



World Health
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Bangladesh

PERFORMANCE OF PUBLIC SECTOR HEALTH FACILITIES IN BANGLADESH

2017

AN IN-DEPTH ANALYSIS REPORT

HEALTH SYSTEMS STRENGTHENING INITIATIVE



Management Information System (MIS)

Directorate General of Health Services

Ministry of Health and Family Welfare

Government of the People's Republic of Bangladesh



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Contributors and acknowledgements to the report

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Message

In the context of achieving universal health coverage, a well-coordinated robust health system is essential. Bangladesh has been putting various time bound interventions for strengthening health systems with outmost priority.

I am very pleased to know that an in-depth analysis of the results of the health systems strengthening initiative (HSS) in 2017 was carried out. This is a good initiative and we appreciate all efforts towards improvement of the performance of health facilities in Bangladesh. The health systems strengthening initiative of MIS, DGHS counts with technical support from WHO along with Health Information System Program (HiSP) Bangladesh, icddr,b and UNICEF.

The HSS initiative, began in 2014 has drawn much attention of field level health managers and health service providers at different tiers with particular interest for the real-time facility performance dashboard accessible to the managers and service providers which enabled them to understand gaps in their performance.

Presence of this real-time online performance score dashboard and its accessibility and finally recognition and rewarding of the best health management performance, has created an enabling environment for health managers to engage more in this initiative. The present analysis helps to understand the scope and factors as to how the health facilities performed in addressing six building blocks of health systems strengthening, and specifically what are elements/drivers for better performance that might be useful for peer learning. This analysis reflects upon aspects of performance of health facilities according to tiers of health facilities and according to level of scores based on different measurement tools. We can use recommendations of this analysis for improvement of the robustness of the initiative.

Finally, we congratulate and acknowledge experts and reviewers who worked relentlessly to make this very useful report for health managers as well for policy makers for further guidance for establishment of quality health services in Bangladesh.

Professor Dr. Abul Kalam Azad
Director General
Directorate General of Health Services



Message

The goal of universal health coverage (UHC) is to ensure all people have access to quality health care without suffering financial hardship. The health systems strengthening (HSS) initiative was launched in 2014 under the Management Information System (MIS) unit of the Directorate General of Health Services (DGHS) to assess the quality of Bangladesh's health care facilities. WHO has been providing technical assistance in the conceptualization and development of the HSS initiative since its inception. Different partners such as UNICEF, icddr,b and Health Information System Programme (HiSP) Bangladesh have also been supporting the MIS, DGHS on this initiative along with WHO.

WHO country office in Bangladesh together with DGHS, MIS, conducted this in-depth analysis of the results of health facilities' performance from HSS 2017.

The report has captured different aspects of the performance of health facilities at the various tiers of Bangladesh's health system. The findings of this report will be a useful guidance for policy makers in understanding gaps for resource allocation and needs for enhancing supportive supervision. The findings also represent the current condition and readiness of health facilities to deliver quality health care – an essential component to track our progress toward UHC.

WHO encourages such kind of collaborative initiatives that provide evidence for informed policy decision. The HSS analysis will assist for better preparedness and function to deliver quality health services and promote optimum utilization of health facilities to the extent the country needs to achieve UHC.

I am very much in debt to the hard work of experts and reviewers who made this analysis successful. Because health is a fundamental human right, and everyone deserves to be able to access quality health services.

Dr Bardan Jung Rana
WHO Representative to Bangladesh



Message

I am very much delighted to know that an in-depth analysis of the results of the health systems strengthening initiative (HSS) in 2017 was carried out. This is for the first time such type of analysis was carried and the report is being published with the support of WHO.

The demand for health-related data is ever increasing for policy decision and for trend analysis and monitoring purposes. A robust data management system can play a significant role in management of public health and enhance collective endeavors of policy makers, health managers and health service providers towards improving health services.

Bangladesh has been making a sustainable progress towards achieving universal health coverage and maintaining a good pace from Millennium Development Goals (MDGs) towards Sustainable Development Goals (SDGs).

To monitor each health facility and various level of health managers, it is a challenge for central level management. The HSS initiative has been supporting to fulfill the aspiration of key stakeholders to have real time dashboard for health facility performance status for taking required decision. The last three episodes of HSS initiatives and recognition of best performing health facilities by health minister's award have potentially encouraged health manager to strive for better performance. The report is very useful for all level of stakeholders for health to understand barriers and challenges at field level and at national level. The findings of the analysis will assist for taking informed decision and to overcome different barriers across the health sector.

We appreciate the work and acknowledge all who worked hard to bring this very useful information and recommendations in the report for health management. We welcome WHO and other health development partners UNICEF, icddr,b and Health Information System Program (HiSP) Bangladesh to support this initiative and seek support and cooperation to continue the initiative with more vibrant visibility of performance by health care providers of all level.

Dr Samir Kanti Sarkar

Director, Management Information System and

Line Director, HIS and eHealth

Abbreviations and Acronyms

ANC	antenatal care
CT	computerized tomography
DGHS	Directorate General of Health Services
DH	district hospital
DHIS2	District Health Information Software 2
ECG	electrocardiogram
EmONC	emergency obstetric and new born care
ESP	essential service package
HCM	hospital coordination meeting
HIS	health information system
HiSP	Health Information System Program
HMC	Hospital Management Committee
HRM	human resource management
HSS	health systems strengthening
ICD-10	International Statistical Classification of Diseases and Related Health Problems (version 10)
ICD-O	International Classification of Diseases for Oncology
icddr,b	International Centre for Diarrhoeal Disease Research, Bangladesh
ICT	information and communication technology
ICU	intensive care unit
IMCI	Integrated Management of Childhood Illness
iNGO	international nongovernment organization
IPC	infection prevention and control
MCH	medical college hospital
MIS	Management Information System
MRI	magnetic resonance imaging
NVD	normal vaginal delivery
OPD	outpatient department
PNC	postnatal care
SpH	Speciality Postgraduate Institute and Hospital
SMS	short message service
UNICEF	United Nations Children's Fund
USG	ultrasonogram
UHC	upazila health complex
WASH	water, sanitation and hygiene
WHO	World Health Organization

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EXECUTIVE SUMMARY

Background

This report contains the results of assessments conducted under the health systems strengthening (HSS) initiative in 2017 by the Management Information System (MIS) of the Directorate General of Health Services (DGHS) in Bangladesh. It was launched as a performance management initiative to improve health services in public sector health facilities in Bangladesh in accordance with the WHO health systems framework. Health service delivery in the public sector is organized under four tiers of health facilities – upazila health complexes (UHCs), district hospitals (DHs), medical college hospitals (MCHs), and specialty postgraduate institute and hospitals (SpHs).

The overall objective of this analysis is to portray the main findings of the HSS initiative in 2017 and classify public sector health facilities according to an adopted scale of “good”, “moderately good”, “moderately poor” and “poor” using four different measurement tools. The tools used were online measurement, on-site monitoring, physical assessment and patient satisfaction survey.

The analytical framework and methodology used for the HSS initiative is discussed. The analysis also explains how Bangladesh’s 510 health facilities under the four tiers were evaluated using the first two tools (online measurement and on-site monitoring). Health facilities that scored above 60% in the aggregated scores of the two tools were shortlisted and received further evaluation using two more tools (physical assessment and patient satisfaction survey). The analysis drawn in the report compares the scores received by the shortlisted and non-shortlisted facilities with the first two tools. Regions were also compared to show whether there was a difference in performance between the eight divisions in Bangladesh. For the shortlisted facilities, data entered in the online measurement tool were verified for accuracy.

Limitations as well as recommendations are provided to help improve the performance of health facilities as well as the HSS initiative itself.

Methodology

We used the following steps for this analysis:

1. combined the score of the four tools of performance measurement (online measurement, on-site monitoring, physical assessment and patient satisfaction survey);
2. prepared a master database from information collected through the online measurement and on-site monitoring tools from all 510 health facilities and information collected through the physical assessment and patient satisfaction assessment by assessors for 68 shortlisted facilities;
3. developed a standardized scale with a range of 0–100% and classified the level of performance of health facilities as good ($\geq 75\%$), moderately good (50% to $<75\%$), moderately poor (25% to $<50\%$) and poor ($<25\%$);
4. performed analysis at input and output levels of the online measurement tool and at each section of the physical assessment tool. In addition, we divided the physical assessment data into two groups: individual and combined sections. The combined section included labelling, cleanliness and water, sanitation and hygiene, and infection prevention and control;
5. compared the performance of shortlisted and non-shortlisted health facilities based on aggregated standardized scores of the online measurement and on-site monitoring tools;
6. performed categorical data analysis of and calculated the responses from the patient satisfaction tool;

7. checked the accuracy of and variations in data between online measurement and physical assessment for the *logistics* section (relating to the number of equipment and their functional status) and *health information* section (relating to the number of live births, maternal deaths, under-five child deaths, normal deliveries and caesarean sections).

Findings

Overall performance of all health facilities

Based on the aggregated standardized score, the performance of 19 (3.73%) health facilities was “good” ($\geq 75\%$), 269 (52.75%) “moderately good” (50% to $<75\%$), 205 (40.20%) “moderately poor” (25% to $<50\%$) and 17 (3.33%) “poor” ($<25\%$).

Performance of upazila health complexes

Among 420 UHCs, based on the aggregated standardized score, the performance of 10 (2.38%) was good, 215 (51.19%) moderately good, 186 (44.29%) moderately poor and nine (2.14%) poor.

According to the online measurement tool, among the 44 shortlisted UHCs, 95.6% performed at a good level in the areas of *service delivery* and *leadership* for the input level; 100% of UHCs performed at a good level with regard to *access* for the output level. However, 85.3% of shortlisted UHCs performed at a moderately poor level under *coverage level*. The performance of all shortlisted UHCs was “moderately good” and above throughout the country. During the stipulated period of the on-site monitoring visits from May to August 2017, 88.6% of the shortlisted UHCs were visited monthly by health managers. *Safety* seemed to be the most problematic area among the non-shortlisted UHCs with 57.5% performing at a poor level.

Responses from the patient satisfaction survey demonstrated that only 21% of patients admitted to inpatient departments received all their medications as prescribed compared to 96% of patients visiting outpatient departments, who received all their medications.

Major equipment and health services delivery data were verified during assessment. Only 43% of UHCs documented accurate data for the availability of laptops and ECG and suction machines. Maternal death data were accurate in 79.5% of UHCs but accurate data on under-five child deaths and normal vaginal deliveries were provided by only 27% and 32% of UHCs, respectively.

Performance of district hospitals

Out of the 65 DHs, the performance of nine (13.85%) was good, 41 (63.08%) moderately good, 12 (18.46%) moderately poor and three (4.62%) poor, based on the aggregated standardized score. According to the online measurement tool, among the 17 shortlisted DHs, the performance of 100% of DHs was good with regard to *service delivery* for the input level and *access* for the output level.

None of the DHs in the Mymensingh division was shortlisted. The performance of all the DHs in Khulna and Barishal divisions was moderately good and above. During the on-site monitoring visits from May to August 2017, 76.5% of shortlisted DHs were visited regularly by health managers on a monthly basis (i.e. four visits). In the physical assessment, where the condition of the equipment was assessed, among the shortlisted DHs, the performance of 12% was poor for the storage room.

The patient satisfaction survey revealed that only 23.2% of those admitted to inpatient departments received all their medications as prescribed, compared to 90.6% attending outpatient departments in DHs. Results from the analysis of DHs showed that only 35% of ECGs and 18% of ultrasonogram reports were accurate, and only 12% of DHs submitted the report of under-five child deaths accurately.

Performance of medical college hospitals

Based on the aggregated standardized score, the performance of 10 (71.43%) MCHs was moderately good, four (28.57%) moderately poor and none performed at the good or poor levels. Under *service delivery* and *leadership* at the input level, the performance of 100% of shortlisted MCHs was good. The performance of all MCHs (shortlisted and non-shortlisted) was moderately poor in the *health workforce* area. *Leadership* was one area that showed differences in performance among the shortlisted and non-shortlisted MCHs. The performance of 100% of shortlisted MCHs was good compared to non-shortlisted ones, among which the performance of 50% was good and 37.5% moderately poor and poor. For the output level, in terms of *access* and *quality*, the performance of 100% of shortlisted MCHs was good; while *coverage* was an area that all MCHs need to focus on since none of the MCHs performed at a “good” level.

There were no shortlisted MCHs from Mymensingh and Khulna divisions; however, the one MCH in Sylhet was shortlisted. According to the physical assessment, among the six shortlisted MCHs, the performance of 100% was good in the *blood transfusion*, *ECG and ultrasonography*, and *logistics* sections. According to the patient satisfaction survey, only 20.8% in the inpatient department received their medications fully compared to 83.3% in the outpatient department.

Similar to DHs, ECGs and ultrasonograms were reported most inconsistently (data variance of 50% and 67%, respectively). Health services data were reported inaccurately in all five categories, with each scoring below 50% (number of live births, maternal deaths, under-five child deaths, normal vaginal deliveries and caesarean sections).

Performance of specialty postgraduate institutes and hospitals

SpHs are situated only in Dhaka (10) and Chattagram (1) divisions in Bangladesh. Out of the 11 SpHs, the performance of three (27.27%) was moderately good and three (27.27%) moderately poor, and that of five (45.46%) was poor, based on the aggregated standardized score.

According to the standardized score for the input level with the online measurement tool, all SpHs need to focus more on *health information* and *health workforce*, since the performance of none of the SpHs was better than moderately poor for these areas. Between those SpHs that were shortlisted and those that were not, the biggest difference was seen in *service delivery*, *logistics* and *leadership*. For the output level, all 11 (100%) SpHs scored poorly under *safety*.

Discussion

This is the first time a detailed analysis of the results of health facility performance under the HSS initiative has been attempted since its introduction in 2014. Over the years, the methods of measurement, and distribution of marks and scores for indicators of performance have evolved and been adjusted according to the need to improve performance in health services delivery.

Further refinement is needed for future improvement of the HSS initiative. For example, results from SpHs show that the performance of 100% of SpHs (shortlisted and non-shortlisted) was poor in the area of *safety*. However, as these facilities do not report data for a set of indicators measured for other types of health facilities in the areas of antenatal care visits, maternal mortality ratio and the number of referrals for integrated management of childhood illness, the results do not adequately or accurately reflect the performance of SpHs. SpHs focus on specialized care such as cardiovascular diseases, kidney diseases, orthopaedics, neuromedicine, cancers and mental health. Setting indicators that apply to all specialties may solve the issue.

There were no shortlisted DHs in the Mymensingh division. Further evaluation is required to understand why Mymensingh division did not have any shortlisted DHs. Similarly, for MCHs, there were no

shortlisted facilities in Barishal, Mymensingh and Khulna divisions because of poor performance in self-reporting and lack of on-site monitoring visits, which would provide supportive supervision and advice that facilities could easily act on.

Less than 25% of patients in inpatient departments of UHCs (21%), DHs (23.2%) and MCHs (20.8%) responded that they received all the medications as prescribed. In SpHs, more patients admitted in inpatient departments claimed that they received their medications as prescribed (50%) but only 50% of those attending outpatient departments stated that they received all their medications. Findings from outpatient departments in SpHs regarding receipt of medications were interestingly low (50%) compared to those in UHCs (96%), DHs (90.6%) and MCHs (83.3%). Further investigation is required to identify the underlying cause.

Overall, health facilities in Bangladesh seem to experience shortages of medications, especially in inpatient departments. The results of the HSS 2017 patient satisfaction survey echo those of another study completed by the World Bank on the overview of the pharmaceutical sector in Bangladesh. According to the World Bank, only 37% of the lowest-priced generic medications was available in public hospitals. This is in line with the very high levels of private spending on medicines in the country. Households paying fees at the point of service (i.e. out of pocket) constitute the main source of financing for health in Bangladesh, comprising 67% of total spending in 2015. The share of out-of-pocket spending on medicines and medical products in 2015 was 69.4%; hence, out of the total health spending in the country, 46% corresponds to expenditure on medicines and medical products.

Conclusion

Bangladesh has made good progress in expanding health facilities across the country over the past few years. It is now worthwhile consolidating the performance of health facilities to show how they are contributing to public health according to the needs of the population. In this analysis, health facilities in the public sector were evaluated against the adopted aggregated standardized score based on four measurement tools. The findings constructed a baseline of how health facilities are performing in each tier of health facility throughout Bangladesh. Since the beginning of the HSS initiative, such an analysis has never been conducted before. The analysis revealed some important aspects of the situation of different tiers of health facilities across the country, in terms of readiness for health service delivery, and section-wise performance according to the building blocks of health systems. This analysis helped to draw some specific and useful recommendations on the level of health systems and on the possible roles of the stakeholders involved.

For example, the analysis revealed that one of the factors that showed differences between shortlisted and non-shortlisted health facilities was the poor performance in regularity of online reporting and on-site monitoring, which is primarily the responsibility of the health manager. Shortlisted facilities were those where the intensity of on-site monitoring was high. From a broader perspective, the analysis may potentially influence the performance of health facilities when health managers are more aware of the findings and engage with the initiative.

The HSS initiative helped to document the extent of poor performance among facilities, areas for improvement, and presumed and perceived reasons for these. However, the actual underlying causes of poor performance were not investigated. Moreover, the HSS initiative does not assess challenges and constraints experienced by each health facility but the findings can be useful for facility managers to identify areas for improvement and resource gaps in each facility, and aid in planning for the required activities in the upcoming year. More importantly, this analysis urges health managers and policy-makers to explore further reasons and factors responsible for poor performance and identify bottlenecks that hinder progress. These can be explored through qualitative assessments.

Although UHCs make up a large number of the total health facilities in Bangladesh (420/510) where HSS initiative was undertaken, the performance of only 2.38% (10/420) was good. This requires more attention because universal health coverage, which is primarily dependent on the primary health care system, is not only about having enough health-care facilities for the people but also about provision of quality health services.

The unavailability of medicines that was experienced by patients in the UHCs, DHs and SpHs is a matter of concern. If medications are unavailable, patients will have to pay out of their pockets to purchase them. The implementation of the essential service package (ESP) in Bangladesh will hopefully address this challenge. ESP will help to standardize the essential medications that would be needed to ensure provision. Robust attention is required for using HSS initiative to monitor the progress of ESP implementation to enhance the country's effort to achieve universal health coverage.

Limitations

- for online measurement, 12 months' data were considered, whereas for on-site monitoring, only 4 months' data were considered. If 12 months of on-site monitoring data were available, the scores may have been different;
- the HSS initiative does not assess the challenges and constraints experienced by each health facility. Qualitative assessment would further explore the root causes of low and high performance;
- there is a need for changing the mechanism for calculating scores, particularly for facility-based caesarean section rate;
- a separate set of indicators is needed for SpHs. The type of health services provided by SpHs is different from those provided by UHCs, DHs and MCHs. Besides, each SpH is also different from the other, i.e. specialty hospital for cardiovascular disease, neuromedicine, orthopaedics, etc;
- health financing indicators were not incorporated in the HSS initiative 2017 because such indicators are not yet available in the existing MIS system;
- although this was the second round of the HSS initiative, since the analytical framework in 2014–2015 did not incorporate WHO's building blocks of health systems and the calculation of scoring was different, the results cannot be compared with those of previous years. Therefore, progress or changes in the performance of health facilities could not be assessed at this time;
- the presence of health workers in the facilities during the patient satisfaction survey may have caused some bias in the patients' responses. Patients may have responded positively to the questions asked. In addition, the sample size for the patient satisfaction survey was relatively small;
- the assessing team for physical assessment was not fully independent as most of them were government personnel.

Recommendations

- General
 - the results of the HSS 2017 initiative should be compared to those of the HSS 2018. Progress should be monitored for each health facility to see whether improvements can be observed between the two years. Qualitative analysis may follow for further investigation of those health facilities that showed a significant improvement or decline in performance;
 - fortnightly meetings through video conferencing with all health managers and the

Directorate General of Health Services, including divisional directors, could be one approach to discussing the performance of health facilities referring to the HSS dashboard. In addition, the HSS results could be discussed regularly in the divisional and district coordination meetings.

