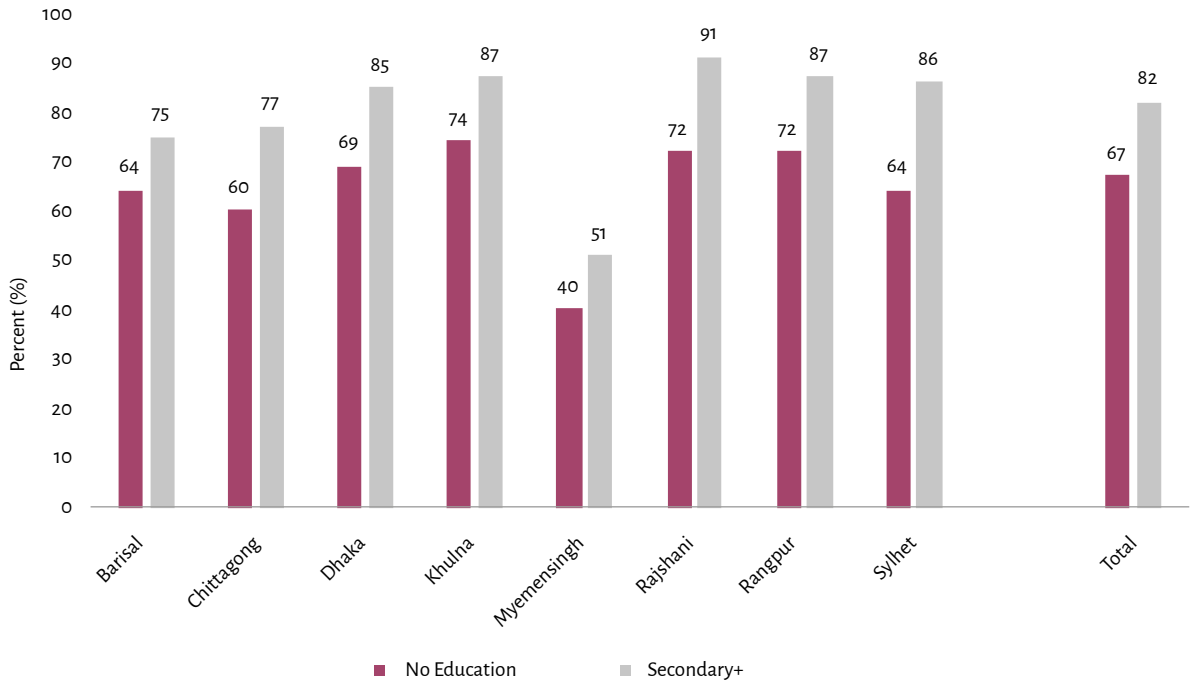
Source: Data from HIES 2016; calculations by Tahmina Begum and Owen Smith, World Bank.
Note: PHC = primary health care.

care demonstrates the challenges to achieving financial protection for the population seeking care.

Inequalities in service coverage are observed across levels of mothers' education and geographic regions (figure 9). In 2017, 86 percent of mothers and children in households where the mother completed secondary education receive a complete basic package of services for their care[23] compared with only 69 percent of mothers and children of families where the mother has no education.

Substantial variation can be seen in the coverage of RMNCH and infectious disease services across wealth quintiles, and such variation is evident in childhood nutrition outcomes as well. Only 76.9 percent of children with diarrhea received oral rehydration salts treatment in the lowest wealth quintile compared with 90.3 percent of children in the wealthiest quintile. Considering the various factors beyond access to health

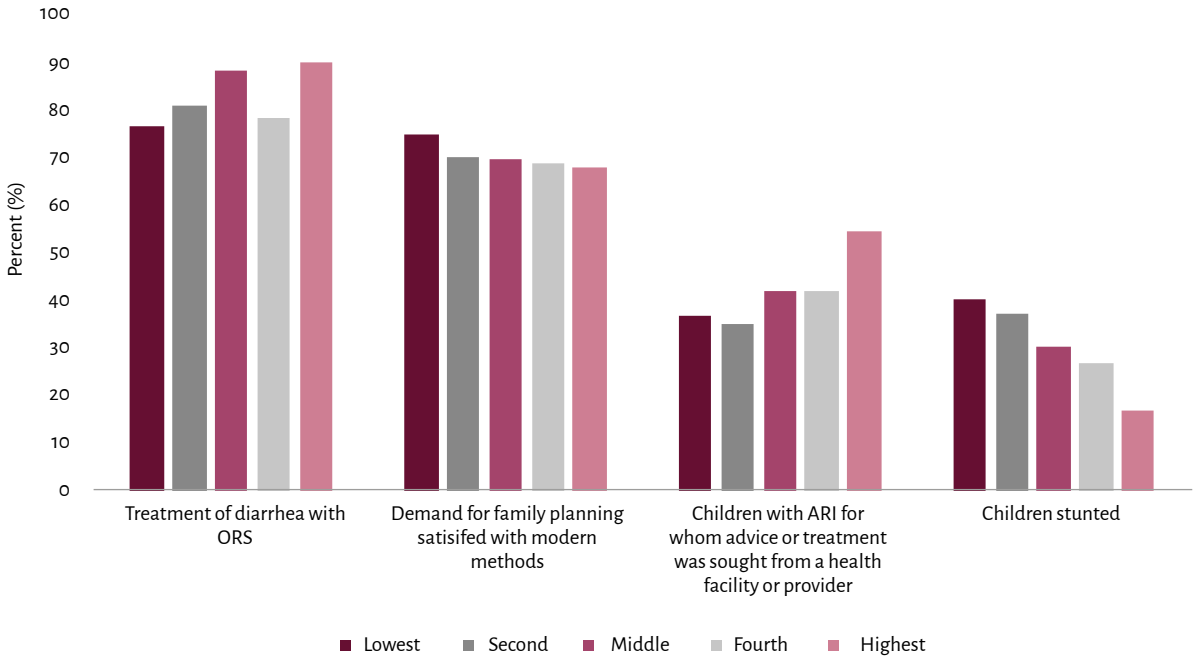
Figure 9. Equity in RMNCH Coverage by Mother's Education at Subnational Level (rural)



Source: DHS 2017–18.

services that influence nutrition, inequalities in nutrition outcomes are even more extreme: 40.2 percent of children in the poorest wealth quintile are stunted compared with 17.1 percent in the wealthiest. Coverage of vitamin A supplementation was relatively equitable across levels of wealth, as 79.9 percent of children in the lowest wealth quintile received supplementation in the last 6 months compared with 82.9 percent in the highest. Similar disparities are observed in the proportion of children under five years old with acute respiratory infection symptoms who sought care from a health facility or provider (36.7 percent in the lowest to 54.5 percent in the highest). Meanwhile, the demand for family planning satisfied with modern methods is slightly higher among women in the poorest quintile (75 percent) than women in the highest (69 percent), reflecting relatively equitable access to family planning services. Selected RMNCH, infectious disease, and nutrition indicators by wealth quintile are presented in figure 10.

Figure 10. Indicators of RMNCH, Infectious Disease, and Nutrition Coverage across Wealth Quintiles



Source: DHS 2017–18.
Note: ORS = oral rehydration salts.

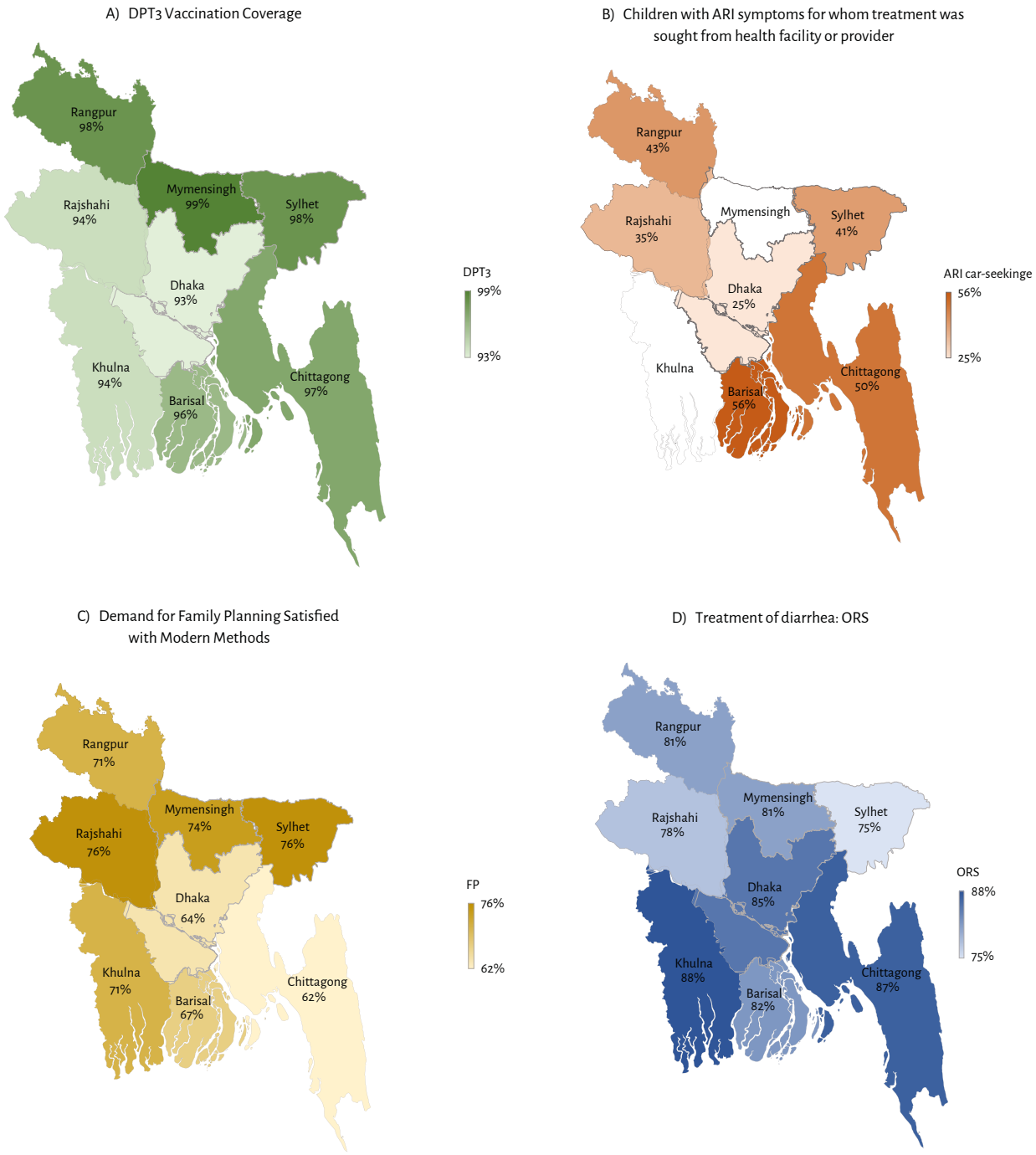
PHC coverage also differed across the geographic divisions of Bangladesh; however, there are no specific patterns between divisions and little variation between urban and rural contexts. The proportion of children with acute respiratory infection symptoms who sought health care ranged from 56 to 25 percent across regions, with Dhaka reporting the lowest rate (note that the data source did not provide data for Khulna and Mymensingh). The demand for family planning satisfied with modern methods ranged from a low of 62 percent to a high of 76 percent, with Chittagong (62 percent), Sylhet (64 percent), and Barisal (67 percent) reporting the lowest coverage. Among nutrition indicators, the percentage of children who are stunted ranged from 25 percent in Dhaka and Khulna