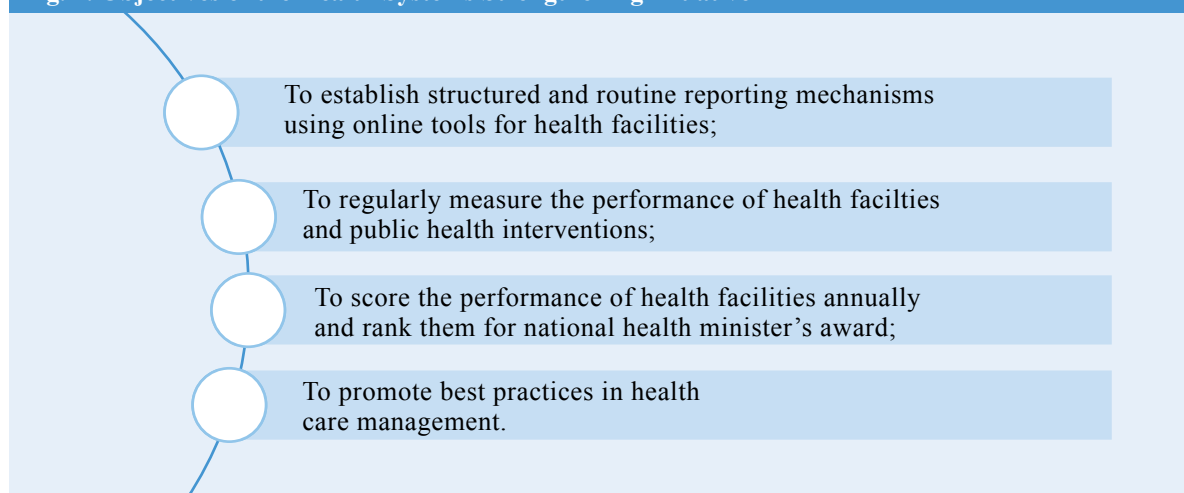
- Methodology for future HSS initiatives
 - introduce and set a new benchmark, as the 60% benchmark set for HSS initiative 2017 identified a large number of facilities (68) which made it challenging for government authorities to manage administratively and logistically. Ultimately, introducing and setting a benchmark may assist in reaching common standards across health facilities. In addition, better performance will be incentivized by having the benchmark set at a higher level (e.g. 75%). Later these will be helpful when establishing a national accreditation system for healthcare facilities;
 - future HSS initiatives should include more indicators that measure quality, including patient safety and infection prevention and control (IPC); such as blood transfusion reaction rates, medication error rates, rate of healthcare associated infections, surgical site infection rate and hand hygiene compliance rate. These indicators should also be added to the MIS;
 - healthcare financing indicators should be added to MIS, for instance, percentage of annual expenditure of the budget against allocation received by each health facility, and such indicators should be added in future HSS initiatives;
 - specific tools should be developed for specialized hospitals because the nature of the services they provide varies according to their specialty;
 - further qualitative analysis may help to understand the causes of poor performance and other issues. This will better equip managers with information that they can act upon to improve their performance in the future.
- Health managers
 - the number of on-site monitoring visits was correlated with performance. The performance was better in facilities that had regular visits. Health managers should cross-visit other facilities that scored higher/lower to identify areas of improvement by peer review;
 - a large number of UHCs (186) performed at a moderately poor level and require more attention. Further qualitative analysis may help to understand the causes of poor performance and possible interventions that can help to improve the performance of UHCs;
 - at each facility level, inconsistency and variation in the online reported data and the documented data at the facility needs regular checking by the facility itself, and particularly when on-site visits are conducted by health managers to ensure accuracy and precision;
 - shortage of medicines in inpatient departments was found in most facilities, according to the patient satisfaction survey. Despite the methodological limitations of the survey, this may indicate a critical problem to be solved through inspection of inventory and stock management, and persuasion to allocate an increased budget, as well as improvement in the rational use of medicines.

CHAPTER 1

INTRODUCTION

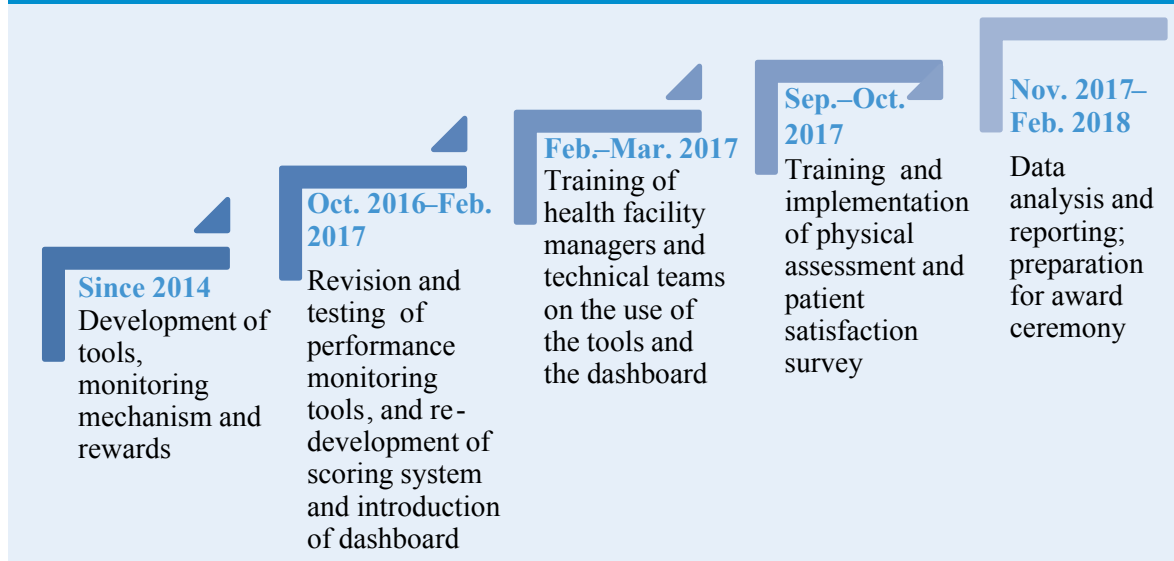
Bangladesh has established an extensive network of health facilities to provide health services to its population. The four different levels of health facilities are the upazila health complex (UHC); district hospital (DH), medical college and hospital (MCH) and specialty postgraduate institute and hospital (SpH). These are complex entities, the management of which requires continuous interaction among different stakeholders for the delivery of quality services. A robust mechanism is required to measure the performance of such facilities, strive for better health outcomes and foster accountability.

Fig. 1. Objectives of the Health Systems Strengthening initiative



In 2014, the Management Information System (MIS) unit of the Directorate General of Health Services (DGHS) launched a performance management initiative for improving health services in the public sector. The Health Systems Strengthening (HSS) initiative is aligned with the World Health Organization (WHO)'s six building blocks of health systems.¹ The HSS initiative has four objectives (Fig. 1) and entails measurement of performance, ranking and rewarding of health facilities, community health services and subnational health offices. The initiative has set up a system that provides non-financial incentives to health managers across the country to improve health service practices. The initiative progressively evolved between 2014 and 2018 (Fig. 2). Throughout this period, WHO along with the Health Information System Program (HiSP) Bangladesh, International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) and the United Nations Children's Fund (UNICEF) have been providing technical assistance to the government to conceptualize and deliver this initiative.

¹ Everybody business: strengthening health systems to improve health outcomes: WHO's framework for action. Geneva: WHO; 2007 (http://www.who.int/healthsystems/strategy/everybodys_business.pdf, accessed 7 December 2018).

Fig. 2. Timeline of key activities

Objectives

The overall objective of this analysis is to portray the main findings of the HSS initiative in 2017.

The specific objectives of the analysis are:

- to classify health facilities according to performance levels within each tier using a percentage scale for better understanding of the performance status;
- to identify how health facilities performed at the input level under different building blocks of the health systems and at the output level using separate measurement tools (i.e. online measurement, on-site monitoring, physical assessment and patient satisfaction survey);
- to compare the results of the shortlisted and non-shortlisted facilities for HSS 2017 according to the online measurement and on-site monitoring tools, and compare the performance of these facilities across different regions of the country;
- to analyse the variation between online reported data and documented data in health facilities;
- to recommend areas for improvement of the HSS initiative and enhancement of the performance of health facilities.

CHAPTER 2

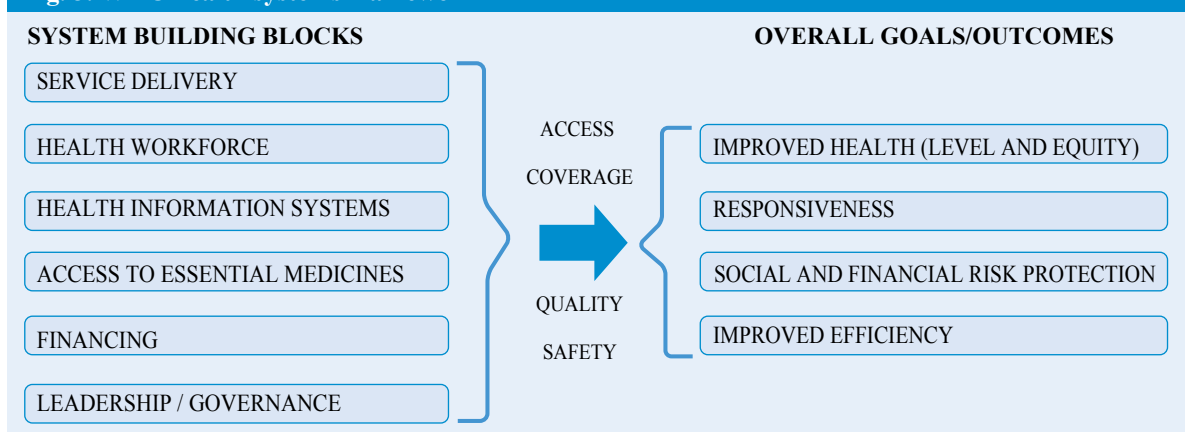
ANALYTICAL FRAMEWORK

Framework of health systems strengthening

WHO describes health systems in terms of six core components (Fig. 3) or “building blocks”: (i) service delivery; (ii) health workforce; (iii) health information systems; (iv) access to essential medicines; (v) financing; and (vi) leadership/governance. Bangladesh’s health system comprises both the public and private sectors for preventive, promotive, curative and rehabilitative care in the different tiers of health facilities.

To measure the outputs and outcomes generated and contributed to by health facilities and to structure these along a results chain, we adopted the WHO health systems framework as part of the conceptual underpinnings of the HSS initiative.

Fig. 3. WHO health systems framework



These six building blocks at input level interact in integrated ways to deliver health services. *Finance* and *health workforce* are the strategic input components to the health system. *Leadership/governance* and *health information* are cross-cutting components that provide the foundation for the overall policy and regulation of all the other health system building blocks.²

Routinely collected data on various interventions from all health facilities in the public sector, from community clinics, UHCs, DHs, MCHs and SpHs are centralized in the national health information system of the MIS, DGHS. Prior to the HSS initiative, no framework had been developed in the MIS to analyse data for decision-making, including the performance of health facilities. The WHO analytical framework of six building blocks was adopted to aid conceptualization of the dimensions that would be measured.

Stakeholders involved in this initiative agreed to customize key indicators to measure health systems performance, in terms of “inputs”, “processes” and “outputs” (Table 1). It is widely known that there are many potential advantages of a harmonized approach to health systems monitoring and evaluation, including reduced transaction costs, increased efficiency and diminished pressure on countries.³ In the MIS, indicators at the input and output levels are not harmonized according to the building blocks.

A consensus was also reached among stakeholders to analyse the data only if a minimum of 80% of the

² Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies. Geneva, Switzerland: WHO; 2010 (https://www.who.int/healthinfo/systems/WHO_MBHSS_2010_full_web.pdf, accessed 7 December 2018).

³ WHO, World Bank, GAVI, Global Fund. Monitoring and evaluation of health systems strengthening: an operational framework. Geneva, Switzerland: WHO; 2009 (https://www.who.int/healthinfo/HSS_MandE_framework_Nov_2009.pdf, accessed 7 December 2018).

data fields were filled up and submitted on time. The initiative focused on health service delivery, health workforce, health information system (HIS), access to essential medicines/equipment and logistics/utilities/infrastructure, and leadership/governance, as per the WHO building blocks. Indicators at the input level were selected in line with the building blocks for analytical purposes, and data from the following databases were used: District Health Information Software 2 (DHIS2), human resource management (HRM), biometric attendance and SMS complaint/suggestion systems. For the output level, indicators corresponding to the following dimensions were selected: access, quality, coverage and safety (Table 1).

Table 1. HSS input- and output-level indicators	
Building blocks	Available input-level indicators
Health service delivery	Availability of major and minor surgeries, breastfeeding status and mobile phone services
Health workforce	Presence of staff, biometric attendance system and completeness of HRM data
Health information system	Timely submission of online reporting forms, completeness of data and diagnosis with International Classification of Disease (ICD)-10/ ICD-Oncology (O) codes
Access to essential medicines/ equipment, logistics/utilities/ infrastructure	Functionality of medical, information and communication technology (ICT) equipment, including ambulance
Leadership/governance	Status of monthly hospital committee meetings and decisions
Output level	Available indicators
Access	Bed occupancy status, outpatient visits
Quality	Antenatal care (ANC) visits, maternal mortality ratio, number of referrals for integrated management of childhood illness (IMCI) and number of complaints/suggestions through SMS services
Coverage	Caesarean sections and percentage of major and minor surgeries
Safety	Number of safe blood transfusions

More details about this table are available in Annex A.

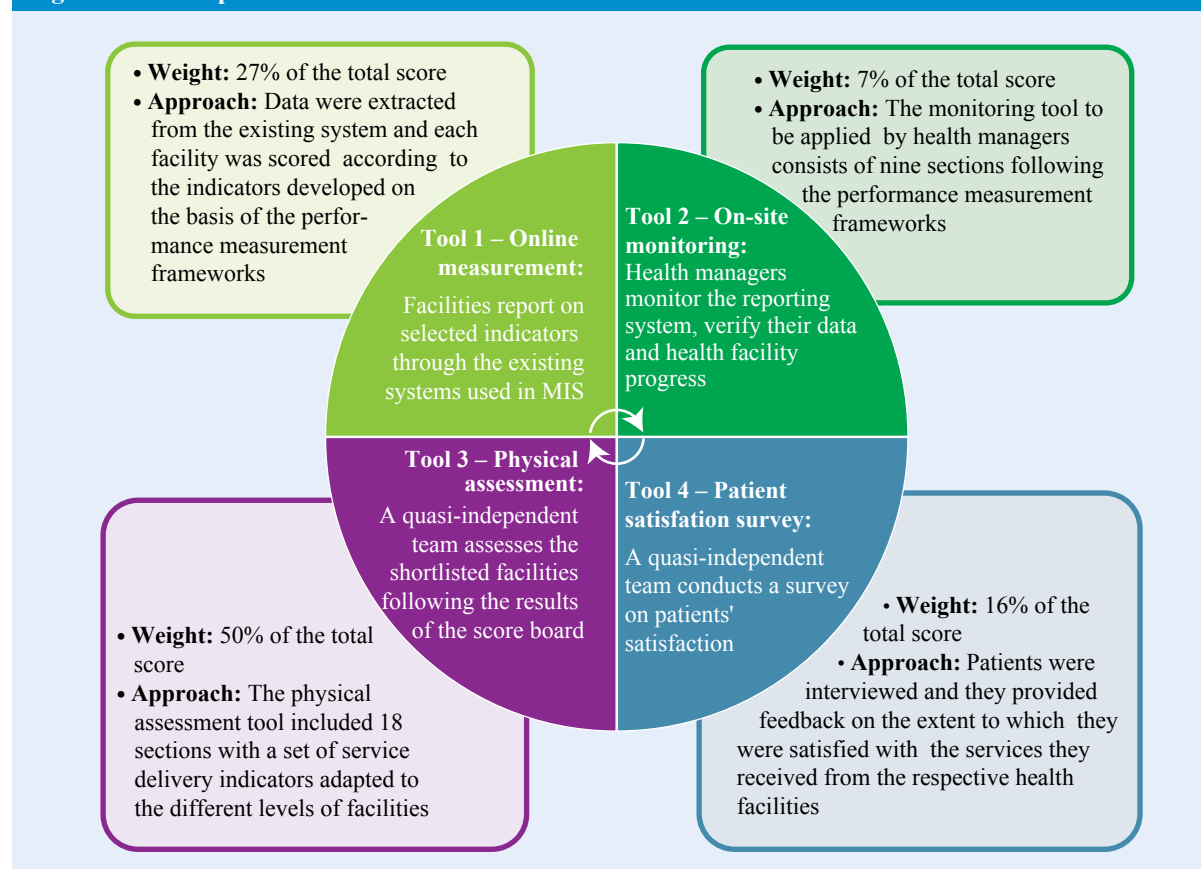
CHAPTER 3

METHODOLOGY

HSS: performance measurement tools and weightage of measurement scores⁴

Five hundred and ten health facilities were evaluated. These comprised 420 UHCs, 65 DHs, 14 MCHs and 11 SpHs. Four different tools were used to collect and categorize the required data for the HSS initiative (Fig. 4). These are as follows:

Fig. 4. Tools for performance measurement



i) Online measurement tool: this tool consists of indicators under five of the six building blocks at the input level and indicators at the output level (Table 1). Only five of the six building blocks are covered as health financing information is not currently collected through the existing databases of the DGHS. The total number of indicators varies according to the different tiers of health facilities: UHCs – 32, DHs – 35, MCHs – 37 and SpHs – 28 (Annex A). It carries 27% of the total aggregated score. Marks were agreed upon by health managers in a consultative workshop.

ii) On-site monitoring tool: this tool has two parts – **quantitative**, which includes input and output level indicators, and **qualitative**. Input and output indicators follow the six building blocks and contain a total of nine sections (service delivery, health workforce, HIS, finance, access to essential medicines and logistics, leadership/governance, access, quality and safety) covering a total of 45 indicators. In addition, the qualitative section of this tool was added for health facility managers to document strengths, main challenges and recommendations for each health facility.

⁴ Real time health information dashboard. In: Directorate General of Health Services [website] (http://dashboard.dghs.gov.bd/webportal/pages/hss_menu.php, accessed 7 December 2018).

The on-site monitoring tool is used monthly by senior health managers to review and report on the performance of health facilities and community health services under their jurisdiction. It carries 7% weightage of the total score. Marks were agreed upon by health managers in a consultative workshop.

iii) Physical assessment tool: this tool consists of 18 sections with a set of indicators adapted to different levels of health facilities, including (1) facility premises, (2) information desk, registration and waiting area, (3) outpatient department, (4) emergency department, (5) inpatient department, (6) laboratory facilities, (7) blood transfusion facilities (not applicable to UHCs), (8) radiology, (9) electrocardiogram (ECG) and ultrasonogram (USG), (10) operation theatre and postoperative area, (11) labour and delivery room, (12) kitchen, (13) storage room, (14) pharmacy, (15) logistics status, (16) HIS, (17) waste disposal system, and (18) leadership and governance. Physical assessment was applicable to those facilities that were shortlisted based on 60% marks of an aggregated score of the online measurement and on-site monitoring tools. It carries 50% weightage of the total score. Marks were agreed upon by health managers in a consultative workshop. Physical assessment was conducted by a quasi-independent assessment team composed of government officials, persons from development partners and international nongovernment organizations (iNGOs).

iv) Patient satisfaction survey tool: this tool is also applicable to shortlisted health facilities. An interviewer administered structured questionnaires to record feedback on the extent to which patients are satisfied with the services they received from the respective health facilities. Two sets of patient satisfaction questionnaires were developed – one for patients visiting the outpatient department and another one for patients in the inpatient department. The patient satisfaction tool carries 16% weightage of the total score. Marks were agreed upon by health managers in a consultative workshop. The patient satisfaction survey was carried out along with the physical assessment conducted by the same quasi-independent assessment team.

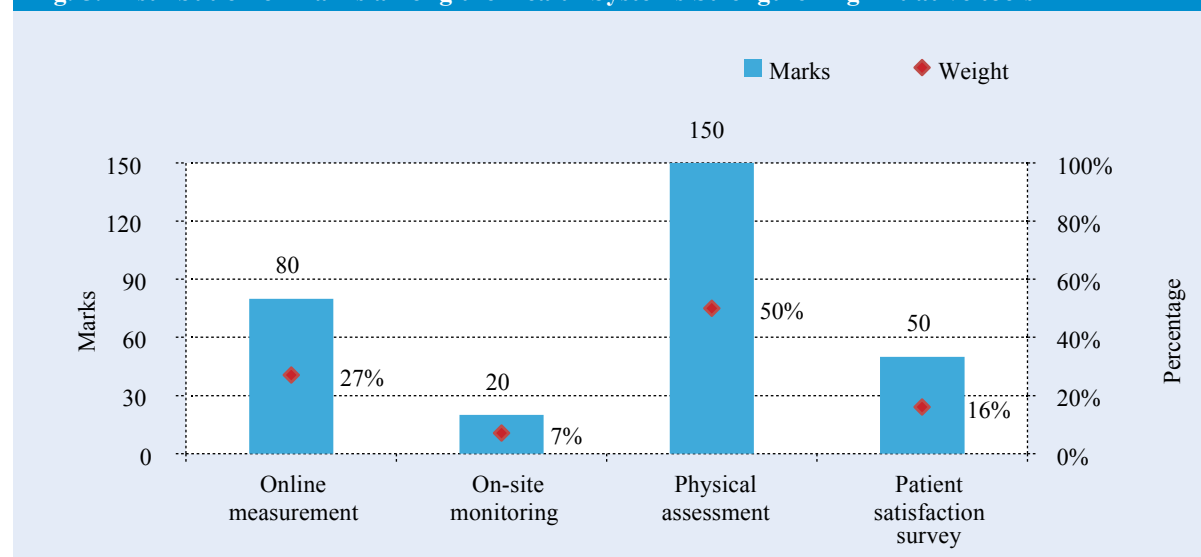
HSS: distribution of marks and performance level

To measure the performance of health facilities, a total of 300 marks were distributed to the four tools: online measurement (80), on-site monitoring (20), physical assessment (150) and patient satisfaction survey (50).

The distribution (Fig. 5) of marks was agreed upon by key experts of the HSS initiative following a consultative process. The main performance of the HSS initiative depends on the online reported data, for which facility managers are accountable and also responsible for timely reporting. Both activities are required for the smooth management of health services. Eighty marks are allocated to the online measurement tool, which assesses the timeliness and completeness of reporting from health facilities.

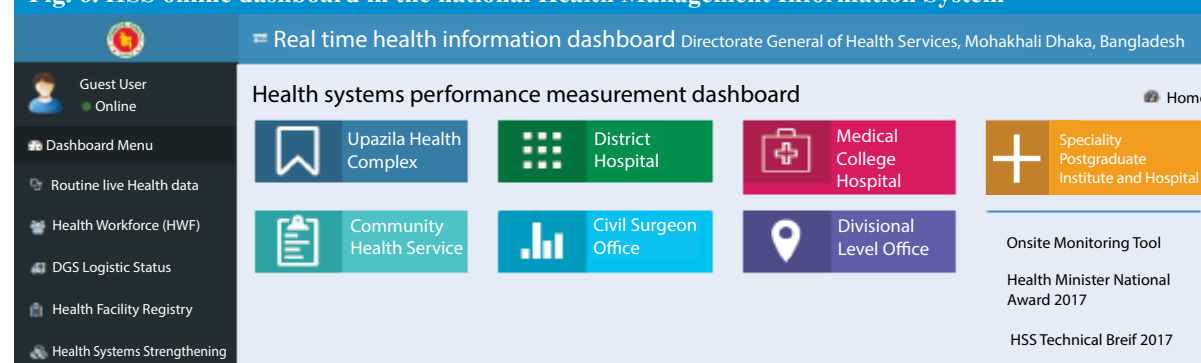
A maximum of 20 out of 300 marks are given for on-site monitoring. On-site monitoring is conducted by the respective health managers responsible for the area, unlike the physical assessment tool, which is used by a team of assessors. Therefore, physical assessment is weighted more, with 150 marks. Through the physical assessment tool, the information provided by facilities online is verified for accuracy. Under these considerations, weightages are fairly distributed according to the importance described. Physical assessment is weighted highest followed by online measurement, patient satisfaction survey and finally the on-site monitoring tool.

The quantitative analysis focuses on the health facility performance status of each division and the four different tiers of health facilities.

Fig. 5. Distribution of marks among the Health Systems Strengthening initiative tools

HSS dashboard

The HSS dashboard is an online platform on the DGHS website developed with technical support from WHO, UNICEF, icddr, b and HiSP. Real-time data from the online measurement and on-site monitoring tools are fed into the HSS dashboard. This dashboard automatically generates scores for indicators that measure the performance of health facilities by pulling routine data inputted into the DHIS2, HRM, biometric attendance system and SMS complaint/suggestion system, and the results of on-site monitoring (Fig. 6).

Fig. 6. HSS online dashboard in the national Health Management Information System

The dashboard provides monthly and yearly performance results of health facilities and health managers.

Mechanism for shortlisting health facilities

Health facilities that attained 60% of the aggregated score from the online measurement and the on-site monitoring tools were shortlisted for physical assessment and a patient satisfaction survey.

Since there was no standard or benchmark set or followed during the process applied for shortlisting, series of consultations were held among health managers from MIS and DGHS instead to reach a consensus. The proposed benchmark of 60% was an arbitrary benchmark agreed upon in consultations in order to complete the assessment within a short period of time by selected number of assessors with the allocated financial resources for the assessment.

All online data were considered for the period September 2016 to August 2017, and on-site monitoring visits were conducted from May to August 2017.

A quasi-independent team conducted patient satisfaction interviews. In total, 412 patients from 68 facilities were surveyed, of whom 262 were in inpatient and 150 in the outpatient departments. On average, six patients were selected from each facility. Since only one SpH was part of the physical assessment, the analysis focused on the other three types of health facilities. Qualitative analysis was conducted to identify patient satisfaction with patient–doctor interaction (whether the doctor listened to the problem of the patient attentively, whether the doctor provided detailed advice or explained about the treatment and prescribed medicines to the patient, and whether the patient understood the advice given by the doctor easily), medicine supply, cleanliness, behaviour of the service provider, cost, time spent at the different tiers of health facilities both in the inpatient and outpatient departments.

In this analysis we followed the steps given below:

1. combined the score of the four tools of performance measurement (online measurement, on-site monitoring, physical assessment and patient satisfaction survey);
2. prepared a master database from information collected through online measurement and onsite monitoring tools from all 510 health facilities and information collected through physical assessment and patient satisfaction assessment by assessors for 68 shortlisted facilities;
3. developed a standardized scale, ranging from 0% to 100% and classified the level of performance of health facilities as good ($\geq 75\%$), moderately good (50% to $<75\%$), moderately poor (25% to $<50\%$) and poor ($<25\%$);
4. performed an analysis at the input and output levels of the online measurement and at each section of the physical assessment tool. In addition, the physical assessment data were analyzed by two groups: individual and combined sections. The combined section included labelling, cleanliness, and water, sanitation and hygiene (WASH) and infection and prevention control (IPC);
5. compared the performance of shortlisted and non-shortlisted health facilities based on the aggregated standardized scores of the online measurement and on-site monitoring tools;
6. performed categorical data analysis and calculated the percentage of patients satisfied with different categories of health services from each tier of health facility and described the status of responses according to selected areas of interest;
7. checked the variation in data between online measurement and physical assessment where data were compared for accuracy between what was reported and what was written in offline documents. Assessment included the *logistics* section (relating to the number of equipment and their functional status) and *health information* section (relating to the number of live births, maternal deaths, under-five child deaths, normal deliveries and caesarean sections);
 - for *logistics*, a total of 12 logistic items were considered; ECG, X-ray, ambulance, desktop computer, laptop, ventilator, defibrillator, CT scan, MRI, ultrasonogram, endoscope and suction machine. Among the 12 items, only six items (ECG, X-ray, ambulance, desktop computer, laptop and suction machine) were applicable to UHCs, seven items (ECG machine, X-ray machine, ambulance, desktop computer, laptop, suction machine and USG machine) to DHs, all 12 items to MCHs and one (ECG) to SpHs;
 - in case of *health service information*, five types of information (live birth, maternal death, under-5 child death, normal delivery and caesarean section) were applicable to all types of health facilities except specialized hospitals. All inputs from the physical assessment of shortlisted health facilities were entered in a data matrix on an Excel sheet. Online reports

were extracted for each tier of shortlisted health facility (entered into an Excel sheet) from the DHIS2 for the same period as that of the assessment. The two Excel sheets were compared, and exact matches were noted. We used a percentage scale against each tier of health facility to illustrate the status of matching.

Due to variance in the level of significance of each tool, the total marks allocated to each tool are not equal, as explained earlier. Moreover, at *input* level, the total number of indicators for each section of the four tiers of health facilities is not equal. Since there is a variation in the allocated marks and number of indicators, a standardized aggregated score was adopted with a range from 0% to 100% and the level of performance was classified according to higher and lower levels of significance for easier understanding.

When the standardized aggregated score is equal to or greater than 75%, the level of performance is considered “good”; a score of 50% to less than 75% is considered “moderately good”; 25% to less than 50% is considered “moderately poor”; and anything below 25% is “poor”. Using the standardized aggregated score, a more comprehensive illustration is possible for classification of performance and can also be used for performance analysis of different sections under the building blocks where individual marks were widely varied among the sections of the building blocks.

Findings are presented in the following order:

- the tier of health facility on the basis of the aggregated standardized scores of the four tools for all health facilities (shortlisted and non-shortlisted);
- level of performance of health facilities on the basis of the score of the four tools (online measurement, on-site monitoring, physical assessment and patient satisfaction) for the shortlisted facilities (*note*: all four tools were applied only to health facilities that were shortlisted);
- comparison of the level of performance between shortlisted and non-shortlisted health facilities according to two tools – online and on-site monitoring (*note*: the online and on-site monitoring tools were applied to all facilities);
- comparison of the overall performance of shortlisted and non-shortlisted facilities in divisions;
- the findings of the patient satisfaction survey, described as the percentage of patients satisfied in various areas, i.e. medicine supplies, cost of treatment, behaviour of health-care provider, waiting time to see the doctor for consultation and the average time spent by the doctor on the consultation;
- the overall performance of on-site monitoring is also described according to the frequency of visits to health facilities in the stipulated time by health managers;
- finally, the extent of variation between online and physical assessment in various sections of health facilities.

CHAPTER 4

FINDINGS

The findings of the 2017 HSS initiative are described here and arranged according to the different tiers of health facilities, i.e. UHCs, DHs, MCHs and SpHs.

Overall performance of all health facilities

Table 2 displays the number of health facilities and their level of performance according to the aggregated standardized score using four measurement tools.

Table 2. Overall performance of all health facilities (N = 510)	
Level of performance	Overall, N = 510 (%)
- Good ($\geq 75\%$)	19 (3.73)
- Moderately good (50%–<75%)	269 (52.75)
- Moderately poor (25%–<50%)	205 (40.20)
- Poor (<25%)	17 (3.33)

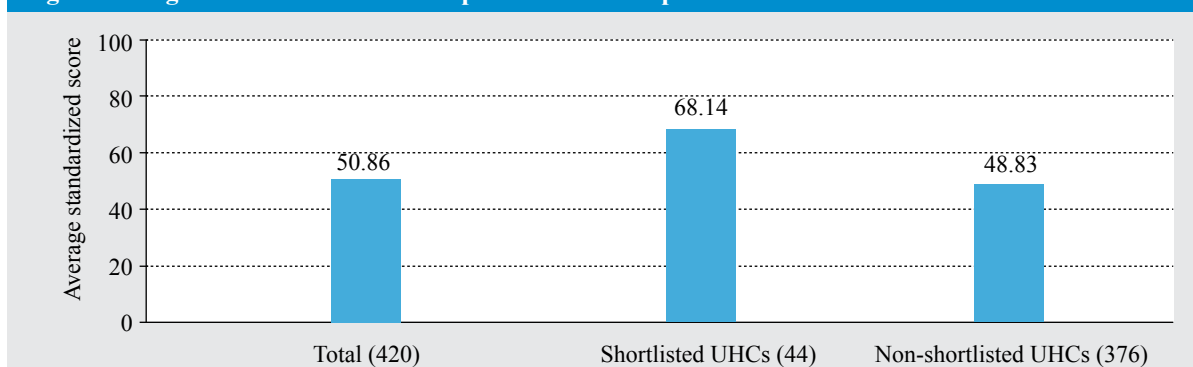
Overall performance of UHCs

Table 3 displays the level of performance of the 420 UHCs.

Table 3. Level of performance of upazila health complexes (N _i = 420)	
Level of performance	UHC, N _i = 420 (%)
- Good ($\geq 75\%$)	10 (2.38)
- Moderately good (50%–<75%)	215 (51.19)
- Moderately poor (25%–<50%)	186 (44.29)
- Poor (<25%)	9 (2.14)

The average standardized score (68.14) of shortlisted UHCs is higher than the overall average standardized score (50.86) and that of the non-shortlisted UHCs (48.83) Fig. 7.

Fig. 7. Average standardized score of upazila health complexes



Performance of UHCs based on online measurement

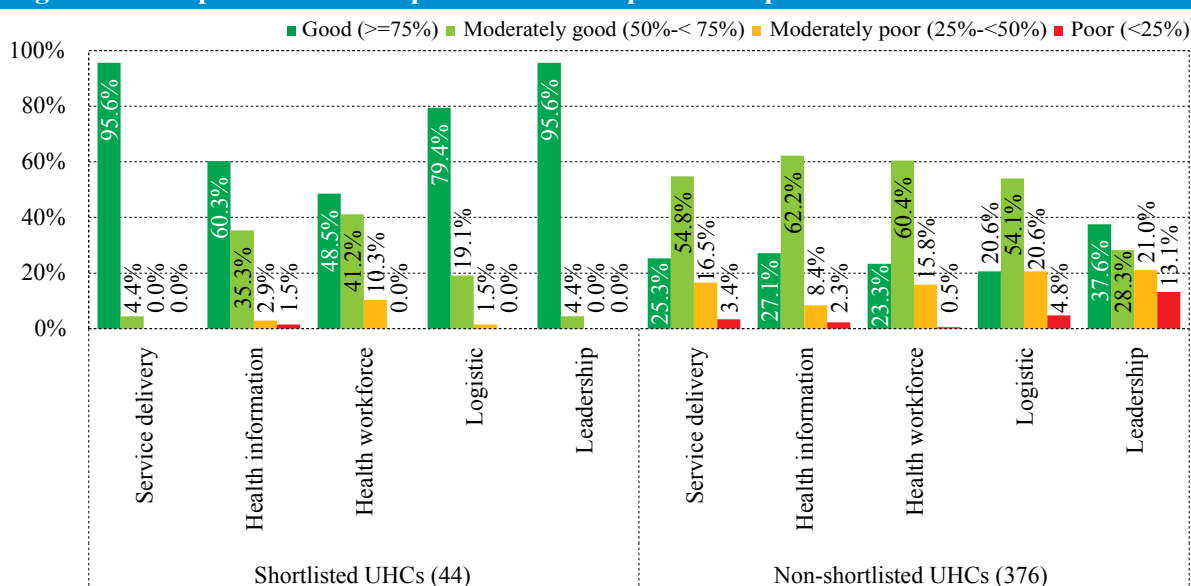
a) At input level

Fig. 8 shows the comparison between the performance of shortlisted and non-shortlisted UHCs under the five building blocks. The performance of shortlisted UHCs was good in *service delivery* (availability

of surgeries, breastfeeding initiation status and mobile phone health services) and *leadership* (status of monthly hospital committee meetings and decisions) compared to *health information* (timely submission of online reporting forms, completeness of data and diagnosis with ICD-10/ICD-O codes), *health workforce* (presence of staff, biometric attendance system and completeness of HRM data) and *logistics* (functionality of medical and ICT equipment, including ambulance). The performance of more than 95% of shortlisted UHCs was good in *service delivery* and *leadership* whereas that of only 79.4%, 60.3% and 48.5% was good in *logistics*, *health information* and *health workforce*, respectively.

It was also observed that there were no shortlisted UHCs that performed at a moderately poor or poor level in *service delivery* and *leadership*. Under *health information*, 2.9% and 1.5% of UHCs performed at moderately poor and poor levels, respectively. Under *health workforce* and *logistics*, 10.3% and 1.5% of UHCs performed at a moderately poor level, respectively.

Fig. 8. Level of performance of upazila health complexes at input level

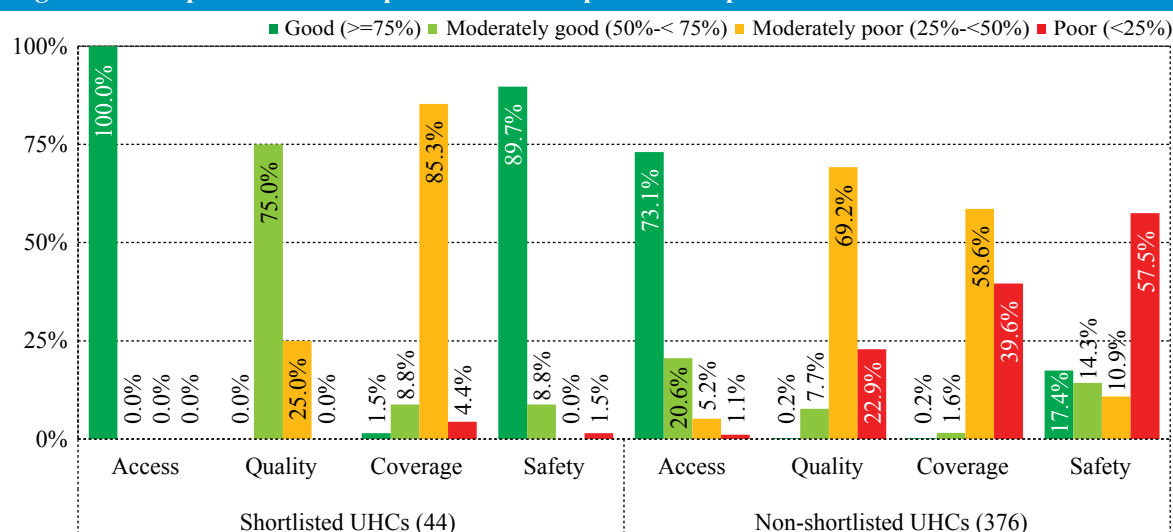


Among 376 non-shortlisted UHCs, the performance of only 25.3%, 27.1%, 23.3%, 20.6% and 37.6% was good in *service delivery*, *health information*, *health workforce*, *logistics* and *leadership*, respectively, and that of 16.5%, 8.4%, 15.8%, 20.6% and 21.0% was moderately poor in those building blocks. In addition, the performance of 3.4%, 2.3%, 0.5%, 4.8% and 13.1% of UHCs was poor in *service delivery*, *health information*, *health workforce*, *logistics* and *leadership*, respectively.

b) At output level

Among the shortlisted UHCs, the performance of more than 80% was good in *access* (bed occupancy status, outpatient visits) and *safety* (number of safe blood transfusions). Interestingly, it was observed that the performance of 100% of UHCs was good only in the area of *access*. The performance of 75% of UHCs was moderately good in *quality* (ANC visits, maternal mortality ratio, number of referrals for IMCI and number of complaints/suggestions through SMS) but that of more than 80% of UHCs was moderately poor in *coverage* (rate of caesarean sections, percentage of major and minor surgeries). The performance of 4.41% and 1.47% of UHCs was poor in the areas of *coverage* and *safety*, respectively (Fig. 9).

Fig. 9. Level of performance of upazila health complexes at output level

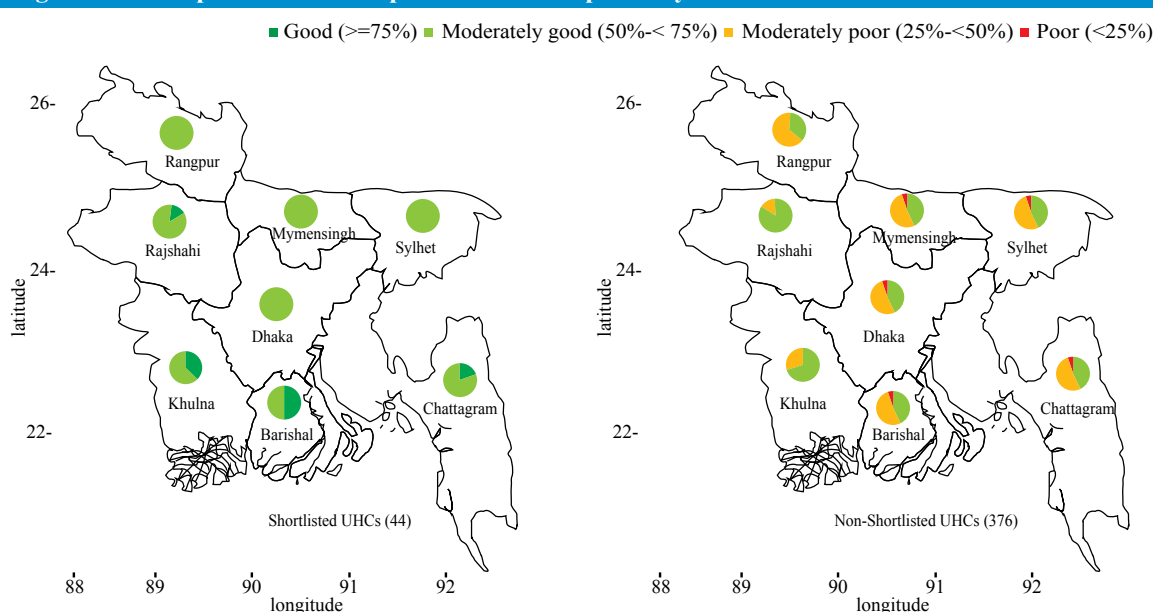


Conversely, among the non-shortlisted UHCs, the performance of 73.1% was good in *access*, while that of 69.2%, 58.6% and 10.9% was moderately poor, and that of 22.9%, 39.6% and 57.5% was poor in the areas of *quality*, *coverage* and *safety*, respectively.