to 43 percent in Sylhet. The proportion of the population diagnosed with diabetes has generally increased across divisions, ranging from 5 to 13.3 percent of females 18 and older and 6.3 to 15.6 percent of males 18 years and older. Rangpur reports the lowest levels of diabetes and Dhaka, the highest. Meanwhile, the coverage of children receiving the third dose of DPT3 vaccine and the treatment of diarrhea with oral rehydration salts display more limited variation between divisions. Figure 11 outlines the geographic distribution of the demand for family planning satisfied with modern methods, four or more ANC visits, DPT3 vaccination coverage, and treatment of diarrhea with oral rehydration salts.

The percentage of women who received four or more ANC visits varied across place of residence and wealth quintile, according to 2017 household data. Specifically, the percentage of women receiving at least four or more ANC visits varies from 35.8 percent to 54.8 percent across regions. A similar gap was found between urban (56.5 percent) and rural (39 percent) areas. The most significant variation in the number of women receiving four or more ANC was between wealth quintiles, with 25 percent of women in the lowest quintile receiving four or more visits compared with 70.9 percent in the highest.

Ultimately, inequities in primary care access and coverage are linked to key population health outcomes and result in excess mortality that could have been otherwise prevented. For example, 55 of 1,000 children born in the bottom wealth quintile do not reach their fifth birthday, compared with 33 of 1,000 in the wealthiest quintile (DHS 2017–2018). Meanwhile, the relatively modest difference in under-five mortality between rural and urban areas (48 deaths per 1,000 live deaths versus 43) highlights the challenges for PHC in urban areas, particularly urban slums.

Figure 11. Coverage of RMNCH Services Across Divisions



Source: DHS 2017–18.

Note: The DHS 2017-2018 did not have data on the percentage of children with acute respiratory infection symptoms for whom treatment was sought from a health care provider for the divisions of Khulna and Mymensingh. DPT3 = Diptheria-Pertussis-Tetanus, Third dose; ORS = oral rehydration salts.

CAPACITY

PHC capacity refers to the ability of a system to deliver high-quality PHC services. In the PHCPI framework, capacity consists of three sub-domains: governance, inputs, and population health and facility management. The governance sub-domain includes an assessment of PHC policies, quality management infrastructure, and social accountability as well as the ability of the system to appropriately adjust to population health needs. The inputs sub-domain reflects the availability, equitable distribution, and quality of essential service delivery inputs, including drugs, supplies, workforce, facility infrastructure, information systems, and funds at the facility level. The population health and facility management sub-domain includes an assessment of how well population health is managed, including activities such as community outreach and local priority setting. This section also examines facility organization and management—including management capability and leadership, information system use, performance measurement, and team-based care.

GOVERNANCE

While Bangladesh has made efforts to strengthen the PHC system's governance and leadership, fragmentation throughout the health system continues to pose a challenge. Bangladesh has prioritized PHC with over 14 policies and plans that include aspects of health care through ambulatory or outreach services, several of which are supported by legally binding commitments and some that include specific service packages, financing mechanisms, and monitoring and evaluation strategies. Nonetheless, Bangladesh does not have one consolidated policy or plan for the PHC system that would guide strategy and investment or a coordinating authority that monitors, integrates, and implements PHC strengthening activities. This has resulted in fragmented implementation and possible duplications of efforts. However, the MOHFW does have a recently formed

Quality Improvement Secretariat (QIS) charged with ensuring the quality of care across health facilities in the country, which forms an important basis for quality improvements of the PHC system. In addition, although Bangladesh has extensive participation of the private-for-profit and private not-for-profit sectors in the delivery of PHC services, these sectors have only a moderate involvement in planning and monitoring the country's PHC strategies, and key stakeholders agree that there is very limited disclosure of the status of PHC activities undertaken by the different actors in the system. The existence of several multisectoral and cross-government groups (such as coordination committees at the subnational levels and groups on topics such as adolescent health services, among others) on issues related to PHC as well as the existence of cross-sectoral integrated planning (on nutrition, adolescents, and gender-based violence, among others) is very promising as a platform for implementing PHC strengthening strategies that require cross-sectoral coordination.

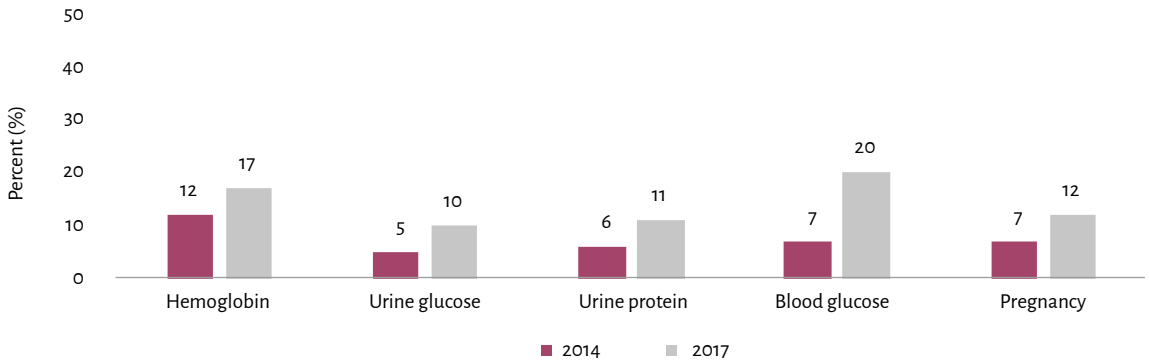
The establishment of key systems that support PHC's adjustment to the population's changing health needs is well underway. Bangladesh has invested in strengthening its surveillance and systems to monitor population health over the past decade, and the MOHFW can track key disease metrics through sentinel surveillance, integrated disease surveillance and response strategies, laboratory-based infectious disease reporting, and routine household surveys in a system that continuously collects, collates, and analyses the resulting data. Experts interviewed throughout the VSP process agreed that areas for improving the surveillance system include strengthened data quality, further digitalization of the system's data collection platforms, and an expansion for the improved monitoring of NCD incidence and burden on the population. Although data on the population's health are consistently generated through the various mechanisms mentioned, these data are often not translated into the information necessary for defining priorities in the PHC system. In this regard, interviewed experts agreed that many of the priority-setting processes rely heavily on international agreements or commitments rather

than on joint review (including stakeholders) of available information on the health services needed. A key aspect for adjusting to changing population needs is the availability of systems that enable innovation and learning. Bangladesh has developed key systems that create opportunities for the development and piloting of innovative interventions (a key example is the implementation of the Integrated Management of Childhood Illness strategy or more recently the Maternal Health Voucher) that have been taken to scale. The innovation and learning system involves government and non-government stakeholders and has generated key PHC interventions in Bangladesh and abroad over the past several decades. Nonetheless, efforts for learning and evaluation can have financing limitations, and PHC experts note that successful innovations are not always scaled up, while other interventions are sometimes expanded without prior piloting.