Performance of UHCs by division

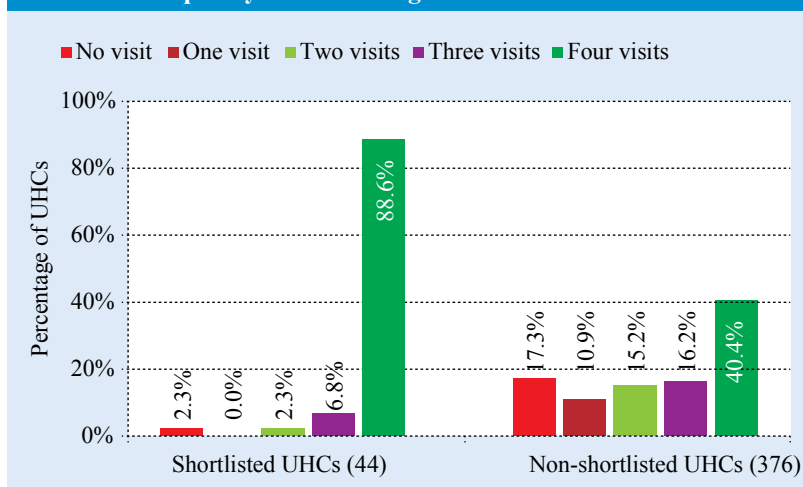
It was observed that the performance of none of the UHCs in Khulna, Rajshahi and Rangpur divisions was poor. Among the shortlisted UHCs, two (50%) UHCs in Barishal, six (38%) UHCs in Khulna, one (20%) UHC in Chattagram and one (20%) UHC in Rajshahi divisions performed at a good level. Eight (100%) UHCs in Dhaka, three (100%) in Rangpur, one each (100%) in Mymensingh and Sylhet divisions performed at a moderately good level. It was also observed that, among the non-shortlisted UHCs, 22 (67%), 29 (63%), 15 (52%), 48 (57%), 39 (58%), 15 (50%), 10 (29%) and eight (15%) UHCs in Sylhet, Rangpur, Dhaka, Chattagram, Mymensingh, Barishal, Khulna and Rajshahi divisions performed at moderately poor levels, respectively (Fig. 10).

Fig. 10. Level of performance of upazila health complexes by division



Performance of UHCs based on on-site monitoring visits

Fig. 11. Percentage of upazila health complexes categorized according to frequency of monitoring visits

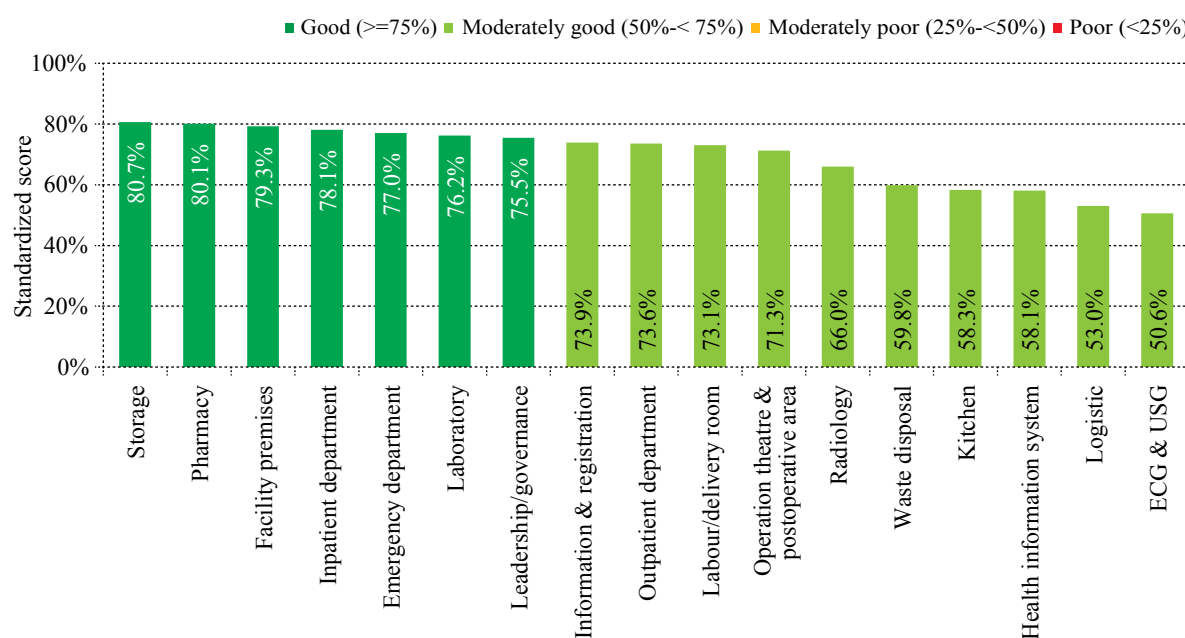


Out of the 420 UHCs, 354 (84.1%) were visited by health managers during May–August 2017, i.e. 66 (15.9%) UHCs did not receive an on-site monitoring visit in the stipulated period of time. It was observed that among the shortlisted UHCs, 88.6% were visited regularly (four visits) and only 2.3% of shortlisted UHCs were not visited. Among the non-shortlisted UHCs, only 40.4% were visited monthly and 17.3% did not receive any on-site monitoring visit (Fig. 11).

Performance of UHCs based on physical assessment

In the physical assessment tool, 17 sections were applicable to UHCs. Seven sections achieved more than 75% of the standardized score and the rest (10 sections) achieved a score of 50%–75% (Fig. 12). No section achieved less than 50% among the shortlisted UHCs, which scored the highest in the *storage* section (80.7%).

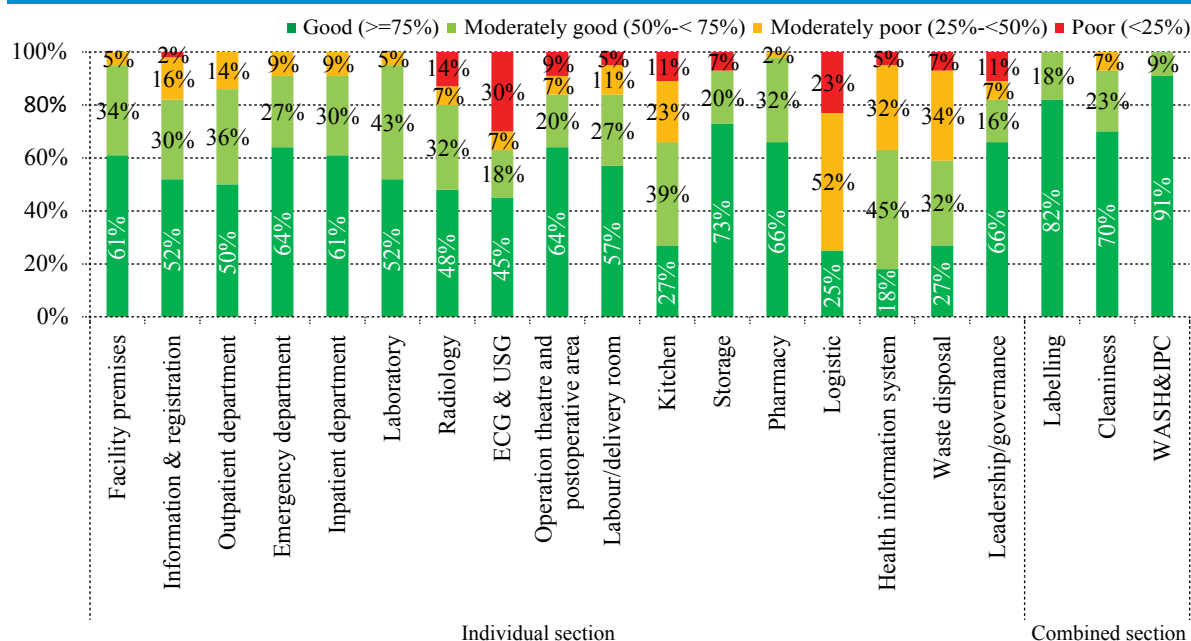
Fig. 12. Upazila health complexes – standardized score by section



As shown in Fig. 13, more than 60% of UHCs performed at a “good” level in the areas of *facility premises*, *emergency department*, *inpatient department*, *operation theatre and postoperative area*, *storage*, *pharmacy* and *leadership/governance* for the individual sections. However, 30%, 23%, 14% and 11% performed at a poor level in *ECG and USG*, *logistics*, *radiology* and the *kitchen* sections,

respectively. In the combined section, more than 70% performed at a good level in *labelling*, *cleanliness*, and *WASH and IPC* sections but 7% performed moderately poorly in the *cleanliness* section.

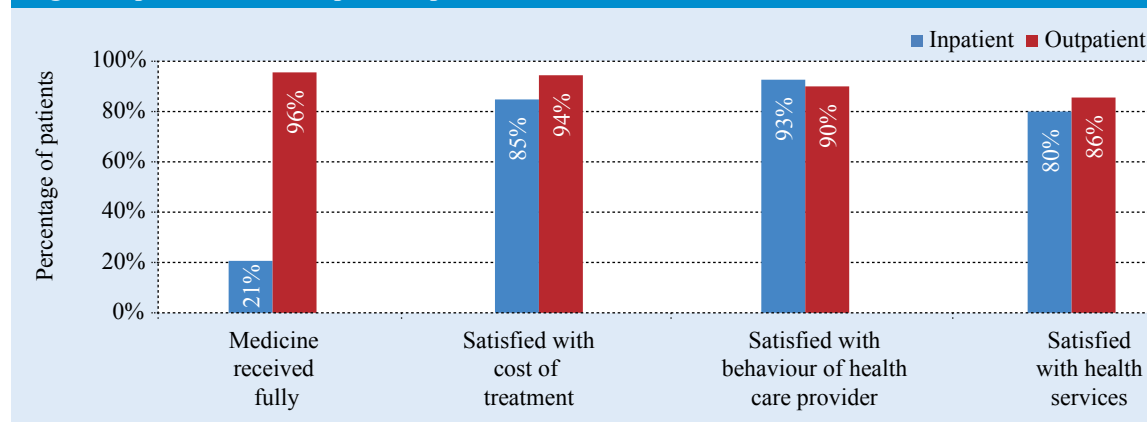
Fig. 13. Level of performance of upazila health complexes in individual and combined sections



Patient satisfaction status in UHCs

Two hundred fifty-five patients were interviewed in 44 UHCs. One hundred sixty-five patients were chosen from the inpatient department and 90 patients from the outpatient department. Only 21% of the interviewed inpatients stated that they received the full medicines according to what was prescribed. Eighty-five per cent of patients were satisfied with their treatment costs and 93% were satisfied with the behaviour of the health-care provider. Notably, 80% were satisfied with the health services received from the UHC. Patients waited an average of 21 minutes in the outpatient department before receiving consultation with a doctor while a doctor spent 8.9 minutes on average for consultation with each patient. It was also observed that 4% of patients visiting the outpatient department did not receive all medications as prescribed, and 94% responded that they were satisfied with the cost of their treatment. Ninety per cent of patients were satisfied with the health-care provider's behaviour and 86% stated that they were satisfied with the treatment they received in the outpatient department (Fig. 14).

Fig. 14. Upazila health complexes – patient satisfaction status



Data variation status in UHCs

To assess for accuracy, data were verified between the online report and documented data in facilities for two datasets—*logistics* and *service information*. Under *logistics*, information was verified at

Fig. 15. Data variation in upazila health complexes (logistics)

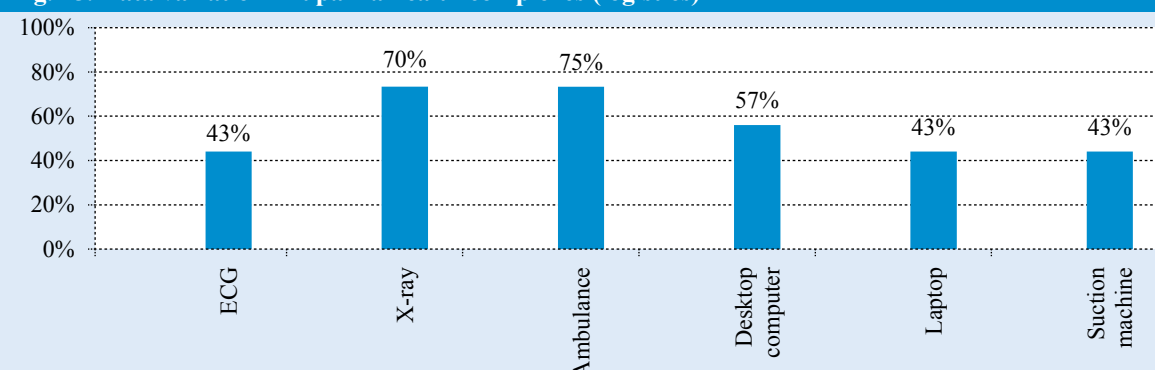
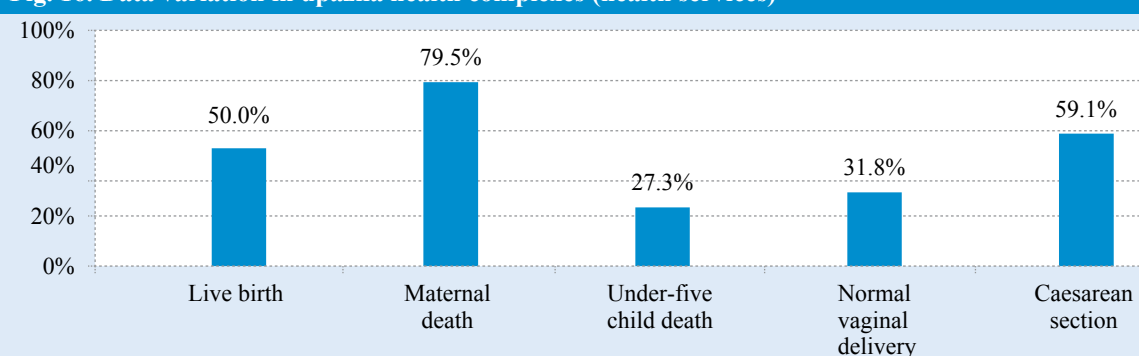


Fig. 16. Data variation in upazila health complexes (health services)



UHCs for six items – ECG, X-ray, ambulance, desktop computer, laptop and suction machine. Fig. 15 and Fig. 16 show the accuracy of what was reported versus what was observed during the site visits. Under *logistics*, it seems that ambulance services were reported most accurately and under *services* it was maternal deaths.

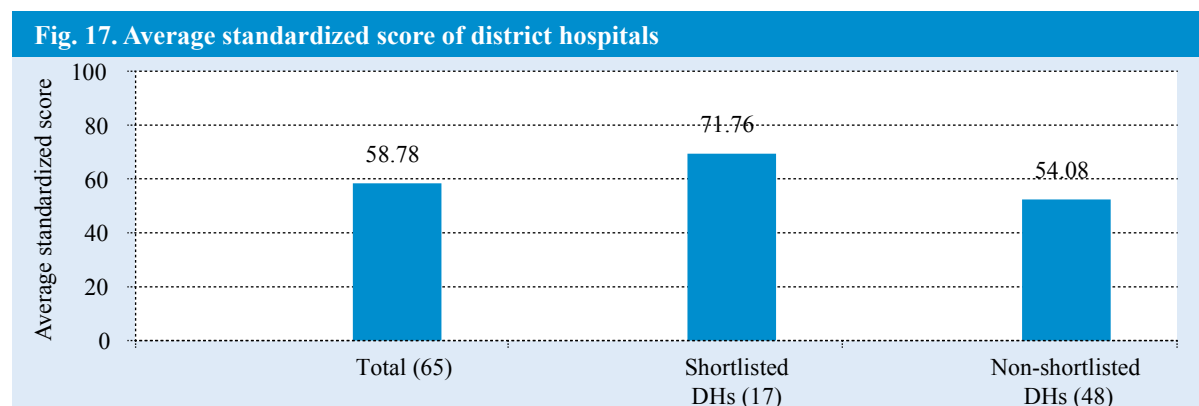
Overall performance of district hospitals (DHs)

Among 65 DHs, based on the aggregated standardized score using four measurement tools, the performance of 41 (63.08%) DHs was moderately good, while that of 12 (18.46%) was moderately poor. Only nine (13.9%) DHs performed at a good level and three (04.62%) performed at a poor level (Table 4).

Table 4. Level of performance of district hospitals (N₂=65)

Level of performance	DH, N ₂ = 65 (%)
- Good ($\geq 75\%$)	9 (13.85)
- Moderately good (50%–<75%)	41 (63.08)
- Moderately poor (25%–<50%)	12 (18.46)
- Poor (<25%)	3 (4.62)

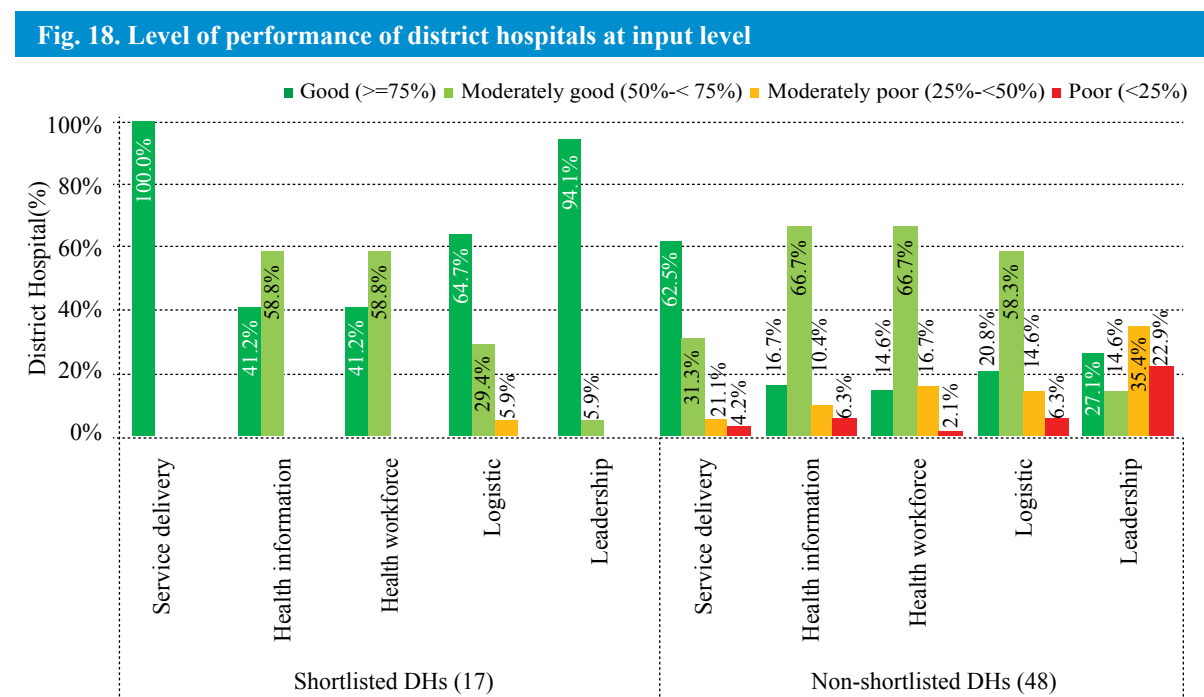
Similar to the results of UHCs, the average standardized score (71.76) of shortlisted DHs is higher than the overall score (58.78) and that of non-shortlisted DHs (54.08) as shown in Fig. 17.



Performance based on online measurement

a) At input level

Among the 17 shortlisted DHs, the performance of 100% and 94.1% of DHs was good in *service delivery* and *leadership*, respectively, while that of 41.2% was good in both *health information* and *health workforce*. In the *logistics* building block, the performance of 67.7% of DHs was good but that of 5.9% of DHs was moderately poor. There was no section where the DHs performed at a poor level.