INPUTS

The availability of essential drugs and supplies in Bangladesh is low, particularly among union-level facilities and community clinics. Drug and dietary supply kits are a common measure of facility inputs. Data from the 2017 Health Facility Survey point to large gaps in the availability of essential medicines, with more than one-third of facilities lacking three or more of the eight medicines included in the drug and dietary supply kit that are tracked as essential to service provision. More specifically, only 75 percent of community clinics, 36 percent of union-level facilities, and 48 percent of upazila health complexes had six or more of the eight medicines provided in drug and dietary supply kits available at the time of the survey. Comparatively, 72 percent of union-level facilities and 74 percent of upazila health complexes had six or more of the eight medicines provided in drug and dietary supply kits available in 2014. Similarly, only one-third of facilities were fully equipped with at least one functional stethoscope, thermometer, blood pressure apparatus, adult scale, child scale, and light source. More striking is that only 4 percent of facilities have all five of the basic diagnostic tests available, a slight increase from 3 percent in 2014. Differences in

Figure 12. Availability of Individual Diagnostic Tests, 2014 and 2017



Source: Bangladesh Health Facility Survey 2017.

the percent of urban facilities containing all five diagnostic tests were most apparent between places of residence, with all five diagnostics tests available in 37.5 percent of urban facilities compared with 1.5 percent of rural facilities. Individually, the availability of the five diagnostic tests has increased in comparison to 2014 (see figure 12).

While the availability of health facilities has increased, the quality of facility infrastructure leaves significant room for improvement. According to the 2017 DHS, satellite clinics with access to family planning methods were available to 96.2 percent of women ages 15–49, and 94.9 percent of the population has a health facility in their village/mohalla or lives within 1 kilometer of a facility, up from 87 percent in 2014. These figures demonstrate that facility infrastructure is often available, although key amenities essential to delivering quality care are often missing. Data from the 2017 Health Facility Survey shows that 19 percent of facilities had five or more of the following amenities: regular electricity, an improved water source, privacy during consultations, a client latrine, a landline or a mobile phone, and a computer with internet access. The availability of amenities varied across public facilities, as 78 percent of upazila health complexes, 15 percent of community clinics, and 5 percent union-level facilities had five or more amenities available. Comparatively, 91 percent of private facilities had at least five amenities available. At the time of the survey,

there were large gaps in the availability of standard safety precautions and equipment across facilities in Bangladesh, as 50 percent of upazila health complexes, 17 percent of union-level facilities, and 5 percent of community clinics had more than seven basic infection control items such as medical masks, disinfectants, running water and soap, sterilization equipment, and guidelines for standard precautions available at one time. The availability of at least seven infection control items declined in each PHC facility type since 2014, most significantly among upazila health complexes (57 percent in 2014) and community clinics (14 percent in 2014). Additionally, 75 percent of NGO facilities and 61 percent of private facilities had at least seven infection prevention and control items available. Furthermore, Bangladesh's vulnerability to climate change and severe weather events places health facilities (as well as other critical infrastructure) at greater risk of natural disasters. While a more detailed assessment of resiliency is outside the scope of the VSP, efforts to strengthen health system infrastructure should consider strategies and intervention that contribute to mitigating risk and bolstering resilience.

Investments in information systems throughout the last decade have established a platform that can improve the performance of the PHC system. According to a recent study, the Civil Registration and Vital Statistics system, which relies on multiple strategies to track demographic change, completely registers 83 percent of births and 91 percent of deaths.[24] The use of verbal autopsies and the practice of having many community personnel charged with the continuous registration of births and deaths are considered key success strategies that are responsible for the achievements of the civil registration and vital statistics system. Bangladesh is a pioneer in the use of health management information systems (HMIS), having widely implemented DHIS2 and other management information systems across most public facilities. Although the systems can produce vast amounts of essential information for decision-making related to PHC, these systems face key challenges that include the continued use of paper-based data collection in many lower-level facilities, the lack of interoperability between

existing systems, and the still-pending inclusion of private and urban facilities to the HMIS. A key area of opportunity across the health system of Bangladesh is in the development and use of longitudinal personal care records, as these are rarely found in PHC facilities. The document review and interviews found only one pilot effort of an implementation of patient care records, which spanned 19 upazilas. According to key informant interviews, facilities do not use longitudinal personal care records, which could allow for a history of referrals and lab test result notification. This makes it difficult to achieve adequate care coordination and continuity, especially for patients with chronic conditions. The use of longitudinal personal care records has the potential to strengthen Bangladesh's referral and counter-referral systems, leading to more coordinated care in the future.

The suboptimal supply and skill mix of the health care workforce limits the PHC system's capacity to provide responsive and high-quality services. One important challenge across the health system in Bangladesh is the low health workforce density and distribution. As of 2019, the World Health Organization (WHO) reports that Bangladesh had 6.37 medical doctors per 10,000 population and 3.92 nursing and midwifery personnel per 10,000 population—far below the estimated need. Comparatively, India (7.35), Nepal (8.52), Pakistan (11.18), and Sri Lanka (12.29) have more medical doctors per 10,000 population. According to the 2017 Health Facility Survey, 53 percent of sanctioned specialist and general practitioner posts were filled at facilities in Bangladesh, declining from 63.9 percent in 2014. There are also large differences in vacancy across facility types, as only 15 percent of positions were filled at union-level public facilities compared with 85 percent in NGO facilities.[25] Nonetheless, Bangladesh is recognized for having created a strong cadre of CHWs that provide care and outreach services to the population to mitigate the lack of more highly qualified medical personnel.

Bangladesh has introduced important initiatives to strengthen the system's capacity to assess and guarantee PHC workforce capacities. These

include developing a definition of necessary qualifications for some types of clinical positions and an initial establishment of procedures for monitoring the adherence to the defined standards of the QIS. However, two important challenges for ensuring health worker competencies include the lack of capacity for monitoring of compliance with QIS standards and the lack of clear standards and monitoring procedures to ensure the competencies of field-based or community health workers, who represent an important part of the workforce. Although job descriptions are available for different cadres of health workers, the descriptions and training necessary to fulfill the job descriptions are often not aligned with the actual work performed at the level of care where health workers are employed. Family welfare assistant and health assistant job descriptions, for example, do not include work in community clinics, which is where these workers often provide services. Nonetheless, medical assistant training schools have fostered improvements in training for increased task shifting.

Bangladesh has invested in important strategies for funds management at the PHC level that can be leveraged to further support the system's improved performance. Upazila health complex facilities develop annual budgets and monitor expenditures at the union and community clinic facilities. These facilities prepare budgets primarily based on the previous year's expenditures on line items such as employee salaries, administration expenses, user fee charges, travel expenses, repair and maintenance, and acquisition of assets. The services included in the Essential Health Services Package also inform budget allocation across facilities. However, while budgeting exercises can be based on identified needs, key interviewees for this study agreed that funding allocations to facilities are not consistently based on expressed needs or prepared budgets, but rather on the availability of funds defined at the national level. Monitoring of budgets and expenditures at the upazila health complex level takes place regularly with the use of a software called iBAS++ that has been used across these facilities to record expenditures and user-fee revenue. Although this financial management system has allowed for improvements

in financial monitoring, there continue to be opportunities for its expansion to lower-level facilities that currently use paper-based financial tracking systems. An important component of funds management at the PHC level is staff remuneration. While remuneration systems are stable, timely, and predictable across the public system, important deficiencies were identified by key interviewees, particularly surrounding remuneration for private sector and urban PHC staff. Urban PHC is the responsibility of the MOLGRD&C, which often contracts service provision out to NGO providers. Interviewees working in the urban and NGO sectors reported that the timing of their pay is often delayed and the payment amounts fluctuate between pay periods, as the urban PHC budgets are reliant on local revenues and external project budgets.

POPULATION HEALTH AND FACILITY MANAGEMENT

There is variability in the implementation of measures to ensure effective population health management in the PHC system. Population health management refers to activities and strategies to proactively track and address a population's health; it includes activities such as health worker outreach services and community participation in local priority settings. Although health facilities and health workers across the country collect and document data on the services they provide and on some aspects of the health of the population they serve, key stakeholders report that the data are rarely used to define priorities for service delivery at the local and community levels. Documents reviewed and experts interviewed highlight the fragmentation in the system's priority-setting processes that is reflected at the local and community levels; decisions are often made centrally and are project-dependent, so these processes include little or no community participation. Nonetheless, community participation platforms in community clinics exist across rural facilities, where the local union parishad chairman and members, a renowned person of the community, a freedom fighter, one minority group representative, and two youth members (one female and one male) participate in decisions related to

facility expenditures for maintenance or other small purchases. Community participation to help shape service delivery offerings or processes is very limited but can include participating in the resolution of issues raised in health facility complaint boxes or through patient courtyard meetings. The experts interviewed agree that facility-level community group members are often not aware of their roles and responsibilities for holding facility management and staff accountable for providing high-quality health care.

One promising achievement toward population health management that could be leveraged to improve health care delivery to the population is the extensive availability of patient information generated by health assistants and family welfare assistants. In addition to collecting robust vital statistics information through regular household visits in their designated wards, these health workers create and maintain a listing of individuals within a health facility catchment area, essentially performing the initial steps of empanelment—the process whereby individuals and families are assigned to a specific health facility whose providers are responsible for their health. These CHWs additionally collect key information on the household members' marriage status, age, contraceptive use, vaccinations, TB, antenatal care, and health status related to family planning or young children. Given the extensive coverage of households in rural areas of the country, this system has a great potential to also serve as a source of information and management of patients suffering from NCDs and to improve continuity of care as well as care coordination.