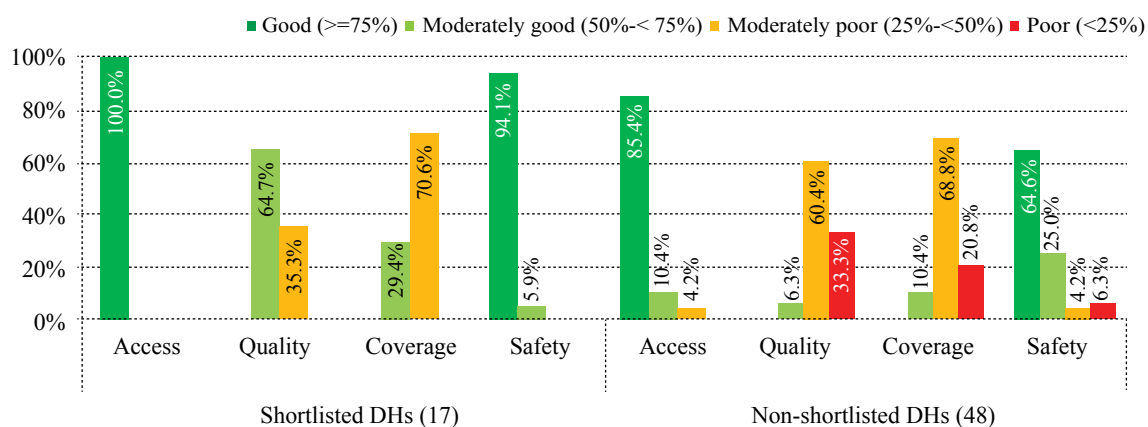


Among the 17 non-shortlisted DHs, the performance of 62.5% was good in *service delivery* whereas that of 30% was good in *health information*, *health workforce*, *logistics* and *leadership*. Performance was poor in 4.2%, 6.3%, 2.1%, 6.3% and 22.9% in the areas of *service delivery*, *health information*, *health workforce*, *logistics* and *leadership*, respectively (Fig. 18).

b) At output level

Among the 17 shortlisted DHs, the performance of 100% was good in *access* and 94.1% in *safety*. None of the DHs performed at a good level in the *quality* and *coverage* outputs, while 35.3% and 70.6% performed at a moderately poor level in these outputs, respectively.

Fig. 19. Level of performance of district hospitals at output level

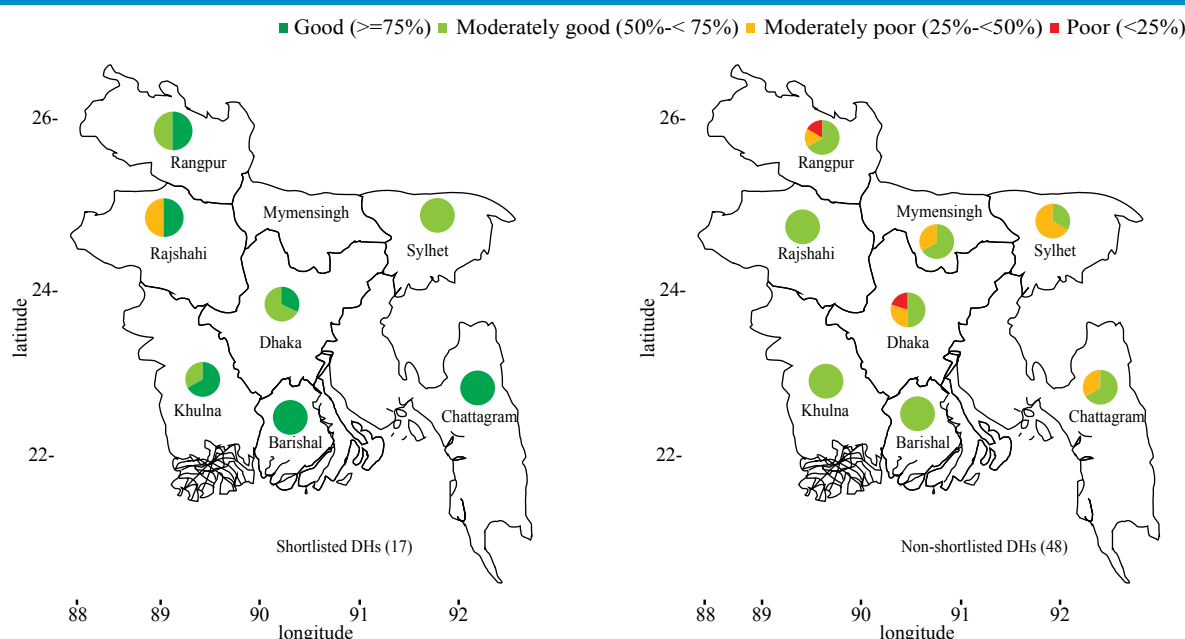


Among the 48 non-shortlisted DHs, the performance of 85.4% and 64.6% was good in the *access* and *safety* outputs, respectively. However, 33.3%, 20.8% and 6.3% performed at a poor level in the *quality*, *coverage* and *safety* outputs, respectively (Fig. 19).

Performance of DHs by division

As shown in Fig. 20, based on the online measurement score among the shortlisted DHs, the performance of more than 80% of DHs was good in Barishal, Chattagram and Khulna divisions and that of more than 80% moderately good in Dhaka and Sylhet divisions. In Rajshahi division, 50% of DHs performed at a moderately poor level. None of the DHs in Mymensingh division was shortlisted. Among the 48 non-shortlisted DHs, the performance of 100% in Barishal, Khulna and Rajshahi divisions was moderately good. In Dhaka division, the performance of 50% was moderately good and that of 20% poor. About 17% in Rangpur division performed at a poor level.

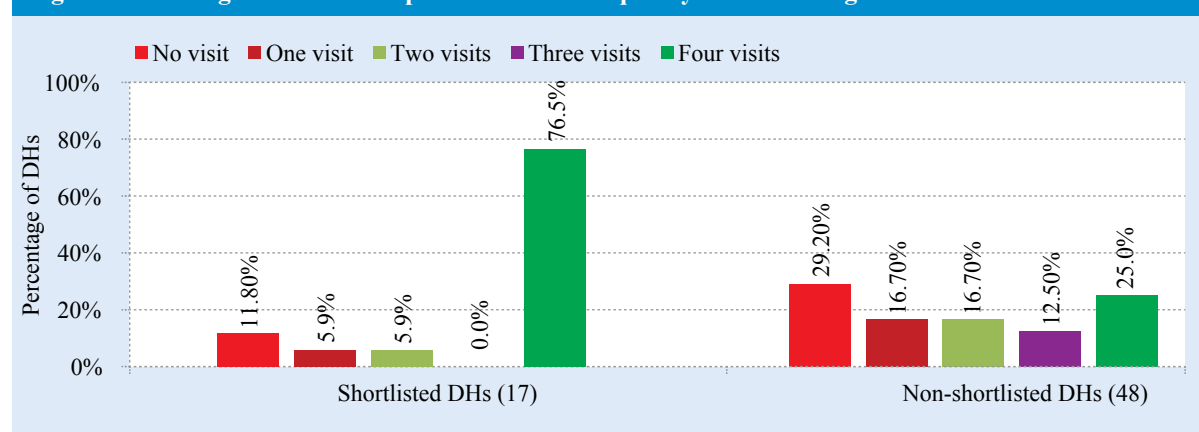
Fig. 20. Level of performance of district hospitals by division



Performance based on on-site monitoring visits

In total, 49 (75.38%) out of the 65 DHs were visited by health managers during May to August 2017; 24.62% did not receive any on-site monitoring visit.

Fig. 21. Percentage of district hospitals based on frequency of monitoring visits

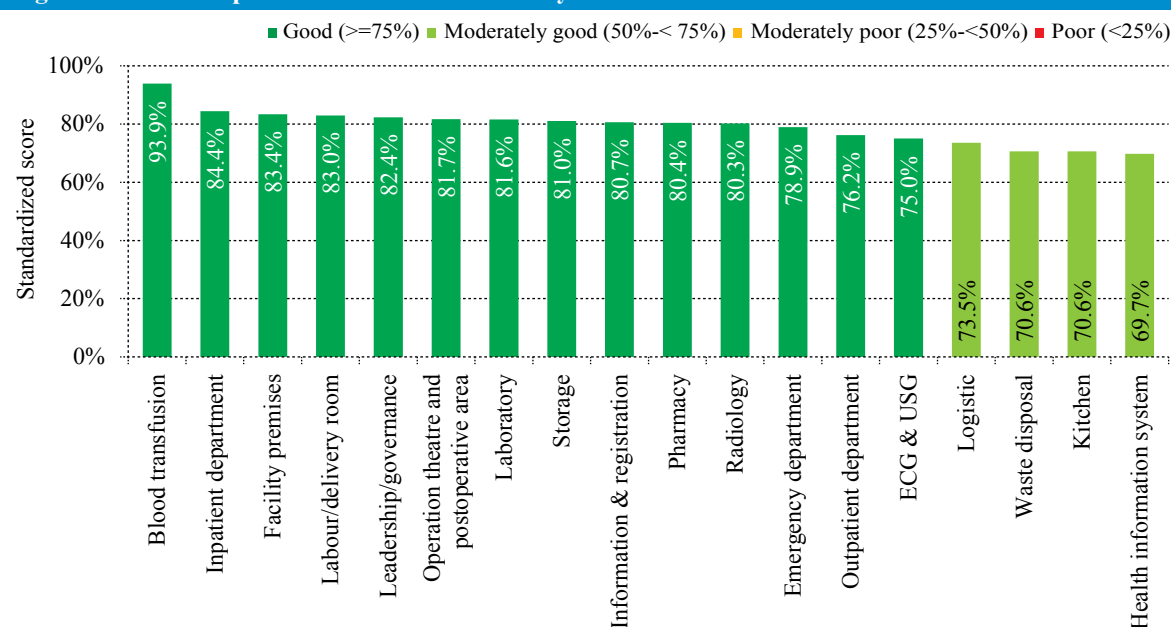


Among the shortlisted DHs, 76.5% were visited regularly (four visits) and 11.8% were not visited, whereas among the non-shortlisted DHs, only 25% were visited regularly and 29.2% were not visited (Fig. 21).

Performance based on physical assessment

In the physical assessment tool, 18 sections were applicable to DHs. Among all 18, 14 sections achieved more than 75% of the standardized score and the remaining four sections achieved 50–75% of the standardized score (Fig. 22).

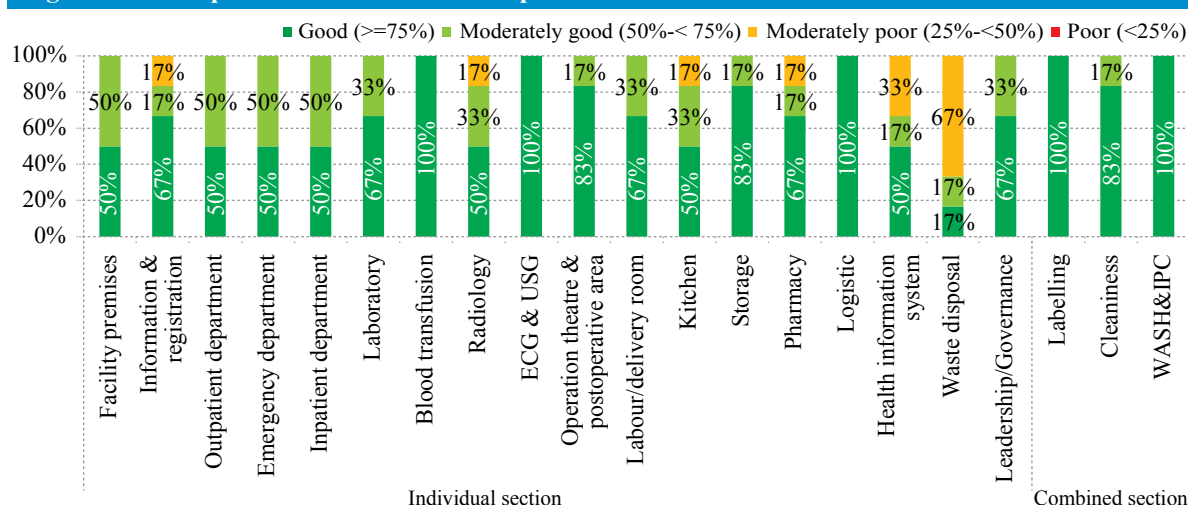
Fig. 22. District hospitals – standardized score by section



According to Fig. 23, the performance of more than 70% of DHs was good in the areas of *facility premises, information and registration, outpatient department, emergency department, inpatient department, blood*

transfusion, radiology, operation theatre and postoperative area, labour and delivery room, storage, pharmacy and leadership. The performance of about 30% was moderately poor in the areas of health information system and logistics, and that of 12% of DHs poor in the storage section. The performance of 6% was poor in the outpatient department, emergency department, radiology, kitchen, logistics and leadership sections. More than 80% performed at a good level in the labelling, cleanliness, WASH and IPC sections but 6% of DHs performed at a moderately poor level in the area of cleanliness.

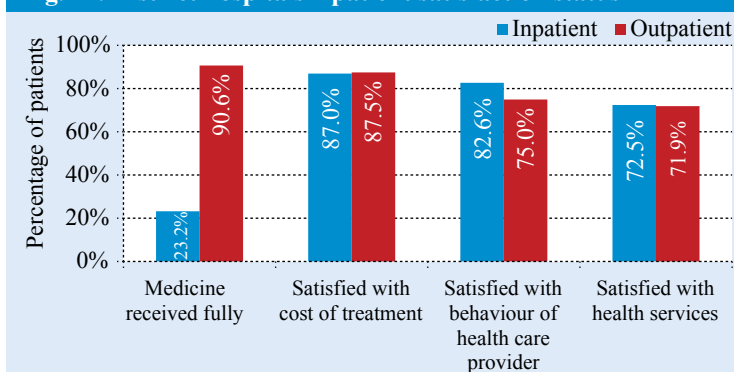
Fig. 23. Level of performance of district hospitals in the individual and combined sections



Performance based on patient satisfaction survey

One hundred one patients were interviewed in the 17 DHs and, among them, 69 patients were chosen from the inpatient department. Of these, 23.2% of inpatients received all medicines as prescribed, 87%

Fig. 24. District hospitals – patient satisfaction status



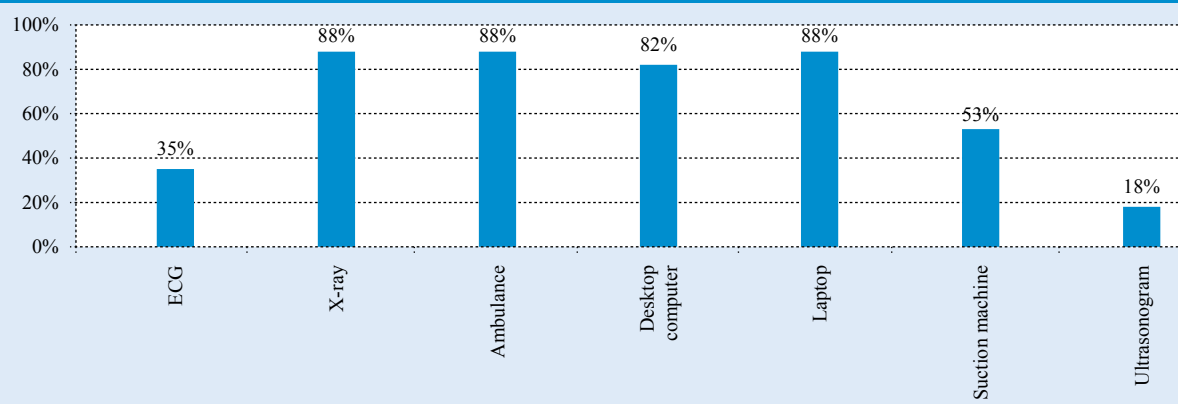
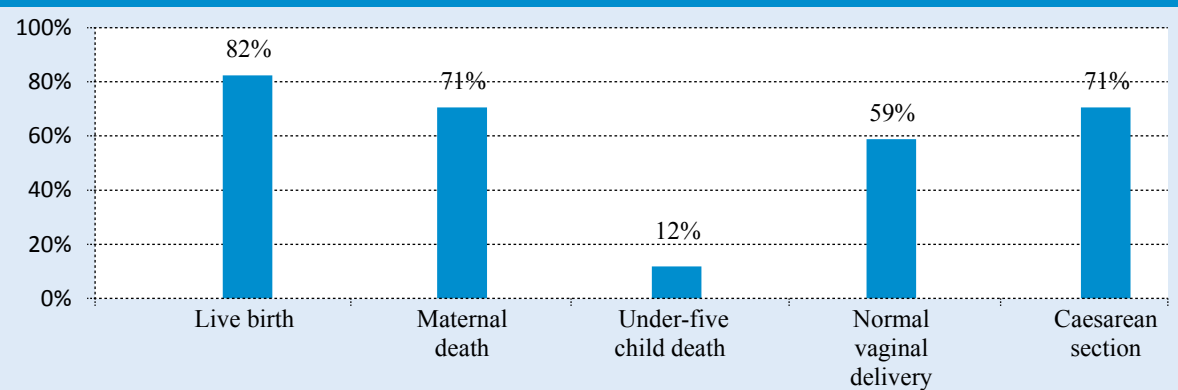
of patients were satisfied with the treatment costs, 82.6% were satisfied with behaviour of the health-care provider and 72.5% stated that they were satisfied with the health services received while admitted.

Thirty-two patients were interviewed from the outpatient departments. Patients waited an average time of 26.4 minutes before consultation with the doctor and doctors spent an average of 7.3

minutes with each patient. It was observed that 90.6% of patients received all the medications as prescribed. Of those interviewed, 87.5% responded that they were satisfied with the cost of treatment, 75% were satisfied with the behaviour of the health-care provider and 71.9% were satisfied with the health services received in DHs (Fig. 24).

Data variation status in DHs

For DHs, consistent and accurate information with the online and on-site tools was the highest in the areas of X-ray, ambulance and laptop (Fig. 25). Additionally, in the case of service information, live births were recorded most accurately in DHs while under-five child deaths showed a relatively poor percentage of accurate reporting (Fig. 26).

Fig. 25. Data variation in district hospitals (logistics)**Fig. 26. Data variation in district hospitals (health services)**

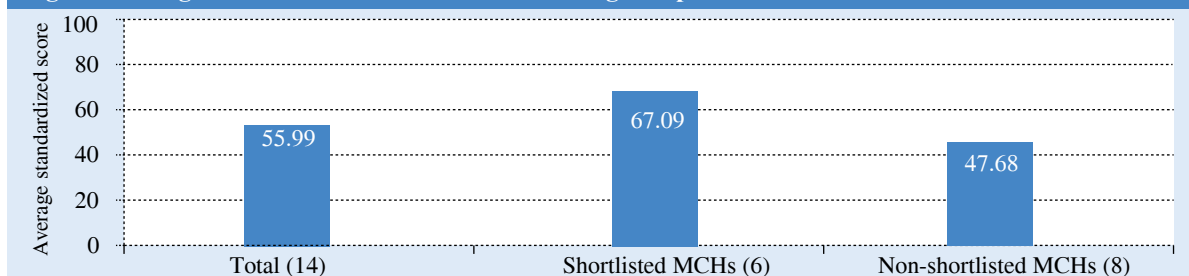
Overall performance of medical college hospitals (MCHs)

Based on the aggregated standardized score using four measurement tools, 10 (71.4%) MCHs performed at a moderately good level but no MCH's performance was good and four (28.57%) MCHs performed at a moderately poor level (Table 5).

Table 5. Level of performance of medical college hospitals (N₃=14)

Level of performance	MCH, N ₃ = 14 (%)
- Good ($\geq 75\%$)	0 (0)
- Moderately good (50%–<75%)	10 (71.43)
- Moderately poor (25%–<50%)	4 (28.57)
- Poor (<25%)	0 (0)

The average score for the shortlisted MCHs was 67.09% and for the non-shortlisted MCHs, it was 47.68% (Fig. 27).