One important weakness of the PHC system currently lies in facility organization and management, which are the systems and processes in place to effectively manage the provision and performance monitoring of team-based care. Key stakeholders reported that health workers across PHC facilities are not trained in management skills and typically lack certifications or degrees in management, limiting facilities' ability to strategically distribute work across providers or provide team-based care. Further, interviewees suggested that health workers across PHC facilities currently do not work with a sense of team identity, and they generally

lack key elements of effectively managed teams, including regular team meetings, clarity in roles and responsibilities, shared team goals, and systems of mutual accountability for the provision of high-quality health care within their established roles. Across PHC facilities, management and leadership capabilities are an important barrier to improved facility and service delivery performance. The experts interviewed agree that, in addition to receiving insufficient training, most PHC-level facility heads lack continuous reviews and feedback on their management capabilities and performance. Perhaps because of weaknesses in the capabilities of facility managers, the weaknesses of the data systems, or high workloads, the capability of staff in PHC facilities to interpret and use data recorded in the DHIS2 or management information systems (MIS) is low. The interviewed experts agree that although a lot of data are generated at PHC facilities, the data are not used for quality improvement processes or facility-level learning. The low data utilization is further reflected in the limited performance monitoring, although some efforts have been implemented in recent years to improve facility monitoring by MOHFW monitoring and evaluation teams. Systems for supportive supervision comprise another important area for improvement of facility organization and management; the interviewed experts agreed that supervision across the system is primarily punitive, but the introduction of a system of support and mentoring to facility managers could be impactful.

FINANCING

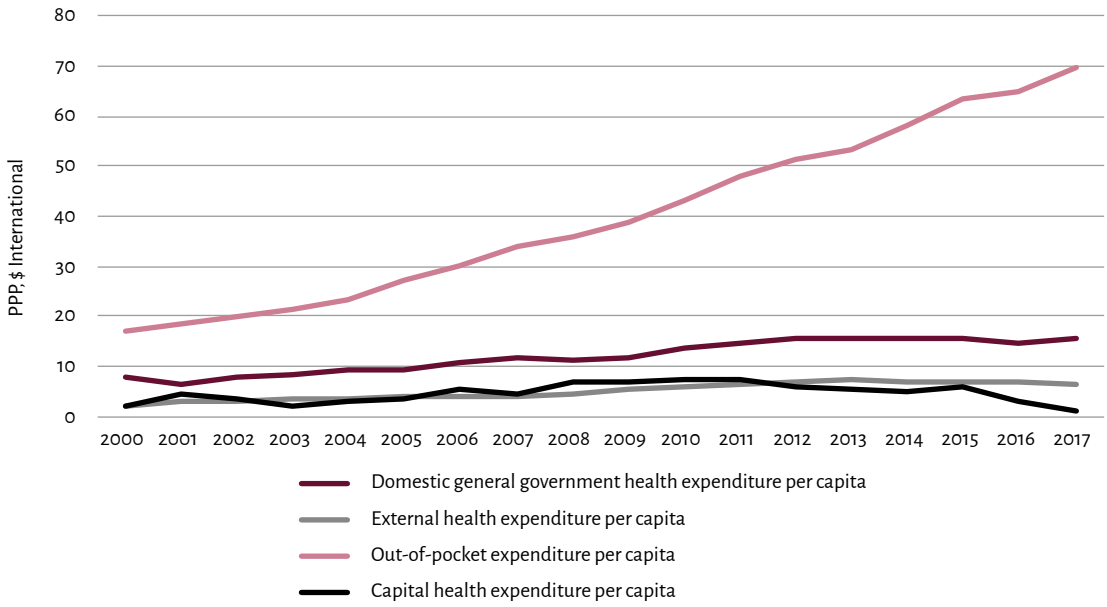
Financing refers to how resources are generated, collected, and redistributed across the PHC system. Health financing is connected to nearly every aspect of PHC systems' performance. Revenue collection is most equitable when it is based on individuals' ability to pay and their need for care.

General indicators of health expenditure provide a basic understanding of health financing; however, precise measures of financing for PHC cannot be estimated because of the limitations in the data-recording structure of the National Health Accounts and iBAS++, the financial management system used by the MOHFW. Between 2010 and 2018, total health expenditure per capita nearly doubled, from US$20.80 per capita to US$41.08 per capita. However, health expenditure as a proportion of GDP remained relatively stable, from 2.4 to 2.3 percent over the same period. Generating accurate measures of PHC expenditure remains a challenge because the National Health Accounts produced by the MOHFW have not been disaggregated to allow for an estimation of expenditure specific to PHC.

The available information on health financing points to increasing levels of OOPS on health, placing individuals and facilities at a greater risk of experiencing catastrophic health expenditure and impoverishment. In 2017, OOPS accounted for 73.9 percent of health expenditure, the highest among South Asian countries. Comparatively, OOPS accounted for 58 percent in Nepal, 55 percent in India, 54 percent in Pakistan, 46 percent in Sri Lanka, and 18 percent in Bhutan of health expenditure in 2017. From 2000 to 2017 in Bangladesh, OOPS on health more than quadrupled, increasing from $17 to $70, adjusted for purchasing power parity (PPP). While such expenditure may partly reflect growing incomes and an increased ability to pay for health services, it is noteworthy that OOPS has grown at a much faster rate than domestic government health expenditure (Figure 13). Meanwhile, external heath expenditure continues to play a large role in financing Bangladesh's health system, posing a challenge for sustainability. Ultimately, increasing reliance on OOPS is problematic because, in addition to generating an increased risk of impoverishing and catastrophic health expenditures, it can also present barriers to accessing PHC services. In fact, according to household survey data, catastrophic health expenditure has increased significantly in recent years. From 2000 to 2016, the proportion

of the population spending 10 percent or more of their disposable income on health increased from 4.1 percent to 9.3 percent, and the proportion of the population spending 25 percent or more on health increased from 0.4 percent to 1.3 percent. Over the same time, however, impoverishing OOPS has remained relatively stable, decreasing from 2.4 to 2.0 percent.[26] The increase in facilities charging user fees from 2014 to 2018 (see figure 7) and the high proportion of women ages 15 to 49 years old reporting financial barriers to accessing health care suggest that financial barriers are already a challenge that needs to be addressed to ensure equitable access to PHC services.

Figure 13. Changes in Health Expenditures by Revenue Source, 2000 to 2017



Source: World Bank World Development Indicators Database 2021.
Note: OOPS = out-of-pocket spending; PPP = purchasing power parity.

RECOMMENDATIONS

Bangladesh has made substantial progress toward achieving comprehensive, high-quality PHC coverage for all. Major challenges remain, however, including, the low coverage of infectious diseases, family planning, and NCD services. A large proportion of the population faces geographic and financial barriers to access, growing inequities in coverage and outcomes across wealth quintiles, rising levels of OOPS and user fees in public facilities, and weak capacity at the national and subnational levels of care. The following five recommendations highlight specific areas that have the potential to lead to sustainable improvements to the PHC system in Bangladesh. Table 2 summarizes the five recommendations by priority level, time horizon, and core VSP domain addressed. A more detailed summary of the recommendations, the resources requirements, difficulty of implementation, potential impact, time horizon, VSP domains addressed, and delegation of responsibilities are outlined in Appendix D and E. An overarching quality improvement focus is embedded into the recommendations, which are aimed at supporting Bangladesh in its quest to achieve universal health care coverage.

Table 2: Recommendations by priority level and time horizon

Recommendation	Prioritization from low (+) to high (+++)	Time horizon to impact	Core VSP Domain Addressed
1. Implement new, people-centered models of care that rely on health service delivery networks	+++	Medium term	Quality and Access
2. Cultivate the next generation of PHC personnel to work in multidisciplinary teams and strengthen their competencies	++	Medium term	Capacity and Quality
3. Capitalize on investments in health management information systems to drive quality improvements through care coordination, performance measurement, and evidence-based decisions	+++	Short term	Capacity and Quality
4. Invest in health facility infrastructure for accessible, quality care	++	Short term	Capacity and Equity
5. Strengthen governance of PHC and explore financing reforms that boost resources for PHC while incentivizing performance	++	Long term	Financing and Quality

1. **Implement new, people-centered models of care that rely on health service delivery networks.** Health service delivery networks would allow Bangladesh to adapt to its diverse health needs, enable effective utilization of care, and promote high-quality care. Although Bangladesh has made tremendous improvements in maternal and child health and the reduction of the burden of infectious diseases such as diarrhea, the aging of the population is driving an epidemiologic transition toward an increasing burden of NCDs. As specified in figure 4 (see Coverage section), only 9 percent of men and 15 percent of women with a hypertension have received a diagnosis and treatment and achieved blood pressure control. Hypertension, along with other highly prevalent chronic conditions such as diabetes, COPD, and CVD, require continuity of care and robust patient management systems that facilitate access to specialized care and essential medicines to achieve successful treatment benefits.

    1.1. **Structure health service delivery networks that enable effective systems of referral and counter-referral:** In terms of patient management, strong referral systems allow health providers at one level of the health system to seek the assistance of more well-resourced providers at other levels of the health system, which enables access to appropriate care when a patient's needs cannot be resolved at the current level.[27] Bangladesh's persistent challenges in reducing maternal mortality and its low levels of coverage for NCDs reflect a lack of access to emergency transport services as well as a lack of access to specialized care. Bangladesh could consider reorganizing public sector health facilities into integrated health service delivery networks that are planned and designed to address the health care needs of the population, including emergency transport and referrals and counter-referrals across levels of care. The WHO defines integrated health service delivery networks as "a network of organizations that provides, or makes arrangements to provide, equitable, comprehensive,

integrated, and continuous health services to a defined population and is willing to be held accountable for its clinical and economic outcomes and the health status of the population served."[28] Such networks enable patients suffering from NCDs access to specialists and can form the foundation for resource planning and allocation across PHC providers. Further, management of health service delivery at the meso level allows for more decentralized decision-making and more adaptation to local needs. In addition, Bangladesh could also implement digital health technologies and telehealth innovations to strengthen access and continuity of care. Such a strategy entails the use of information and communications technologies to support remote health care service delivery and management and encompasses both telemedicine (remote clinical services) as well as remote patient monitoring through various devices, including mobile phones, apps, landlines, and web-based services.[29] Telehealth strategies can be particularly appropriate in settings such as Bangladesh, where qualified health care providers are more concentrated in urban areas and access to specialized care is difficult, especially in rural areas. Ultimately, integrated health service delivery networks supported by digital health technologies should aim for a person-centered approach that enables care coordination and incorporates the holistic needs of the care seeker.[30]

1.2. **Strengthen empanelment systems to improve continuity in care:** A robust system for population empanelment allows health workers to better understand the population in their catchment area and contributes to first contact as well as care continuity.[31] Empanelment establishes a point of care for individuals and simultaneously holds providers and care teams accountable for actively managing care for a specific group of individuals; it also forms the backbone of integrated health service delivery networks. Systems of empanelment generally entail three processes: the

identification of the population, assignment of the population to specific facilities or providers, and a periodic review and update.[32] Countries that have strong PHC such as Brazil and Costa Rica depend in part on PHC teams' knowledge and understanding of their catchment areas, which is built up over time through strong empanelment systems. In addition, empanelment has also been used in low- and middle-income countries such as Ghana, where empanelment by trained nurses called "community health officers" led to dramatic increases in health service utilization.[33] The MOHFW could strengthen existing empanelment efforts by expanding the type of information collected to include NCDs and expanding that practice to urban areas.

1.3. **Adapt to address Bangladesh's double burden of disease by providing more comprehensive services:** Addressing Bangladesh's evolving burden of disease will require a comprehensive and person-centered approach; the PHC system must ensure that comprehensive health care services are available and accessible to the population. Comprehensiveness refers to the extent that providers and facilities can address the health needs of the population across the life course.[34] The concept is a critical aspect in the PHC function of "first contact," as care seekers must have faith that the PHC system will help with their needs. While the results of the analysis above illustrate that Bangladesh has made important gains in specific services such as childhood vaccination and access to family planning, gaps in access and the availability of NCD care highlight the need for a more comprehensive approach to PHC. From 2014 to 2017 in Bangladesh, for example, the availability of diabetes services increased from 18 percent to 53 percent, and the availability of cardiovascular disease services increased from 16 percent to 42 percent. While the improvements in service availability are substantial, further improvements are necessary. Integrating service delivery would require that providers

receive extensive training and work in teams to cover the diverse needs of the population. In Malawi, for example, the Ministry of Health worked with international partners to implement an "Integrated Care Cascade" that integrated screening for NCDs and TB along with HIV to identify individuals requiring further care.[35] Bangladesh already implements the WHO Integrated Management of Childhood Illness which adopts a comprehensive approach to child care, but further efforts could be made to integrate care across the life course.

1.4. **Employ multidisciplinary teams for health service delivery:** The MOHFW must use multidisciplinary teams of health workers and allied practitioners to successfully manage the complex health needs of the population. Bangladesh has 6.37 doctors and 3.52 nurses and midwives per 10,000 people, far below the estimated need. Moreover, nearly half (47%) of sanctioned and GP roles were unfilled in 2017. Given the shortage of health workers, particularly doctors and nurses in rural areas, multidisciplinary patient care teams can enable various cadres of health workers to provide specific sets of health services in which they are trained while reporting and referring to providers with more extensive training. Effective teams require an appropriate skill mix across providers with different training, capacities, and expertise, as well as a culture of respect, communication, and trust among team members.[36] In Brazil, for example, multidisciplinary health teams consisting of a general practitioner, nurse, auxiliary nurse, and multiple CHWs were assigned panels of about 600-1,1000 families; this strategy formed the backbone of the Family Health Strategy, which is credited with improvements in health outcomes including child mortality as well as reduced hospital admissions due to diabetes.[37] Implementing new patient care team models would entail the development of new protocols, roles, and incentive structures

for MOHFW health workers and could be done through an initial pilot to identify areas for learning and improvement.

1.5. **Strengthen and implement decision-making tools such as clinical guidelines and care pathways:** Decision-making and patient management tools are critical for health workers to provide safe and effective care. The MOHFW must ensure that health workers at all levels of the health system have access to up-to-date clinical guidelines and care pathways for the priority diseases and conditions afflicting the population. Care pathways are especially crucial in the management of chronic diseases and NCDs to guide referrals and foment continuity of care, particularly for patients with complex comorbidities.[38] Further, the MOHFW could take steps to monitor adherence to the guidelines and pathways. At present, the MOHFW QIS unit works primarily with secondary and tertiary levels of care, but the QIS unit could also support the development and monitoring of care pathways at the primary care level. An additional approach is to use tools for mobile health in the implementation and monitoring of adherence. In Tanzania, for example, a digital decision support tool was designed to assist health workers with family planning counseling and screening. The tool enabled electronic data collection and referrals and included functionality for SMS status reports and reminders for CHWs to conduct a follow-up.[39] Similar approaches can be used for NCDs and other priority diseases.

1.6. **Bolster community engagement to strengthen social accountability:** Community engagement comprises the various processes and relationships required to include local health system users as stakeholders and decision-makers throughout all aspects of service delivery.[40] Achieving strong PHC systems requires building trust with communities and engaging them as equal partners. Community engagement mechanisms can

contribute to improving the responsiveness of the health system to population needs. In the Indian state of Kerala, for example, researchers credit village stakeholders' community participation in the health system with the implementation of local-level changes in service delivery and the achievement of better health outcomes than most of its peer states.[41] After the 1996 People's Campaign for Decentralized Planning movement, the state decentralized and devolved significantly more power to local communities in budget allocation. This allowed community members to more closely engage in decision-making with the public health facilities in their villages, which in turn resulted in investments in community priorities, such as water and sanitation safety, and improvements in access to medications.[42] Governments can also work with civil society to strengthen community-based accountability mechanisms. In Guatemala, for example, volunteer "health defenders" are selected by their communities to conduct regular visits to facilities to interview health care users and identify and report quality issues, which gives voice to community concerns and provides opportunities for health authorities to respond to those concerns with measures for improvement.[43] Community engagement efforts in Bangladesh could take many forms, depending on the existing strategies, institutions, and the role of civil society. Efforts to strengthen empanelment could also provide a promising step toward community engagement.

2. **Cultivate the next generation of PHC personnel to work in multidisciplinary teams and strengthen their competencies**

   2.1. **Human resources for health, policy, and education:** A competent, motivated, and equitably distributed PHC workforce underpins a country's ability to deliver high-quality PHC for all and begins with strategic planning and policy. Appropriate education policies, programs, and opportunities are essential to ensuring that the

PHC workforce can demonstrate the competencies necessary for delivering high-quality PHC, including competencies related to evidence-informed practice, person-centeredness, and collaboration. Updating the Health Workforce Strategy (published in 2015) and specifying a human-resources for health strategy specifically for PHC would identify the competencies, skill mix, and distribution of the health workforce required to deliver effective and equitable PHC services. For example, Vietnam implemented the Health Professionals Education and Training for Health Systems Reform Project in partnership with the World Bank, a strategy aimed at the availability and quality of health workforce education opportunities. The project supports a combination of short- and long-term modular training programs and on-the-job training for diverse PHC teams, spanning physicians, nurses, midwives, village health workers, assistant pharmacists, and laboratory technicians. As of 2017, over 9,000 local health professionals had been enrolled in the project's training program, including 7,800 commune health staff.[44] Bangladesh could consider implementing a similar program that could be combined with recent efforts to improve the legitimacy of health care workers' credentials and the accuracy of job postings. The current program could be expanded to train new personnel and offer continuous training to current health care workers.

2.2. Deployment: The distribution of health care in workers in Bangladesh is skewed, with a large concentration in urban areas and private facilities. For example, as mentioned in the quality section of the assessment, 33.4 percent of people living in rural areas do not have a trained MBBS doctor available in a health facility, compared with 14.8 percent of people living in urban areas. Many health workers also leave underserved areas for urban areas with better working conditions, access to professional development, and additional resources. One of the most effective

strategies to mitigate these challenges and improve the quantity and equitable distribution of health workers is to recruit them directly from the areas experiencing workforce shortages. As part of robust posting and transfer processes, health care workers can ideally be recruited, stationed, and retained in the right places, leading to equitable access to high-quality PHC service delivery. Several studies across high- and low-income countries have demonstrated that recruiting and training health care workers with rural backgrounds can contribute to their retention in rural areas.[45] Compensatory allowance structures for health workers in underserved areas could also be redesigned to increase retention.