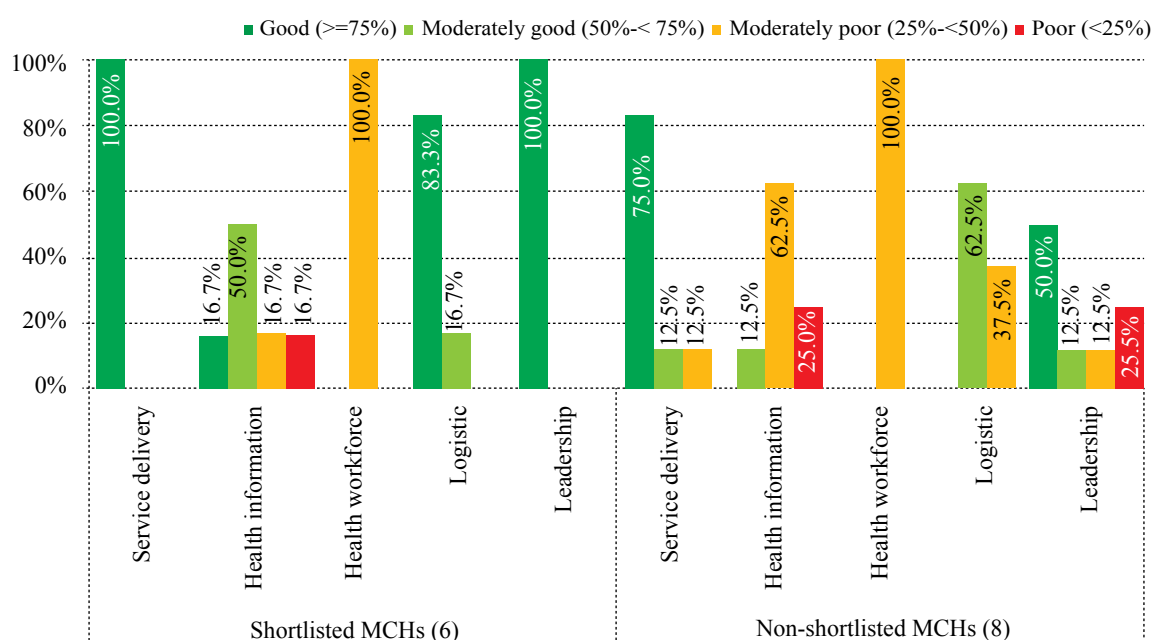
Fig. 27. Average standardized score of medical college hospitals

Performance based on online measurement

a) At input level

According to the online measurement standardized score, among the six shortlisted MCHs, 100% performed at a good level in *service delivery* and *leadership* and 83.3% performed at a good level in *logistics*. All performed at a moderately poor level in the area of *health workforce* and 16.7% performed at moderately poor and poor levels in the area of *health information*.

Fig. 28. Level of performance of medical college hospitals at input level

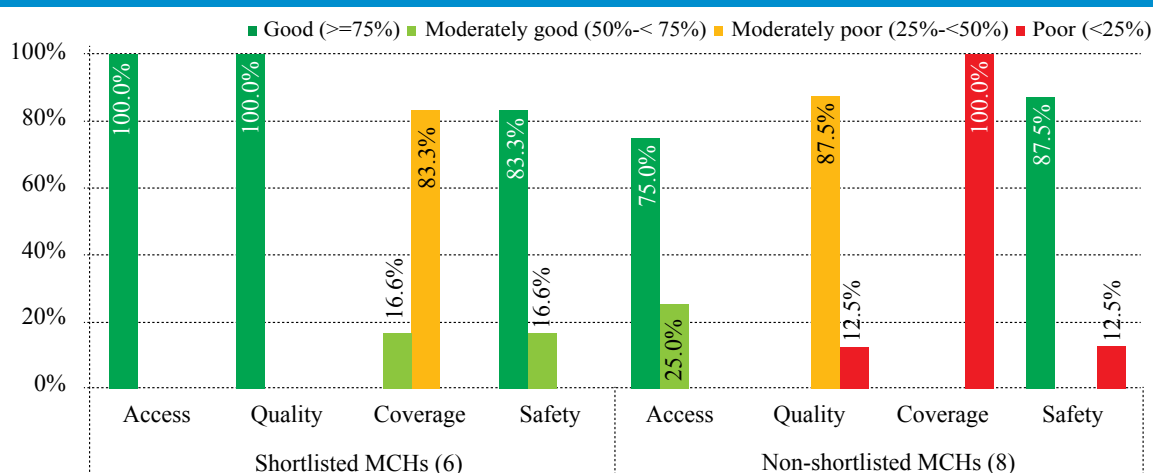


Among the eight non-shortlisted MCHs, 75% performed at a good level in *service delivery* and 50% in *leadership*; 62.5% performed at a moderately good level in *logistics*. However, 100% performed moderately poorly in *health workforce*, and 62.5% in *health information*. In addition, 25% performed poorly in the *health information* and *leadership* areas (Fig. 28).

b) At output level

Fig. 29 shows that, at the output level among the six shortlisted MCHs, 100% performed at a good level in *access* and *quality*, 83.3% at a good level in *safety*, and 83.3% at a moderately poor level in *coverage*.

Fig. 29. Level of performance of medical college hospitals at output level

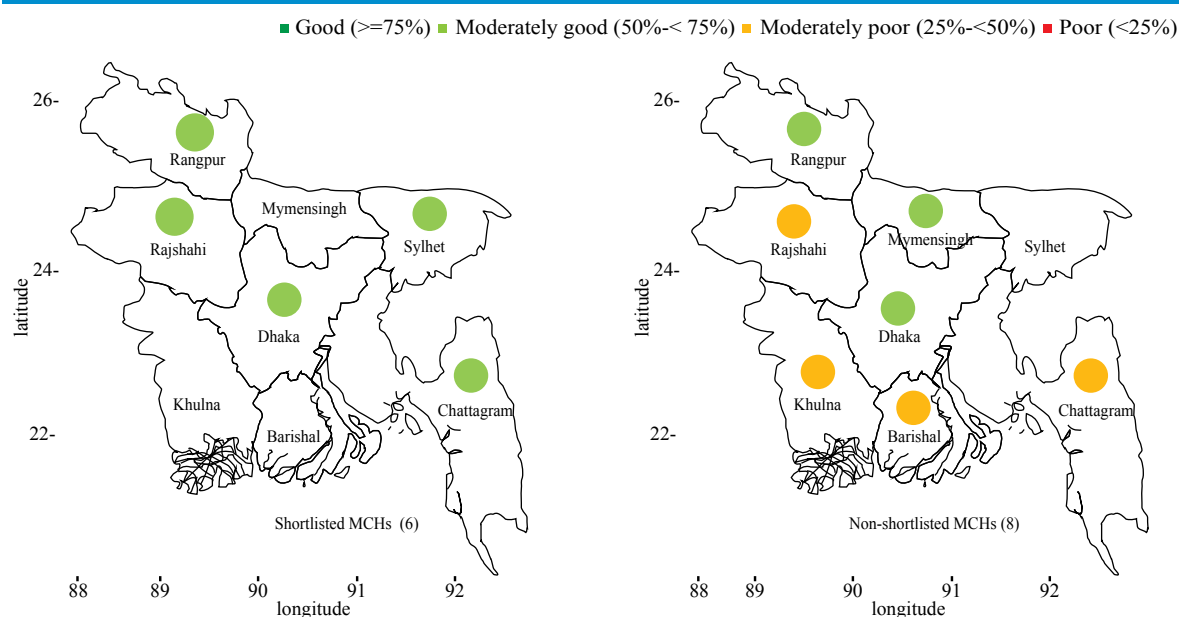


Among the eight non-shortlisted MCHs, 75% performed at a good level in *access* and 87.5% performed at a good level in *safety*. However, 100% performed poorly in *coverage*, 87.5% performed moderately poorly in *quality*, and 12.5% performed poorly both in the *quality* and *safety* outputs.

Performance of MCHs by division

Among the six shortlisted MCHs, 100% performed at a moderately good level in Chattagram, Dhaka, Rajshahi, Rangpur and Sylhet divisions. No MCHs were shortlisted in Barishal, Mymensingh and Khulna divisions.

Fig. 30. Level of performance of medical college hospitals by division



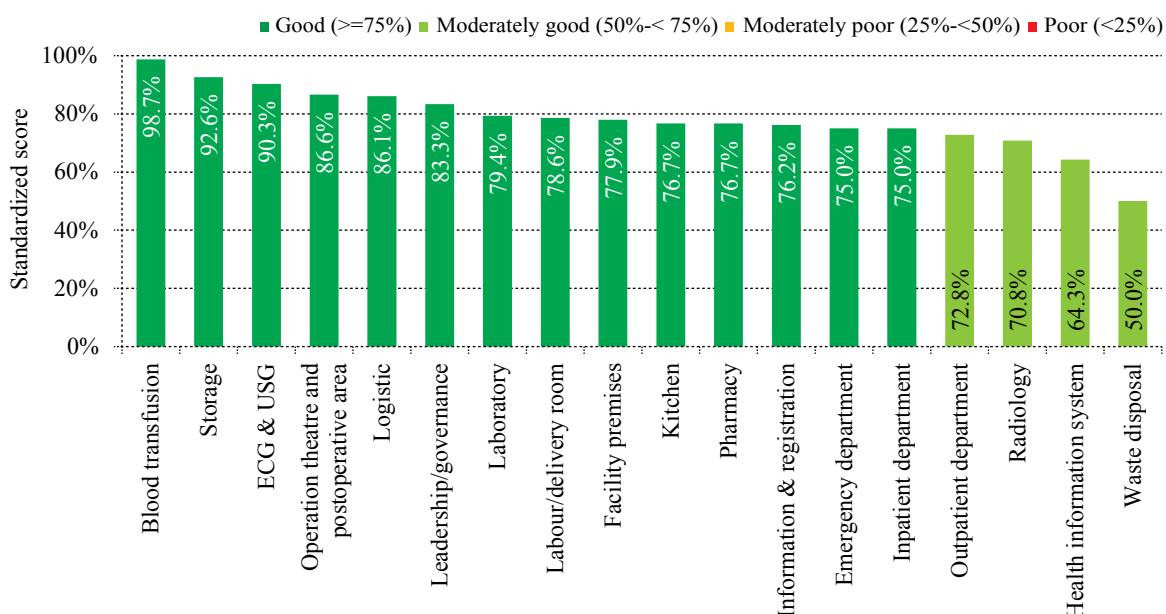
Among the eight non-shortlisted MCHs, 100% performed at a moderately good level in Dhaka, Mymensingh and Rangpur divisions but in Barishal, Chattagram, Khulna and Rajshahi divisions, 100% of MCHs performed moderately poorly (Fig. 30).

Performance based on on-site monitoring visit

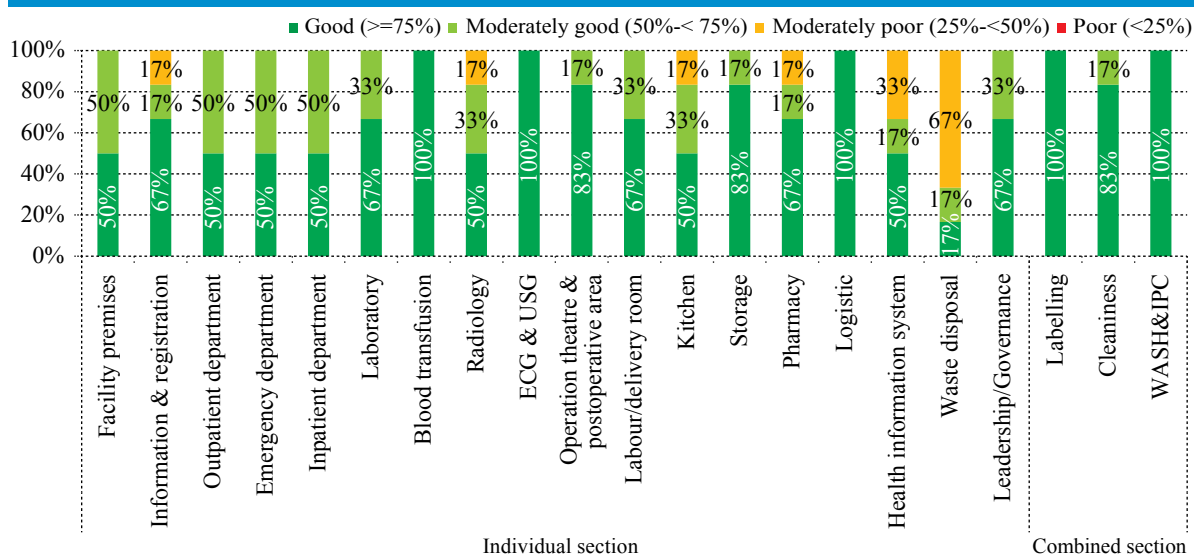
There was no on-site monitoring visit conducted for MCHs during May to August 2017.

Performance based on physical assessment

Eighteen sections were applicable to MCHs. Among the sections, 14 achieved more than 75% of the standardized score and the remaining four sections achieved 50–75% of the standardized score (Fig. 31).

Fig. 31. Medical college hospitals – standardized score by section

As Fig. 32 shows, 100% of MCHs performed at a good level in the sections of *blood transfusion*, *ECG and USG* and *logistics*, and 67% performed at a good level in *information and registration*, *laboratory*, *operation theatre and postoperative area*, *labour/delivery room*, *pharmacy* and *leadership/governance* sections. However, 67% performed at a moderately poor level in the *waste disposal* section and 17% performed at a moderately poor level in the *information and registration*, *radiology* and *kitchen* sections. In the area of *health information system*, 33% performed moderately poorly. In the *combined section*, 100% performed at a good level in the *labelling* and *WASH and IPC* sections.

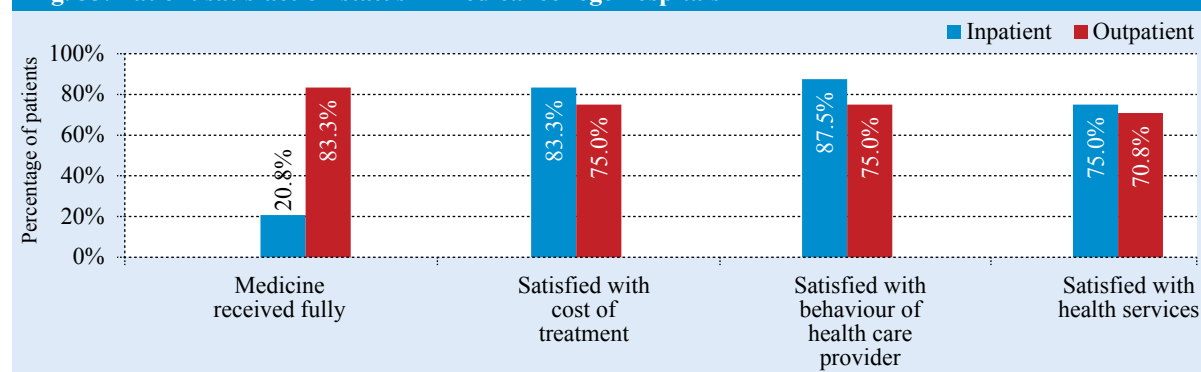
Fig 32. Level of performance of medical college hospitals in the individual and combined sections

Patient satisfaction status in MCHs

Forty-eight patients were interviewed in six shortlisted MCHs and, among all, 24 patients were interviewed from the inpatient department and 24 from the outpatient department. Among the inpatients, only 20.8% received all medicines as prescribed. More than 80% were satisfied with the cost of treatment, as well as the behaviour of the health-care provider. Seventy-five percent of patients were satisfied with the health services provided by the MCHs.

In the outpatient department in MCHs, patients spent an average of 32 minutes waiting for consultation with a doctor and doctors spent an average of 7 minutes on consultation with each patient. Approximately

Fig. 33. Patient satisfaction status in medical college hospitals

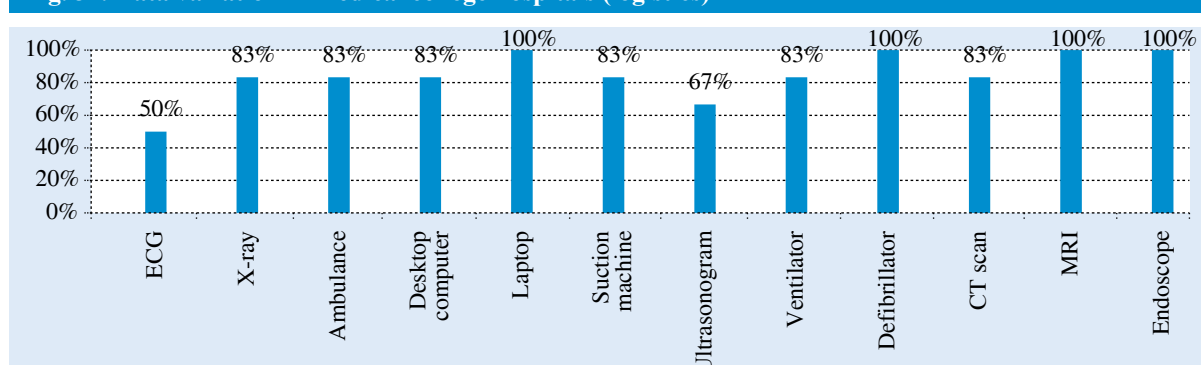


17% of the patients did not receive all medications as prescribed. Seventy-five per cent responded that they were satisfied with the cost of treatment and behaviour of the health-care provider, and 70.8% were satisfied with the health services provided by the MCHs (Fig. 33).

Data variation status in MCHs

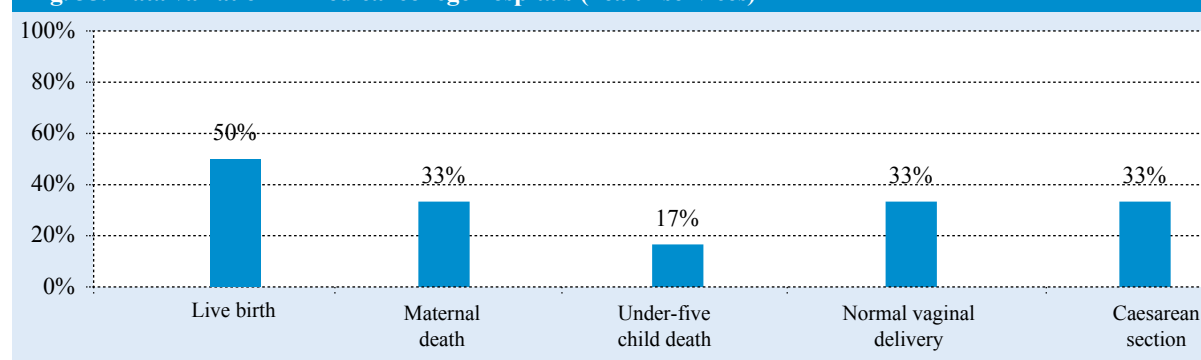
Among the 12 logistics items, the accuracy of reporting of four items was 100%, i.e. all shortlisted MCHs had exactly the same information in the online report and the documented data for the four

Fig. 34. Data variation in medical college hospitals (logistics)



items (laptop, defibrillator, MRI and endoscope) (Fig. 34). Additionally, live births were the highest accurately logged item and under-five child deaths showed the lowest percentage of accuracy (Fig. 35).

Fig. 35. Data variation in medical college hospitals (health services)



Overall performance of specialty postgraduate institutes and hospitals (SpHs)

Based on the aggregated standardized score using four measurement tools, three (27.27%) SpHs

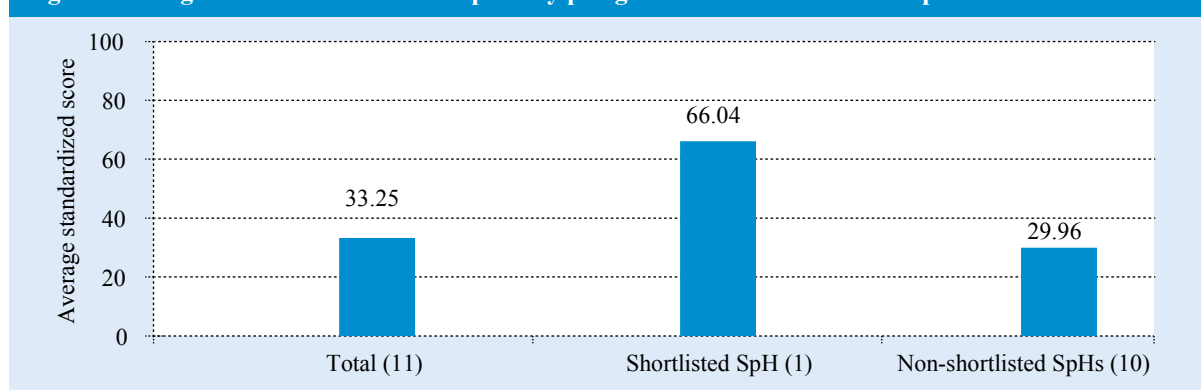
Table 6. Level of performance of specialty postgraduate institute and hospitals (N₄=11)

Level of performance	SpH, N ₄ = 11 (%)
- Good ($\geq 75\%$)	0 (0)
- Moderately good (50%-<75%)	3 (27.27)
- Moderately poor (25%-<50%)	3 (27.27)
- Poor (<25%)	5 (45.45)

performed at a moderately good level and three at a moderately poor level. Five (45.45%) SpHs performed at a poor level. No SpH performed at a good level (Table 6).

For all the SpHs, the average standardized score was 33.25; the score for shortlisted SpHs was 66.04 and for non-shortlisted SpHs, it was 29.96 (Fig. 36).

Fig. 36. Average standardized score of specialty postgraduate institutes and hospitals

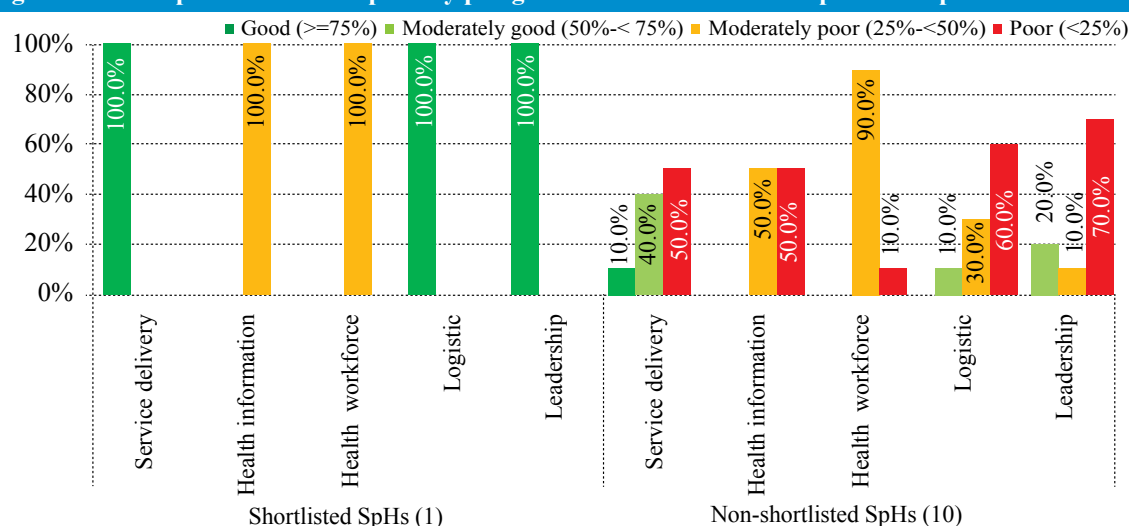


Performance based on online measurement

a) At input level

According to the online measurement standardized score, the shortlisted SpH performed at a good level in *service delivery*, *logistics* and *leadership* but at a moderately poor level in *health information* and *health workforce*. Among the 10 non-shortlisted SpHs, 10% performed at a good level in *service delivery* but 90% performed at a moderately poor level in *health workforce*. More than 50% of SpHs performed at a poor level in *service delivery*, *health information*, *logistics* and *leadership* (Fig. 37).

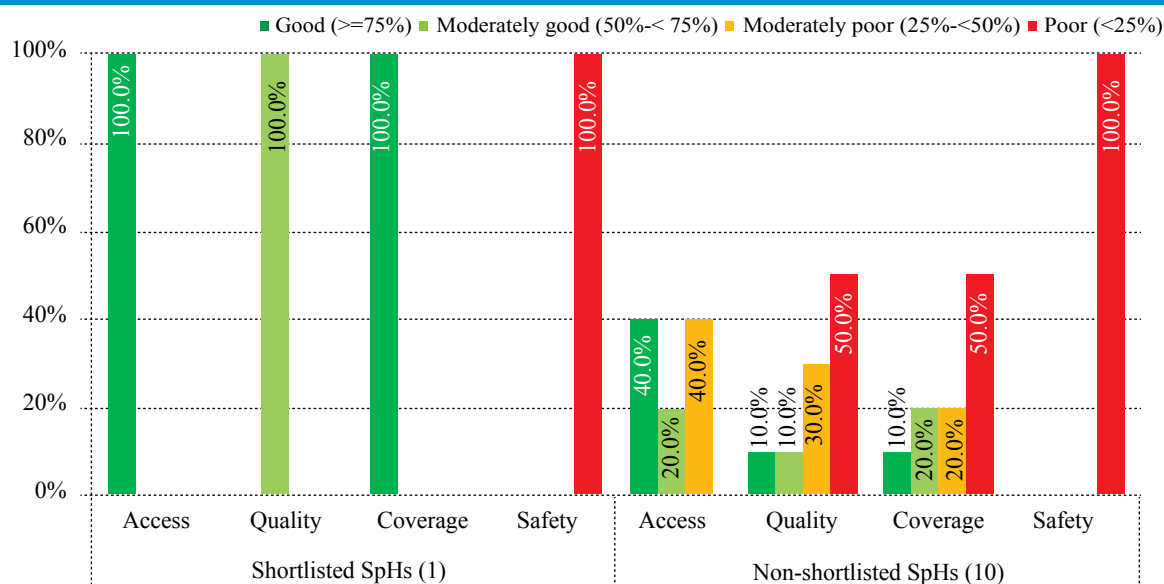
Fig. 37. Level of performance of specialty postgraduate institutes and hospitals at input level



b) Output level

As shown in Fig. 38, the performance of the shortlisted SpH was good in *access* and *coverage*, moderately good in *quality* and poor in *safety*. Among the 10 non-shortlisted SpHs, the performance of only 40% was good in *access* and that of 10% was good in the *quality* and *coverage* outputs. However, 100% performed at a poor level in *safety* and 50% performed at a poor level in the *quality* and *coverage* outputs.

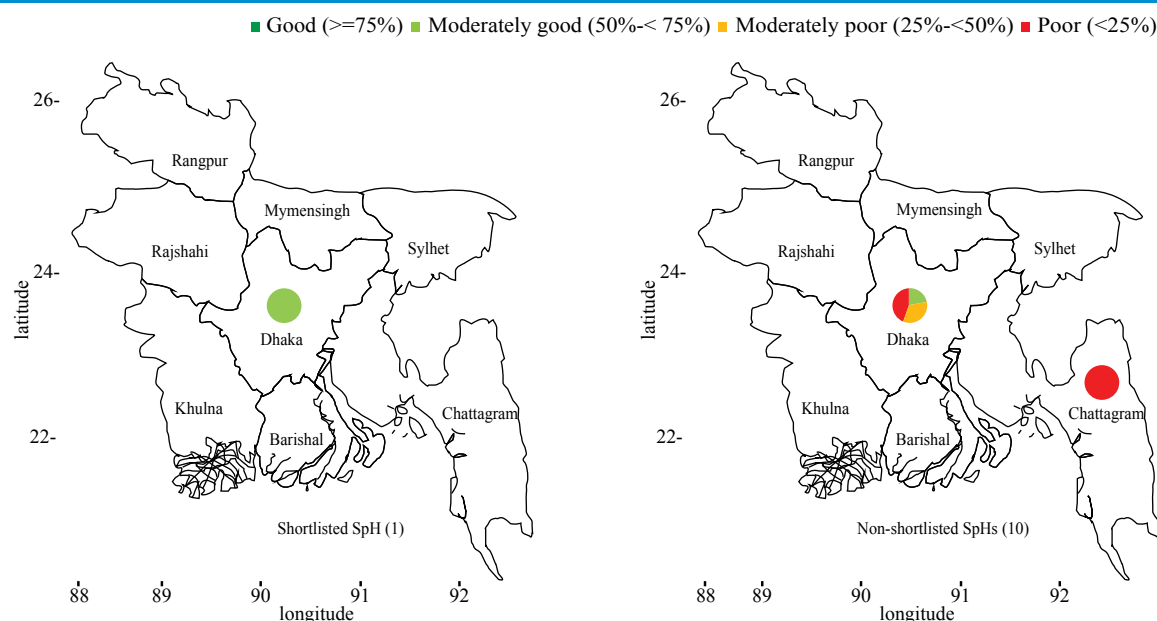
Fig. 38. Level of performance of specialty postgraduate institutes and hospitals at output level



Performance of SpHs by division

The shortlisted SpH in Dhaka division performed at a moderately good level. But among the 10 non-shortlisted SpHs in Dhaka, 44.4% performed at a poor level, as did the SpH in Chattagram division. There were no SpHs in Barishal, Mymensingh, Khulna, Rajshahi, Rangpur and Sylhet divisions (Fig. 39).

Fig. 39. Level of performance of specialty postgraduate institutes and hospitals by division



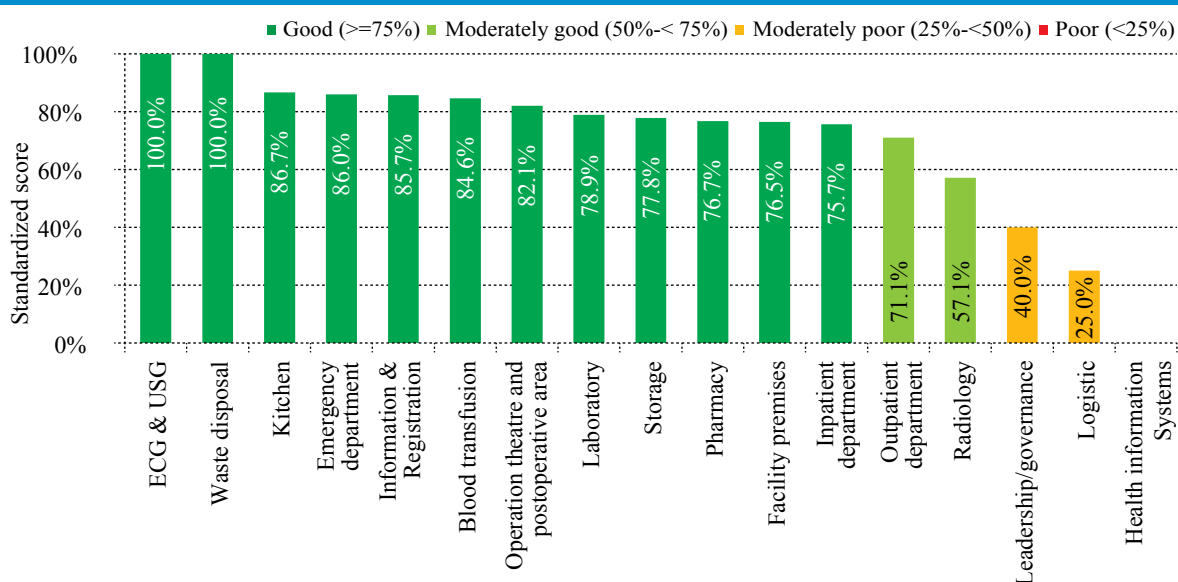
Performance of SpHs based on on-site monitoring visit

There was no on-site monitoring visit conducted for SpHs during May to August 2017.

Performance of SpHs based on physical assessment

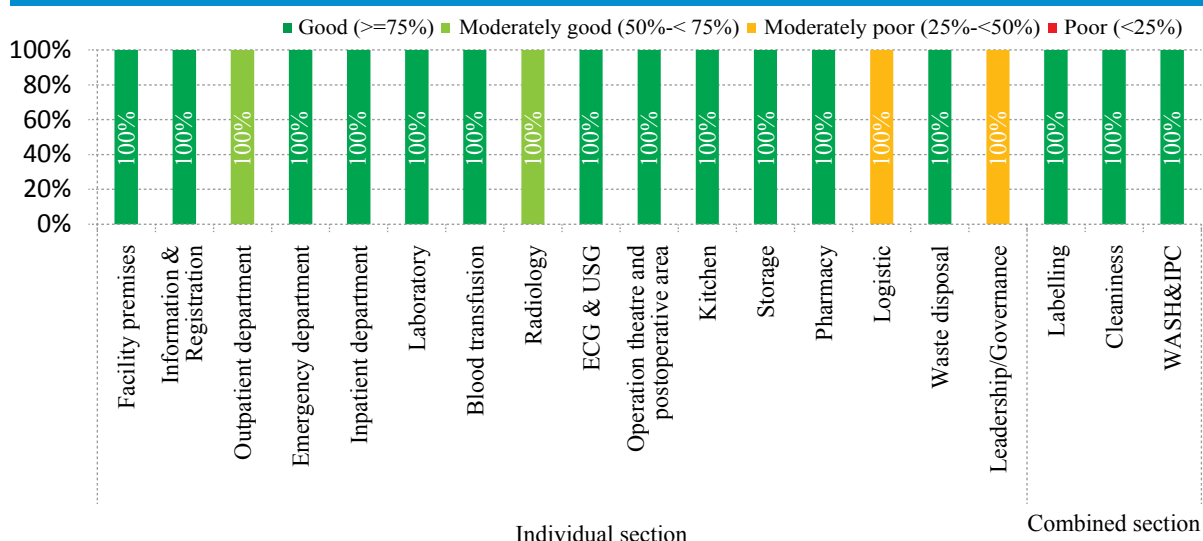
In the physical assessment tool, 17 sections were applicable to SpHs. In 12 sections, SpHs achieved more than 75% of the standardized score and in the remaining, they achieved 50–75% of the standardized score. The highest scores were observed in the *ECG and USG* and *waste disposal* sections, and the lowest score was observed in *health information system* (Fig. 40).

Fig. 40. Specialty postgraduate institute and hospital—standardized score by section



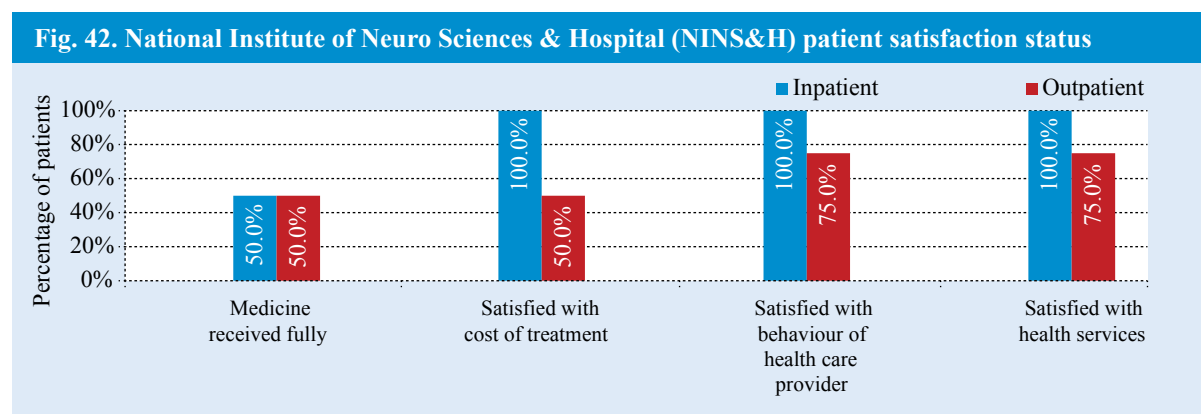
SpHs performed at a good level in all the individual sections except five. Among these five sections, SpHs performed at a poor level in *health information system*, moderately poor level in *logistics* and *leadership/governance*, and at a moderately good level in *outpatient department* and *radiology*. In the combined section, SpHs performed at a good level in *labelling*, *cleanliness* and *WASH and IPC* sections (Fig. 41).

Fig. 41. Level of performance of specialty postgraduate institute and hospital in the individual and combined sections



Patient satisfaction status in SpHs

Eight patients were interviewed in SpHs, four from the inpatient department and four from the outpatient department. Of those in the inpatient department, 50% received all medicines according to the prescription, and 100% were satisfied with the cost of treatment, behaviour of the health-care provider and treatment they received from SpHs.



In the outpatient department of SpHs, patients spent an average waiting time of 34 minutes before consultation with a doctor. Doctors spent an average of 10.5 minutes for consultation with each patient. Of the outpatients, 50% did not receive all medicines according to the prescription, and 75% responded that they were satisfied with the behaviour of the health-care provider and health services (Fig. 42).

CHAPTER 5

DISCUSSION

This is the first time an in-depth analysis of the results of the HSS initiative has been attempted since its introduction in 2014. Over the years, methods of measurement and distribution of marks and scores for indicators of performance have evolved and been adjusted according to the need to improve performance in health service delivery. The lack of relevant national standards for evaluation of health facility performance and a standardized scoring or rating system for different indicators under the health systems building blocks posed challenges to applying the framework. Therefore, the HSS of the MIS built on their experiences to develop a standard score that is acceptable and more aligned with the context of health services in Bangladesh for better understanding of facility performance.

The average standardized score of shortlisted health facilities in all four tiers was higher than the overall average standardized score of the non-shortlisted facilities. This result is not too surprising as the shortlisted facilities had above average performance.

Level of performance of health facilities at input level

For non-shortlisted UHCs, *service delivery*, *logistics* and *leadership* are areas for improvement at the input level. For DHs, non-shortlisted facilities need to improve overall and should focus on all areas. Non-shortlisted MCHs scored poorly in *health information* and *leadership*. All shortlisted and non-shortlisted MCHs scored moderately poorly in the *health workforce* category. The existing indicators in the HSS initiative to measure the performance of the health workforce are data from biometric attendance of staff from UHCs and DHs, and completeness of human resource data from all facilities. The functionality of the biometric attendance system reflects the status of infrastructure and logistics. There is no biometric attendance system installed in MCHs and SpHs and therefore they scored poorly in the performance level. There are other indicators such as vacancy rate, filled-up posts against sanctioned posts, which reflect the reality of the health workforce, but these were not considered in the performance evaluation. According to the consensus of health managers during the stakeholder consultation, the performance or progress of these indicators depends on the availability of the health workforce against vacant posts and retention of the health workforce, which is under the control of the higher authorities. Filling vacant posts is beyond the capacity of field-level management and the group felt it should not be considered for measuring performance. This issue is more pronounced in the case of management of the health workforce in MCHs and thus no score was added.

Level of performance of health facilities at output level

Shortlisted UHC facilities did well in the *access* and *safety* components but there are areas where they need to improve, especially under *coverage*. Obvious differences between shortlisted and non-shortlisted UHCs were seen under *quality* and *safety*. Non-shortlisted UHCs must look at specific indicators and learn from shortlisted UHCs what they did well. For DHs and MCHs, *quality* and *coverage* were areas that non-shortlisted facilities could improve on. All non-shortlisted MCHs particularly performed poorly in the area of *coverage*. The indicator related to *coverage* is the rate of caesarean section delivery; the higher the number of caesarean sections, the lower the score for *coverage*. As per the WHO standard,⁵ only 10–15% of pregnancies should require a caesarean section delivery for complications. And in the HSS initiative, a similar policy was applied to avoid caesarean section delivery when normal delivery is the standard. As MCHs are referral tertiary health facilities, most caesarean section deliveries are performed at this level. Unfortunately, the score negatively impacts on the score of facilities when more

⁵ WHO statement on caesarean section rates: every effort should be made to provide caesarean sections to women in need, rather than striving to achieve a specific rate. Geneva: WHO; 2015 [Report No. WHO/RHR/15.02] (https://www.who.int/reproductivehealth/publications/maternal_perinatal_health/cs-statement/en/, accessed 7 December 2018).

caesarean sections are done. This section needs to be further investigated to adopt a rational scoring system for the different tiers.

Results from SpHs were interesting because 100% of SpHs (shortlisted and non-shortlisted) showed “poor” performance in *safety*, as these facilities do not report data for a set of indicators that look at ANC visits, maternal mortality ratio and number of referrals for IMCI. Often, these indicators are more applicable to UHCs and not SpHs. SpHs focus more on specialized care such as cardiovascular diseases, cancers, mental health, orthopaedic, neuromedicine and kidney diseases. Setting customized indicators for each specialty or indicators that apply to all specialties may solve the issue.

Performance of health facilities by division

There were no shortlisted DHs in Mymensingh division as they were not able to acquire the requisite scores in online measurement and on-site monitoring tools to reach the 60% benchmark set for shortlisting. Further evaluation is required to understand why Mymensingh division did not have any shortlisted DHs. In Dhaka division, 20% of DHs performed at a “poor” level. About 17% of DHs in Rangpur division performed poorly. No direct inference can be drawn from this analysis as to why two divisions performed poorly. Perhaps this could be attributed partially to not performing well in physical assessment where the maximum weightage of evaluation is allocated. Similarly, for MCHs, there were no shortlisted facilities in Barishal, Mymensingh and Khulna divisions because of poor performance in self-reporting and lack of on-site monitoring visits, which facilities could easily act on.

SpHs are available only in Dhaka and Chattagram regions. Dhaka has the most number of SpHs in the country and therefore a wider range of performance levels can be seen in Dhaka.

Performance of health facilities based on on-site monitoring visits

Among the shortlisted health facilities, 88.6% of UHCs and 75.38% of DHs were visited regularly (four visits); only 40.4% of non-shortlisted UHCs and 25% of non-shortlisted DHs were visited monthly (Fig. 11 and 21). Therefore, according to the 2017 HSS initiative, visits by health managers had an impact on health facility performance. More visits did not guarantee health facilities’ performance, but monthly visits seemed to result in better performance. Monthly on-site monitoring visits can help to improve health facility performance of UHCs and DHs. Unfortunately, there were no on-site monitoring visits conducted for MCHs and SpHs because the information for visiting these facilities was not well communicated and not monitored by the concerned authorities.