2.3. **Task shifting:** A strategy used to strengthen the availability of competent providers is optimizing the skill mix of providers by shifting various tasks and roles across cadres of health workers. Task shifting entails reassigning responsibilities from one type of health worker to another who may have less comprehensive or extensive training but still has the specific competencies to deliver the given service. Integrating a diverse range of occupations, including mid-range and community-based workers, can help to realize a diverse, sustainable workforce with the skills and reach needed to meet a comprehensive set of population health needs. In the context of Bangladesh, optimizing the workforce by shifting responsibilities to cadres that are in greater supply can be an effective strategy for increasing capacity and improving provider availability, ultimately improving patient access to high-quality care. Bangladesh has the potential to capitalize on the strength of existing CHW programs to expand their roles to address the growing burden of NCDs. A meta-analysis reviewing the effects of task shifting to CHWs found that CHWs could safely and effectively deploy interventions for various diseases, including HIV/AIDS, TB, malaria, NCDs, and childhood illnesses, and that such programs could result in cost savings.[46] For example, Cameroon

integrated diabetes and hypertension services into their essential service package and expanded the roles of non-physician health workers to deliver these interventions in rural settings. A two-year evaluation found that the program contributed to better clinical outcomes for both diseases.[47] Finally, a systematic review of NCD service delivery found task shifting to be effective at improving hypertension, mental health, and epilepsy outcomes. The systematic review also found that non-physician health care workers are as effective as physicians in managing, screening, and diagnosing NCDs.[48]

2.4. Supportive supervision: As noted in the capacity section of this assessment, health workers across PHC facilities currently do not work with a sense of team identity and lack key elements of effectively managed teams and systems of mutual accountability for the provision of high-quality health care within their established roles. Supportive supervision techniques provide proven methods for boosting provider performance and morale. While non-supportive supervision often focuses on inspection and line management and results in punitive or corrective action, which may negatively affect provider motivation and satisfaction, supportive supervision instead aims to build pathways to improvement through active collaboration between providers and supervisors. Supportive supervision can be linked with mentoring and coaching to facilitate longitudinal, supportive learning relationships between providers and supervisors. Supportive supervision has proven to be an effective technique for improving health outcomes across several countries, including Nepal. As a part of the Community Health Worker Program, CHWs are designated at a supervisor at the municipal level, who in turn are supervised by someone at the district level. This is complemented with a performance management system to track all CHWs'

performance while offering structured feedback and training opportunities for any CHWs not meeting quality standards.[49]

3. **Capitalize on investments in health management information systems to drive quality improvement through care coordination, performance measurement, and evidence-based decisions.**

   3.1. **Care management**: Information systems are critical to enabling patient-centered approaches to care management. From growth monitoring and antenatal care to caring for hypertension or diabetes, the coordination of a patient's interaction with the health care system is critical to ensuring that the patient receives proper care as well as instructions for self-management. Further, robust information systems can enable successful referral and continuous treatment of chronic conditions. Strong information systems are also a prerequisite for electronic prescription systems, which can contribute to enabling access to medicines. For patients with chronic conditions, this can also contribute to reducing loss to follow-up. Bangladesh currently has a robust civil registration and vital statistics system that records 83 percent of births and 91 percent of deaths. Personal care records are the cornerstone of strong information systems for care management, and electronic health records are generally recommended since they allow for coordinated care across facilities and levels of care, allowing providers in different locations to quickly share and review a patient's information.[50, 51] The MOHFW is currently piloting the use of unique health ID. Such identifiers are necessary for the smooth functioning of information systems, as they ensure that an individual's records are always connected and available for review by health care workers throughout the health system. It will be important for the MOHFW to identify the challenges and lessons learned from the pilot process to scale up the use of the unique health ID and transition toward the use of electronic

health records. Further, such systems could be linked to other digital tools that can provide patient outreach. In Senegal, for example, a project used daily automatic SMS messages to provide diabetes patients with tips and reminders for self-management.[52]

3.2. Quality monitoring and improvement: The quality of services has been identified as a significant challenge in Bangladesh, yet the MOHFW has limited information with which to monitor and assess quality. Robust information systems are key to identifying quality issues in a timely fashion and enabling course corrections. MOHFW investments in information systems and quality improvement processes are critical to improving the monitoring and quality of services provided. While the DHIS2 system has enabled the MOHFW to better track the production of services, additional investment is needed to track the quality of services as well. For example, the results above illustrate the low levels of blood pressure control and blood glucose control achieved by adults with hypertension and diabetes. By implementing electronic health records tied to a unique health ID, MOHFW care teams could track whether patients diagnosed with chronic conditions such as hypertension and diabetes are receiving treatment. Such efforts could also be linked to an expanded role for the QIS unit in monitoring the quality of PHC services.

3.3. Logistics and supply chain management: The VSP results highlight that a lack of inputs, including medicines, presents barriers to care at the primary care level. The MOHFW can continue to invest in management information systems to strengthen logistics and supply chain management. Such systems, when properly implemented and resourced, can contribute to reducing stockouts of essential medicines and supplies. In response to the COVID-19 pandemic, and with the support of the United States Agency for International Development (USAID) Medicines,

Technologies and Pharmaceutical Services Project, the Directorate General of Health Services (DGHS) built a COVID-19 electronic logistics management information system (eLMIS) to track all the commodities associated with the COVID-19 response.[53] The system received daily updates on the stock of emergency commodities throughout the country, which allowed managers at the central level to adapt procurement and distribution plans to mitigate stockouts. The MOHFW could build on these investments to improve logistics and supply chain management for other health commodities as well, working toward a robust electronic logistics management information system that manages logistics and commodities across a more comprehensive set of health and disease priorities.

3.4. **Human resource information system:** Robust information systems are critical for making decisions related to the deployment and performance management of human resources for health. Continuous strengthening in human resource information systems would improve Bangladesh's ability to select and hire health workers based on their competencies and qualifications, track their distribution throughout the country, and implement performance monitoring as well as continuous education and training. For example, performance management systems can track complaints or instances where health workers failed to comply with safety guidelines, providing managers with timely information to take corrective action with targeted training or supervision. Conversely, performance management systems can also aid in the identification of high-performing health workers and could form the foundation for rewards or incentive schemes targeted toward boosting health worker motivation.

3.5. **Health expenditure data:** To better track resources dedicated to PHC, it is important for the MOHFW to disaggregate health

accounts data to allow for an estimation of expenditures specific to PHC using the system of health accounts 2011, which includes classifications by type of provider and type of activities, that can be used to allocate health expenditures to PHC.[54] The MOHFW could work with the Office of the Comptroller and Auditor General and the IBAS++ system to develop a separate code for PHC expenditure and better track expenditure below the district level. Further, improved quality and detail in health expenditure data can be used to assess equity in the distribution of resources and contribute to mitigating existing inequalities.

4. **Invest in health facility infrastructure to ensure accessible care and strengthen the quality of care:** Enabling access to high-quality health services requires that health facilities are sufficiently accessible to the population and are properly staffed and equipped. Key facility amenities such as electricity, safe water, and sanitation facilities are key to health facilities' readiness to provide services.[55] Developing an infrastructure investment plan to guide government investment in health sector infrastructure provides an opportunity to assess the country's needs and develop a long-term plan to address the population's evolving health needs. In light of Bangladesh's vulnerability to climate change and natural disasters, infrastructure investments could take into consideration measures for resilience and climate adaptation. Additional resource allocation to ensure that facilities are properly equipped, including with computers and reliable telecommunications, presents opportunities to continue building on recent advances in MOHFW information systems and ultimately build a stronger PHC system.

   4.1. **Infrastructure investment plan:** Bangladesh has a history of successful medium- and long-term strategic planning through the regular design and implementation of five-year plans. The latest five-year plan aims to expand spending on health from 0.7

percent of GDP in fiscal year 2019 to 2.0 percent of GDP in fiscal year 2025, and this envisions a substantial increase in funding for health in the Annual Development Program. Given the gaps in infrastructure quality and amenities identified in the 2017 Health Facility Survey, Bangladesh would benefit from developing a long-term infrastructure investment plan to ensure that the health system and PHC facilities are well prepared to address the population's needs. Facilities must be widely accessible but also adequately equipped with basic amenities central to the provision of care and patient services. As previously noted, facility infrastructure is often available, although key amenities essential to delivering quality care are often missing. For example, 19 percent of facilities had five or more of the following amenities: regular electricity, an improved water source, privacy during consultations, a client latrine, a landline or a mobile phone, and a computer with internet access according to the 2017 Health Facility Survey. According to the WHO Building Blocks of Health Systems; electricity, safe water, exam rooms with privacy from sight and sound, light sources, sanitation facilities (such as flush or pour toilets to piped sewer system or septic tank, pit latrines, and/or composting toilets), communications equipment (such as cell phones, landline telephones, and/or shortwave radios), computers with internet or network connectivity, and access to emergency transportation are essential facility amenities.

4.2. **Climate resilience and adaptation:** While building climate-resilient health systems is relevant beyond the areas of PHC and infrastructure specifically, climate risks are especially important in Bangladesh, which is amongst the most vulnerable countries to climate disasters. Further, a recent report on the health effects of climate change in Bangladesh outlines how climate change could result in a greater burden of malaria, dengue, and other infectious diseases, as well increasing respiratory conditions such as allergies

and asthma.[56] It is important that the country's infrastructure investments include measures for resilience and adaptation to ensure that facilities can withstand storms and other climate risks. Health workers must also be trained to respond to natural disasters and identify potential infectious disease outbreaks that can be exacerbated by flooding and other events.

4.3. **Equipment for e-health and information systems:** To enable high-quality PHC with the information systems outlined above, facilities will need to be better equipped than they are. According to the 2017 Health Facility Survey, only 58 percent of facilities had access to a working computer connected to the internet. A long-term infrastructure investment plan could outline the resource needs for e-health and information systems as well as other key amenities. In consultation with the Ministry of Finance, the MOHFW could take steps to ensure there is sufficient and appropriate allocation of budget resources for health facilities, such that they are adequately equipped to provide quality services and can reliably connect electronically to MOHFW information systems.

5. **Strengthen governance of PHC and explore financing reforms that boost resources for PHC to improve access to services and incentivize performance**

5.1. **Strengthen collaboration between the MOHFW and other important PHC actors and stakeholders:** The health system in Bangladesh is highly fragmented, and the government of Bangladesh could continue to take steps to improve coordination across ministries and develop integrated health service delivery networks. For example, PHC funding, policies, and service delivery is split between the MOHFW, MOLGRD&C, and also NGO and private providers. Aligning policies related to PHC across administrative units of the MOHFW and with the MOLGRD&C

remains a priority to ensure a coordinated and strategic approach to population health needs. The issue of fragmentation is especially acute in urban areas, where in addition to the MOHFW, services are provided by city corporations and municipalities as well as contracted NGOs and the private sector. The eighth five-year plan notes the need to establish a permanent coordination structure between the MOHFW and the MOLGRD&C and develop an urban health and nutrition strategy to guide planning and investment in urban PHC.

5.2. **Increase public financing to reduce OOPS and improve health outcomes:** The eighth five-year plan names Bangladesh's existing health financing levels as insufficient and specifies that rising OOPS threatens to undermine national poverty reduction efforts. OOPS in Bangladesh is a major concern, accounting for 73.9 percent of health expenditure in 2017. Moreover, from 2000 to 2017, OOPS per capita has increased from $17 to $70 (PPP). When families face high levels of OOPS, including PHC user fees, they can forego critically important care or resort to borrowing money or selling assets, which can threaten their livelihoods.[57, 58, 59] In addition, a growing body of evidence suggests that increased health expenditure is associated with better health outcomes. In India, for example, states with greater health expenditure achieve lower infant mortality rates.[60] Recent research also suggests that public health expenditure has a greater effect on health outcomes than private health expenditures.[61, 62] In striving toward UHC, the government of Bangladesh must take steps to ensure the equitable and needs-based allocation of resources, and it could also explore alternative health financing reforms to identify potential revenue generation options for the health sector (including PHC). Expanding fiscal space can take many forms, including income taxes, payroll taxes, or levying new taxes. When Ghana established a National Health Insurance Scheme

in 2003 for example, the country established a new earmarked tax through the social National Health Insurance Levy, and it earmarked additional funds from social security and other sources.[63] Potential sources of revenue must address Bangladesh's specific challenges and opportunities.

5.3. **Explore new pooling and purchasing mechanisms:** At present, the MOHFW allocates resources based on historic line-item budgets, a practice known as "passive purchasing." However, this mechanism leaves little discretion or incentive for managers throughout the health system to adapt to local challenges or implement changes that could result in greater efficiency.[64] The government of Bangladesh would benefit from exploring new pooling and purchasing mechanisms that contribute to risk pooling, prepayment of health services, and resource allocation based on the health needs of the population. Such mechanisms could take the form of demand-side financing schemes such as health insurance, capitation payment for primary care resource allocation, and performance-based incentives, among others. In Indonesia, for example, primary care facilities that are part of a new national health insurance system, Jaminan Kesehatan Nasional, are paid according to a capitation formula that incorporates the enrolled population as well as characteristics of the facilities, providers, and patient disease burden. Further, capitation payments are linked to indicators of the contact rate, referral rates, and chronic disease management measures, such that there is a performance-based component of the payment.[65, 66] Designing a capitation payment for PHC in Bangladesh could be an opportunity to better link facility financing to the specific health needs of a facility's population. The interviewed stakeholders report that health facility budgets at upazila health complex facilities and union health and family welfare centers are typically assigned based on historical budgets and budget availability

rather than population needs. Introducing capitation (or other forms of purchasing and budget allocation) could be introduced in a stepwise fashion, beginning with a blended formula before transitioning to a new system. In addition, stakeholders report that public financial management bottlenecks and weak budget utilization result in inefficiencies. Analyzing public financial management bottlenecks would provide an opportunity to identify areas where public financial management processes and practices can be amended to contribute toward more efficient budget utilization and execution.

The Bangladesh VSP provides a snapshot of the state of PHC in Bangladesh, and the recommendations above are grounded in the PHCPI framework, ultimately aiming to strengthen PHC services. The MOHFW can use the systematic assessment and recommendations as an opportunity to engage with its partners to tackle the various challenges and improvement strategies. Appendices F and G present the VSP, details on the capacity and performance domains, and illustrative resource requirements and stakeholders for each of the recommendations.

APPENDIX

Appendix A. Performance Domain

phcpi

PERFORMANCE DOMAIN: DETAILED VITAL SIGNS PROFILE INDICATORS

Bangladesh	SCORE	PERCENTAGE	SOURCE	YEAR
ACCESS	57			
Financial				
Perceived access barriers due to treatment costs*		44%	*DHS*	*2018*
Geographic				
Perceived access barriers due to distance*		41%	*DHS*	*2018*
QUALITY	61			
Comprehensiveness				
Avg. availability of 5 tracer RMNCH services[+]		94%	*SPA*	*2017*
Avg. availability of services for 3 tracer communicable diseases		42%	*SPA*	*2017*
Avg. availability of diagnosis & management for 3 tracer NCDs		52%	*SPA*	*2017*
Continuity				
DTP3 dropout rate*		3%	*DHS*	*2018*
Treatment success rate for new TB cases		94%	*WHO TB Country Profile*	*2019*
Person-Centeredness				
No recent indicator available from international or national data sources				
Provider availability				
Provider absence rate*		72%	*DHS*	*2018*
Provider Competence				
Antenatal care quality score based on WHO guidelines		35%	*DHS*	*2018*
Safety				
Adequate waste disposal		62%	*SPA*	*2017*
Adequate infection control		18%	*SPA*	*2017*
SERVICE COVERAGE	64			
Reproductive, Maternal, Newborn and Child Health				
Demand for family planning satisfied with modern methods		70%	*DHS*	*2018*
Antenatal care coverage (4+ visits)		47%	*DHS*	*2018*
Coverage of DTP3 immunization		96%	*DHS*	*2018*
Care-seeking for suspected child pneumonia		40%	*DHS*	*2018*
Infectious diseases				
Tuberculosis cases detected and treated with success		76%	*WHO TB Country Profile*	*2019*
People living with HIV receiving anti-retroviral treatment		19%	*UHC Global Monitoring Report*	*2019*
Children under 5 with diarrhea receiving ORS		83%	*DHS*	*2018*
Non-Communicable Diseases (NCDs)				
% of population over 18 years of age with normal fasting blood glucose***		90%	*DHS*	*2018*
% of population over 18 years of age with normal blood pressure***		73%	*DHS*	*2018*

*Indicators where lower values are preferable were transformed before inclusion in the index. The modified indicator was defined as 100-X, where X is the original percentage shown in this table. **Country-specific (proxy) indicator, used in absence of globally comparable survey data. ***Percentage of adult population with normal blood pressure is based on age-standardized estimates. These distributions are rescaled to provide finer resolution before inclusion in the index. Rescaled indicator = (X-50)/ (100-50)*100, where X is the prevalence of normal blood pressure. For more details see Tracking UHC: 2017 Global Monitoring Report. Note: Summary scores for the domains of Access, Quality, and Coverage are calculated by taking the average of indicator values within each subdomain, and then taking the average across subdomain scores. [+] PMTCT not included in the index

Source: Author's calculations based on multiple data sources as noted in diagram

Appendix B. Capacity Domain

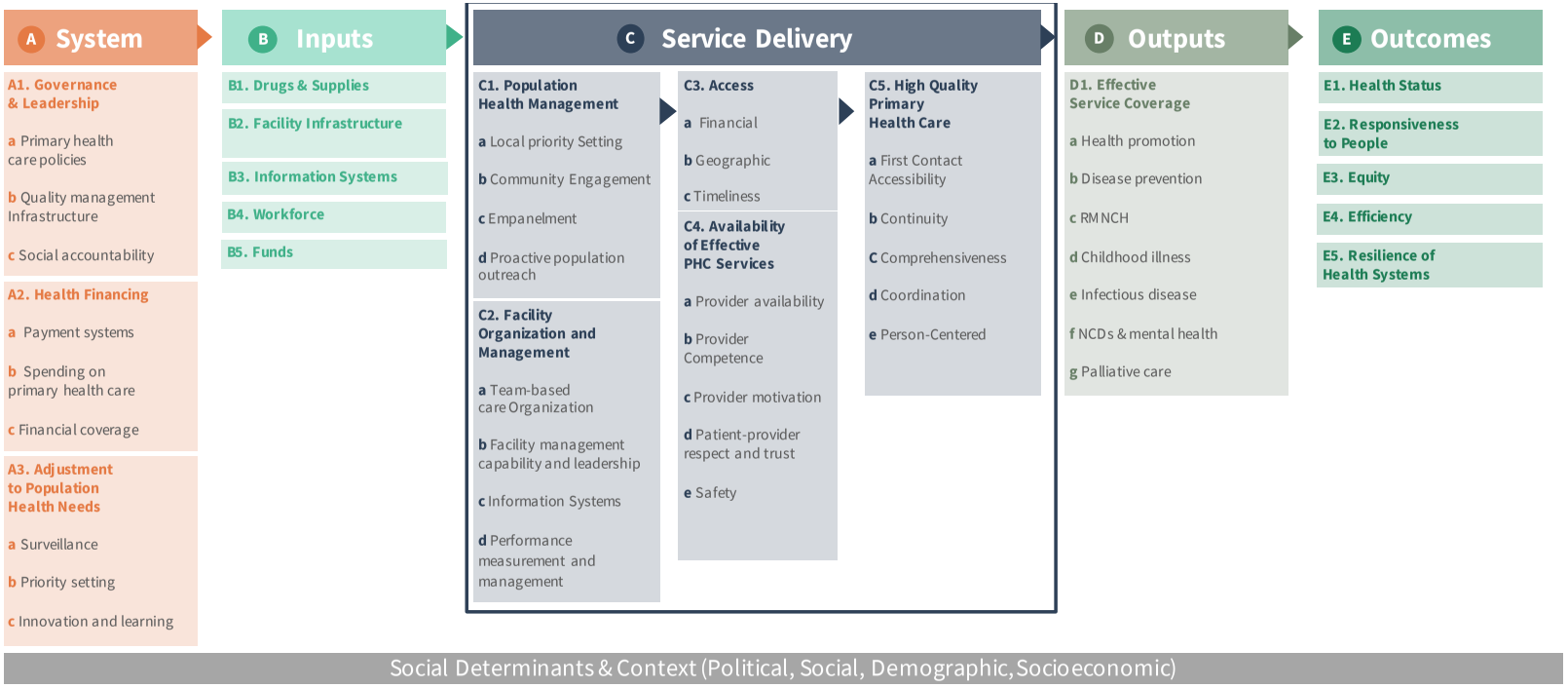
phcpi

CAPACITY DOMAIN: DETAILED VITAL SIGNS PROFILE INDICATORS

Bangladesh	SCORE
GOVERNANCE	2.3
Governance and Leadership	2.0
Measure 1: Primary health care policies (1/2)	
Measure 2: Primary health care policies (2/2)	
Measure 3: Quality management infrastructure	
Measure 4: Social accountability (1/2)	
Measure 5: Social accountability (2/2)	
Adjustment to Population Health Needs	2.7
Measure 6: Surveillance	
Measure 7: Priority setting	
Measure 8: Innovation and learning	
INPUTS	1.6
Drugs and Supplies	1.0
Measure 9: Stock-out of essential medicines	
Measure 10: Basic equipment availability	
Measure 11: Diagnostic supplies	
Facility Infrastructure	1.0
Measure 12: Facility distribution	
Measure 13: Facility amenities	
Measure 14: Standard safety precautions and equipment	
Information Systems	1.7
Measure 15: Civil Registration and Vital Statistics	
Measure 16: Health Management Information Systems	
Measure 17: Personal care records	
Workforce	2.0
Measure 18: Workforce density and distribution	
Measure 19: Quality assurance of primary health care workforce	
Measure 20: Primary health care workforce competencies	
Measure 21: Community health workers	
Funds	2.3
Measure 22: Facility budgets	
Measure 23: Financial Management Information System	
Measure 24: Salary payment	
POPULATION HEALTH AND FACILITY MANAGEMENT	1.6
Population Health Management	2.0
Measure 25: Local priority setting	
Measure 26: Community engagement	
Measure 27: Empanelment	
Measure 28: Proactive population outreach	
Facility Organization and Management	1.2
Measure 29: Team-based care organization	
Measure 30: Facility management capability and leadership	
Measure 31: Information system use	
Measure 32: Performance measurement and management (1/2)	
Measure 33: Performance measurement and management (2/2)	

Source: Author's calculations based on multiple data sources

Appendix C. PHCPI Framework



Source: Veillard et al. 2017

Appendix D. Recommendations Based on the Bangladesh VSP

Recommendation	Resources required, from low (+) to high (+++)	Difficulty of execution, from low (+) to high (+++)	Potential impact, from low (+) to high (+++)	Time horizon from impact (short, medium, or long term)	Main PHC dimension affected
1. Implement new, people-centered models of care that rely on health service delivery networks					
1.1 Structure health service delivery networks that enable effective systems of referral and counter-referral	++	++	+++	Medium	**Access, equity** Governance and leadership Facility organization and management
1.2 Strengthen empanelment systems to improve continuity in care	++	++	++	Medium	**Access, coverage** Population health management
1.3 Adapt to address Bangladesh's double burden of disease and provide comprehensive services	++	++	+++	Long	**Capacity, coverage** Adjustment to population health needs
1.4 Employ multidisciplinary teams	++	++	++	Medium	**Coverage** Workforce Facility organization and management
1.5 Strengthen and implement decision-making tools such as clinical guidelines and care pathways	+	+	+++	Short	**Quality** Workforce **Facility organization and management**
1.6 Bolster community engagement to strengthen social accountability	+	++	++	Short	**Coverage** Adjustment to population health needs
2. Cultivate the next generation of PHC personnel to work in multidisciplinary teams and strengthen their competencies					
2.1 Human resources for health, policy, and education	++	+++	+++	Long	**Quality** Workforce Governance and leadership

Recommendation	Resources required, from low (+) to high (+++)	Difficulty of execution, from low (+) to high (+++)	Potential impact, from low (+) to high (+++)	Time horizon from impact (short, medium, or long term)	Main PHC dimension affected
2.2 Deployment	+++	++	+++	Medium	**Capacity, access, equity, coverage** Workforce, facility organization and management, population health management
2.3 Task shifting	+	+	++	Medium	**Quality, capacity** Workforce, facility organization and management
2.4 Supportive supervision	+	+	++	Short	**Quality, capacity** Workforce, facility organization and management
3. Capitalize on investments in health management information systems to drive quality improvements through care coordination, performance measurement, and evidence-based decisions					
3.1 Care management	++	++	+++	Medium	Capacity, quality
3.2 Quality monitoring and improvement	++	+++	++	Medium	**Quality** Facility organization and management Population health management
3.3 Logistic and supply chain support	++	++	+++	Medium	**Access, quality** Facility organization and management
3.4 Human resource information system	++	++	++	Medium	**Coverage, access, quality** Information systems Workforce

Recommendation	Resources required, from low (+) to high (+++)	Difficulty of execution, from low (+) to high (+++)	Potential impact, from low (+) to high (+++)	Time horizon from impact (short, medium, or long term)	Main PHC dimension affected
3.5 Health expenditure data	+	+	++	Medium	**Financing** Funds Information systems
4. Invest in health facility infrastructure for accessible, quality care					
4.1 Infrastructure investment plan	+	+	+++	Long	**Quality, access, equity** Facility infrastructure Governance and leadership
4.2 Climate resilience and adaptation	+	++	++	Long	**Coverage, access, equity** Adjustment to population health needs Facility infrastructure
4.3 Equipment for e-health and information systems	++	++	++	Medium	**Quality, access, equity** Facility infrastructure Information Systems
5. Strengthen governance of PHC and explore financing reforms that boost resources for PHC while incentivizing performance					
5.1 Strengthen collaboration between the MOHFW and other important PHC actors and stakeholders	+	++	++	Short	**Quality, coverage** Governance and leadership
5.2 Increase public financing to reduce OOPS	+++	+++	+++	Medium	**Access, equity** Health financing
5.3 Explore new pooling and purchasing mechanisms	++	++	+++	Long	**Access, quality, and equity** Health financing

Source: Elaborated by the authors.
Note: low = +; medium = ++; high = +++. OOPS = out-of-pocket spending; PHC = primary health care.

Appendix E. Implications of the Recommendations for Stakeholders

	National government and health authorities	Regional or divisional* health authorities	Service delivery providers	Academia	Patients and citizens
1. Implement new people-centered models of care that rely on health service delivery networks					
1.1 Structure health service delivery networks that enable effective systems of referral and counter-referral	F, E, M, P	M, P	P	I	I
1.2 Strengthen empanelment systems to improve continuity in care	F, E, M	M, P	P	I	P, I
1.3 Adapt to address Bangladesh's double burden of disease and provide comprehensive services	F, E, P, D	P	P	P	P, I
1.4 Employ multidisciplinary teams	F, E	M, P	F, M, P	I	I
1.5 Strengthen and implement decision-making tools such as clinical guidelines and care pathways	F, E, M	P	P	E, P	I
1.6 Bolster community engagement to strengthen social accountability	F	E, M, P	P	P	P
2. Cultivate the next generation of PHC personnel to work in multidisciplinary teams and strengthen their competencies					
2.1 Human resources for health, policy, and education	F, E, M, P	P	P	P, D	I
2.2 Deployment	F, E	E, M, P	P	P, D	I
2.3 Task shifting	F, E	M, P	M, P	P, D	I
2.4 Supportive supervision	F, E	M, P	M, P	P, D	I
3. Capitalize on investments in health management information systems to drive quality improvement through care coordination, performance measurement, and evidence-based decisions					
3.1 Care management	F, E	M	P	D	P, I
3.2 Quality monitoring and improvement	F, E, M	M	P	D	P, I

	National government and health authorities	Regional or divisional* health authorities	Service delivery providers	Academia	Patients and citizens
3.3 Logistic and supply chain support	F, E, M	M, P	P	I	I
3.4 Human resource information system	F, E, M	M, P	P	D	I
3.5 Health expenditure data	F, E, M	M	P	D	I
4. Invest in health facility infrastructure for accessible, quality care					
4.1 Infrastructure investment plan	F, E, M, P	F, M, P	D	I	I
4.2 Climate resilience and adaptation	F, E, M	F, E, P	P	P	I
4.3 Equipment for e-health and information systems	F, E, M, P	M, P	P	I	I
5. Strengthen governance of PHC and explore financing reforms that boost resources for PHC while incentivizing performance					
5.1 Strengthen collaboration between the MOHFW and other important PHC actors and stakeholders	F, E, M, P	M, P	P	P	I
5.2 Increase public financing to reduce OOPS	F, E, M, P	F, P	P	I	P, I
5.3 Explore new pooling and purchasing mechanisms:	F, E, M, P	P	D	I	I

Source: Elaborated by the authors.

Note: F = provide financing or financial incentives; E = establish strategic direction, norms and policies; M = manage the program; P = participate in the implementation of the program or support it; I = stay informed on the program activities; D = make informed or strategic decisions. MOHFW = Ministry of Health and Family Welfare; OOPS = out-of-pocket spending; PHC = primary health care.

* Regions or divisions with lower capacity require greater support.

Appendix F. Progression Model Participants

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Appendix G. Progression Model Documents Reviewed

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