Performance of health facilities based on physical assessment

The performance of more than 60% of UHCs was good in *facility premises, emergency department, inpatient department, operation theatre and postoperative area, storage, pharmacy and leadership/governance* for the individual sections. However, the performance of 30%, 23%, 14% and 11% of UHCs was poor in the *ECG and USG, logistics, radiology and kitchen* sections, respectively. This seems to be due to shortage of medical technologists and technicians to operate the machines. A similar observation was reported in the baseline assessment conducted on selected district health facilities commissioned by the DGHS and WHO, which indicated that 20% of DHs did not have an ECG monitoring facility (Baseline assessment: quality of care and clinical risks in selected districted hospitals. Dhaka, Bangladesh: WHO Country Office for Bangladesh, 2018. [Unpublished report]).

The performance of more than 70% of DHs was good in the sections of *facility premises, information and registration, outpatient department, emergency department, inpatient department, blood transfusion, radiology, operation theatre and postoperative area, labour and delivery room, storage, pharmacy and leadership*. About 30% of DHs performed moderately poorly in *health information system and logistics*,

and 12% of DHs performed poorly in the *storage* section. As referral health facilities, DHs are always overburdened with patients. On the other hand, there is always a shortage of the health workforce to cope with the burden and this has a significant impact on the workload of existing staff, as seen in another study that looked at the workload of different professionals in the health workforce (Assessment of staffing need through workload analysis in two selected districts [Jhenaidah and Moulvibazar] in Bangladesh. Dhaka, Bangladesh: WHO Country Office for Bangladesh, 2018. [Unpublished report]). Maintenance and functionality of equipment, logistics supply, medicine stocks, cleanliness and timeliness of reporting to the MIS may also be impacted due to shortage of staff.

The performance of all MCHs was good in the sections of *blood transfusion, ECG and USG, and logistics*, and that of 67% was good in the sections of *information and registration, laboratory, operation theatre and postoperative area, labour and delivery room, pharmacy and leadership/governance*. All MCHs have a good set-up for blood transfusion. Staff in this section receives allowances through a cash incentive system. This may be one of the incentives to make staff vigilant in keeping all equipment functional. But 67% of MCHs performed moderately poorly in the *waste disposal* section perhaps due to patient overload, uncontrolled visitors producing large amounts of waste, and difficulty in managing with the current shortage of support staff reinforced by a workload indicator study (Assessment of staffing need through workload analysis in two selected districts [Jhenaidah and Moulvibazar] in Bangladesh. Dhaka, Bangladesh: WHO Country Office for Bangladesh, 2018. [Unpublished report]).

Patient satisfaction status in health facilities

Less than 25% of patients in the inpatient departments in UHCs (21%), DHs (23.2%) and MCHs (20%) responded that they received all the medications as prescribed. In specialized hospitals, more patients admitted to the inpatient department claimed that they received their medications as prescribed (50%) but only 50% of those attending outpatient departments stated that they received all medications, compared to 96% of those in UHCs, 90.6% in DHs and 83.3% in MCHs. Health facilities in Bangladesh overall seem to experience shortages of medications, especially in inpatient departments. The results of the HSS 2017 patient satisfaction survey echo those of another study by the World Bank on the overview of the pharmaceutical sector in Bangladesh.⁶ According to the World Bank, only 37% of the lowest-priced generic medications were available in public hospitals. Only 27% of medications to treat noncommunicable diseases, 48% of medicines to treat infectious diseases and 68% of uncategorized medicines were available in public hospitals. This is in line with the very high levels of private spending on medicines in the country. Households paying fees at the point of service (i.e. out of pocket) constitute the main source of financing for health in Bangladesh, comprising 67% of total spending in 2015. The share of out-of-pocket spending on medicines and medical products in 2015 was 69.4%; hence, out of the total health spending in the country, 46% (almost half) corresponds to expenditure on medicines and medical products.⁷

Data variation across the system

The performance of health facilities in the HSS initiative by and large depends on data. In this analysis, we conducted a data quality review through comparing the data of two sources; one online through self-reporting, and the other offline, of data documented and collected at facilities. With respect to data verification for *logistics*, the online reported data correctly matched with the documented data at health facilities for *ambulance* out of six types of equipment (*ECG, X-ray, ambulance, desktop computer, laptop and suction machine*) in 75% of UHCs. In the case of DHs, 88% of DHs' online reported data

⁶ Strengthening governance in the pharmaceutical sector in Bangladesh: overview of the pharmaceutical sector in Bangladesh. Danvers, Massachusetts: The World Bank; 2017 (Report No. AUS17943).

⁷ Bangladesh National Health Accounts 2015. Dhaka: Health Economics Unit, Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh; 2015.

matched with the documented data at facilities for seven types of equipment (*ECG, X-ray, ambulance, desktop computer, laptop, suction machine and USG*). In MCHs, *ECG, X-ray, ambulance, desktop computer, laptop, suction machine, USG, ventilator, defibrillator, CT scan, MRI and endoscope* were accurately reported from facilities.

It appears that MCHs are doing well in data verification for *logistics*, even though the workload is very high and on-site visits by health managers is lacking. Online reported data for *live births* in 50% of MCHs exactly matched the data documented at facilities out of five *health services* information indicators (*live birth, maternal death, under-five child death, normal vaginal delivery and caesarean section*).

Since the HSS initiative aids in performance evaluation based on online data and on-site monitoring data, it is presumed that facilities may have a higher chance of not being shortlisted if they are not cautious about data variation. The inconsistency in data is also a challenge in making informed policy decisions. One of the ways this can be improved is for facilities to check both online and documented data regularly internally. The data can be verified externally with the on-site monitoring tool.

CHAPTER 6

CONCLUSION

Bangladesh has been making good progress in expanding health facilities across the country over the past few years. It is now worthwhile to consolidate the performance of health facilities to show how they are contributing to public health in keeping with the needs of the population. In this descriptive analysis, health facilities were evaluated against an adopted aggregated standardized score based on four measurement tools. The findings constructed a baseline of how health facilities are performing in each tier of health facility throughout Bangladesh. The scores helped to identify the distribution of performance, how many health facilities are performing well, how many are not performing as well and in which areas for each tier of health facility. Since the beginning of the HSS initiative, such an analysis has not been conducted. The analysis revealed some important aspects of the status of health facilities of different tiers across the country in terms of readiness for health service delivery and sector-wise performance according to the building blocks of health systems.

For example, the analysis revealed that one of the factors that differentiated between shortlisted and non-shortlisted health facilities was the poor performance in regularity of online reporting and on-site monitoring, which is primarily the responsibility of the health manager; facilities where the frequency of on-site monitoring was high were shortlisted.

One of the important lessons learned from this analysis is that an analytical report of the performance of health facilities in previous years would have been a good guide to be able to raise the benchmark for shortlisting facilities in 2017 and show progress in performance over time. From a broader perspective, the analysis may potentially influence the performance of health facilities when health managers are more aware of the findings and engage with the initiative.

The actual underlying causes of poor performance were not investigated in this analysis. Moreover, the HSS initiative does not assess any challenges and constraints experienced by each health facility. The findings can be useful for facility managers to identify areas for improvement and resource gaps and may aid in planning for required activities in the upcoming year. More importantly, this analysis urges health managers and policy-makers to explore the reasons for and factors that can be the cause of low performance and to identify bottlenecks that hinder progress, which can be explored through qualitative assessments.

The unavailability of medicines that was experienced by patients in UHCs and DHs is a matter of concern. If medications are unavailable, patients will have to pay out of their pockets to purchase them. The effective implementation of the ESP in Bangladesh will help to address this challenge. ESP assist help to standardize essential medications and ensure their provision. Thus, more robust attention is required for using the HSS initiative to monitor the progress of ESP implementation to enhance the country's efforts at achieving universal health coverage.

Although UHCs make up much of the total health facilities in Bangladesh (420/510) except community clinics, the performance was good for only 2.38% of the total (10/420). This requires more attention because universal health coverage, which is primarily dependent on the primary health care system, is not only about having enough health-care facilities for the people but also requires quality health services. The HSS initiative appears to be instrumental for this to happen and allows for measurement of their performance on an annual basis.

CHAPTER 7

LIMITATIONS AND RECOMMENDATIONS

Limitations

This section covers the limitations of this analysis.

- for online measurement, 12 months' data were considered, whereas for on-site monitoring, only 4 months' data were considered. If 12 months of on-site monitoring data were available, the scores may have been different;
- the HSS initiative does not assess the challenges and constraints experienced by each health facility. Qualitative assessments would add further insight into the root causes of low and high performance;
- the score calculation mechanism should be changed, particularly for facility-based caesarean section rate. Health facility managers disagree about the methods of calculation of the caesarean section rate in the HSS initiative, which is based on the number of caesarean sections performed at a facility divided by the total number of pregnant women admitted for delivery. If the number of caesarean sections increases, the performance score decreases to discourage unnecessary operations. The majority of pregnant women are admitted to DHs when most of the prevailing conditions do not allow for normal delivery. As such, there is no choice for DHs but to perform a caesarean section to save the lives of the mother and unborn child. This gives rise to the high caesarean section rate that unfortunately exceeds the WHO standard of 15%, reflected as negative performance in the HSS score for DHs and MCHs;
- a separate set of indicators is needed for SpHs. The type of health services provided by SpHs are different from those provided by UHCs, DHs and MCHs. The type of health services provided by UHCs, DHs and MCHs are similar and differ only in infrastructure, number of experts and staff, number of beds, and number and types of equipment. Besides, each SpH is also different from the other, i.e. specialty hospital for cardiovascular disease, neuromedicine, orthopaedics, and so on;
- health financing indicators were not incorporated in the HSS initiative 2017 because such indicators are not yet available in the existing MIS system;
- although this was the second round of the HSS initiative, since the framework in 2014–2015 did not incorporate the WHO building blocks of health systems and the calculation of scores was different, the results cannot be compared with those of the previous year. Therefore, progress or changes in health facilities could not be assessed at this time;
- health workers' presence in the facilities during the patient satisfaction survey may have caused some bias in patients' responses. Patients may have responded positively to the questions asked. In addition, the sample size for the patient satisfaction survey was relatively small;
- the assessing team was not fully independent as some were government personnel.

Recommendations

- General
 - there should be a national standard against which the performance of health facilities should be evaluated;
 - indicators for the fourth Health Population and Nutrition Sector Programme can be incorporated into the HSS initiative to monitor improvement of the Sector Programme. Activities of the Sector Programme can be measured with the HSS;

- the results of HSS initiative 2017 should be compared to those of HSS initiative 2018. Progress should be monitored for each health facility and improvements, if any, can be observed between the two years;
- fortnightly video conference meetings with all health managers and the DGHS, including divisional directors, could be one approach to discussing the performance of health facilities with reference to the HSS dashboard. In addition, the HSS results could be discussed regularly in the divisional and district coordination meetings.
- Methodology for future HSS initiatives
 - introduce and set a new benchmark, as the 60% benchmark set for HSS initiative 2017 identified a large number of facilities (68) which made it challenging for government authorities to manage administratively and logistically. Ultimately, introducing and setting a benchmark may assist in reaching common standards across health facilities. In addition, better performance will be incentivized by having the benchmark set at a higher level (e.g. 75%). Later these will be helpful when establishing a national accreditation system for healthcare facilities;
 - future HSS initiatives should include more indicators that measure quality, including patient safety and infection prevention and control (IPC); such as blood transfusion reaction rates, medication error rates, rate of healthcare associated infections, surgical site infection rate and hand hygiene compliance rate. These indicators should also be added to the MIS;
 - healthcare financing indicators should be added to MIS such as percentage of annual expenditure of the budget against allocation, and such indicators should be added in future HSS initiatives;
 - the timeline for data collection for each assessment tool should be 12 months, especially for the on-site monitoring tool, which took place over only 4 months;
 - specific tools should be developed for specialized hospitals because the nature of the services they provide varies according to their specialty;
 - the patient satisfaction survey results were by and large very positive in almost every aspect assessed; however, it had a small sample size. To make the responses generalizable, a larger sample size is needed in future assessments. The contents of the questionnaire should also focus more on the patient's experience when accessing health services. Patient confidentiality and privacy should be ensured when collecting data from patient satisfaction surveys to reduce potential bias;
 - the assessors should be trained adequately and equipped with apps-based data entry;
 - further qualitative analysis may help to understand the causes of poor performance and other issues that were present.
- Health managers
 - the number of on-site monitoring visits had an impact on performance. In other words, where health managers visited monthly, the performance was better in those facilities than in facilities that did not have regular visits. Therefore, health managers are strongly advised to visit health facilities every month. Health managers can also cross-visit other facilities that scored higher or lower to identify areas for improvement in the form of peer review. Quarterly assessments at the divisional level may help in close monitoring of regions that did not perform well;

- a large number (186) of UHCs performed at a moderately poor level compared to other tiers of health facilities and require more attention. Further qualitative analysis may help to understand the causes of poor performance;
- at each facility level, inconsistencies and variations in the online reported data and the documented data need regular checking by the facility itself, or particularly when on-site visits are conducted by health managers, to ensure accuracy and precision;
- medicines were in short supply in most facilities according to the patient satisfaction survey. In spite of the methodological limitations of the survey, this may indicate a critical problem to be solved through inspection of inventory and stock management, and persuasion in allocating an adequate budget, as well as improvement in the rational use of medicines.

ANNEXES

ANNEX A. DEFINITIONS OF ONLINE MEASUREMENT INDICATORS

SERVICE DELIVERY

Indicator – Availability of minor surgery

Definition: Number of minor surgeries = 0 then not available, if number of minor surgeries >0 then available

Dataset: Monthly HMC meeting

Period: Monthly

Indicator – Availability of major surgery (excluding caesarean section)

Definition: Number of major surgeries = 0 then not available, if number of major surgeries >0 then available

Numerator: Number of major surgeries

Denominator: Any number of major surgeries

Dataset: Monthly HMC meeting

Period: Monthly

Note that this indicator is not applicable to UHCs.

Indicator – Availability of postnatal care (PNC)

Definition: Number of PNC/PNC1/PNC2 for newborn/mother = 0 then not available, if number PNC/PNC1/PNC2 for newborn/mother >0 then available

Dataset: Monthly emergency obstetric and newborn care (EmONC) dataset with genital fistula

Period: Monthly

Note that this indicator is not applicable to SpHs (except Institute of Child and Mother Health, Matuail).

Indicator – Availability of caesarean section

Definition: Number of caesarean sections = 0 then not available, if number of caesarean sections >0 then available

Dataset: Monthly EmONC dataset with genital fistula

Period: Monthly

Note that this indicator is not applicable to SpHs (except Institute of Child and Mother Health, Matuail).

Indicator – Rate of initiation of breastfeeding (within 1 hour) at facility for newborn

Definition: Number of newborns who initiated breastfeeding within 1 hour of birth

Numerator: Number of newborns who initiated breastfeeding within 1 hour of birth

Denominator: Number of live births in the facility

Dataset: Monthly EmONC dataset

Period: Monthly

Note that this indicator is not applicable to SpHs (except Institute of Child and Mother Health, Matuail).

Indicator – Rate of mobile phone services provided each month

Definition: The total number of services provided to clients through emergency medical officer's mobile phone

Numerator: Total number of health services provided in a month through mobile phone

Denominator: Expected number of health services to be provided in a month through mobile phone

Dataset: Monthly mobile phone calls health dataset

Period: Monthly

Note that this indicator is not applicable to SpHs.

HEALTH WORKFORCE

Indicator – Functionality of the biometric attendance machine

Definition: Record of attendance given by any staff

Dataset: Biometric attendance system

Period: Monthly

Note that this indicator is not applicable to MCHs and SpHs.

Indicator – Average number of staff present

Definition: Average number of employees present per day in a month

Numerator: Average daily presence of staff in a month

Denominator: Number of filled up posts of staff in that month (expected number of staff present, e.g. 80% of filled up posts)

Dataset: Biometric attendance system

Period: Monthly

Note that this indicator is not applicable to MCHs and SpHs.

Indicator – Completeness of HRM data (facility)

Definition: Timely completion of total 7 predefined fields for all facilities in HRM (latitude, longitude, ministry, facility agency, facility head post, reported total posts and reported filled posts)

Numerator: Average number of predefined data fields completed (for all facility)

Denominator: 7

Dataset: Human resource information system (HRIS)

Period: Monthly

Indicator – Completeness of HRM data (provider)

Definition: Timely completion of total 10 predefined fields for all staff in HRM (national ID, contact number, designation, address, freedom fighter, tribal, qualification, category, professional discipline, date of birth)

Numerator: Average number of predefined data fields completed (for all staff)

Denominator: 10

Dataset: HRIS

Period: Monthly

HEALTH INFORMATION SYSTEM

Indicator – Timely submission of reporting forms

Definition: Timeliness of form submission will be checked. Forms submitted within the 10th day of the next month will be measured against the expected number

Numerator: Number of forms submitted at the end of the given time (within 15th day of the next month)

Denominator: Total number of forms to be submitted

Dataset: DHIS2 on-time reporting rate

Period: Monthly

Indicator – Completeness of data fields in the reporting forms

Definition: Number of data fields completed for all datasets/Total number of data fields in dataset

Numerator: Number of data fields completed for all datasets

Denominator: Total number of data fields in datasets

Dataset: DHIS2 report

Period: Monthly

Indicator – Percentage of inpatients diagnosed using ICD-10 codes/ICD-O codes

Definition: Percentage of inpatients diagnosed using ICD-10 code/ICD-O code per month in the facility

Numerator: Number of inpatients diagnosed using ICD-10 code/ICD-O code

Denominator: Total number of inpatients

Dataset: DHIS2 event capture report

Period: Monthly

ACCESS TO ESSENTIAL MEDICINES/ EQUIPMENT, LOGISTICS/ UTILITIES/ INFRASTRUCTURE

Indicator – Proportion of functioning diathermy machines

Definition: Number of functioning diathermy machines measured against the number of available diathermy machines

Numerator: Number of functioning diathermy machines

Denominator: Number of available diathermy machines

Dataset: Monthly major equipment information

Period: Monthly

Indicator – Proportion of functioning of basic equipment: ECG machines

Definition: Number of functioning ECG machines measured against the number of available ECG machines

Numerator: Number of functioning ECG machines

Denominator: Number of available ECG machines

Dataset: Monthly major equipment information

Period: Monthly

Indicator – Proportion of functioning basic equipment: Suction machine

Definition: Number of functioning suction machines measured against the number of available suction machines

Numerator: Number of functioning suction machines

Denominator: Number of available suction machines

Dataset: Monthly major equipment information

Period: Monthly

Indicator – Proportion of functioning basic equipment: X-ray machine

Definition: Number of functioning X-ray machines measured against the number of available X-ray machines

Numerator: Number of functioning X-ray machines

Denominator: Number of available X-ray machines

Dataset: Monthly major equipment information

Period: Monthly

Indicator – Proportion of functioning ambulances

Definition: Number of functioning ambulances measured against the number of available ambulances

Numerator: Number of functioning ambulances

Denominator: Number of available ambulances

Dataset: Monthly major equipment information

Period: Monthly

Indicator – Proportion of functioning desktop computers

Definition: Number of functioning desktop computers measured against the number of available desktop computers

Numerator: Number of functioning desktop computers

Denominator: Number of available desktop computers

Dataset: Monthly major equipment information

Period: Monthly

Indicator – Proportion of functioning laptops

Definition: Number of functioning laptops measured against the number of available laptops

Numerator: Number of functioning laptops

Denominator: Number of available laptops

Dataset: Monthly major equipment information

Period: Monthly

Indicator – Essential ICU equipment: ventilator

Definition: Number of functioning ventilators measured against the number of available ventilators in ICU

Numerator: Number of functioning ventilators

Denominator: Number of available ventilators

Dataset: Monthly major equipment information

Period: Monthly

Note that this indicator is not applicable to UHCs and DHs.

Indicator – Essential ICU equipment: defibrillator

Definition: Number of functioning defibrillators measured against the number of available defibrillators ICU

Numerator: Number of functioning defibrillators

Denominator: Number of available defibrillators

Dataset: Monthly major equipment information

Period: Monthly

Note that this indicator is not applicable to UHCs and DHs.

Indicator – Upgraded radiological equipment: CT scan machine

Definition: Number of functioning CT scan machines measured against the number of available CT scan machines

Numerator: Number of functioning CT scan machines

Denominator: Number of available CT scan machines

Dataset: Monthly major equipment information

Period: Monthly

Note that this indicator is not applicable to UHCs and DHs.

Indicator – Upgraded radiological equipment: MRI machine

Definition: Number of functioning MRI machines measured against the number of available MRI machines

Numerator: Number of functioning MRI machines

Denominator: Number of available MRI machines

Dataset: Monthly major equipment information

Period: Monthly

Note that this indicator is not applicable to UHCs and DHs

Indicator - Upgraded radiological equipment: ultrasonogram machine

Definition: Number of functioning ultrasonogram machines measured against the number of available ultrasonogram machines

Numerator: Number of functioning ultrasonogram machines

Denominator: Number of available ultrasonogram machines

Dataset: Monthly major equipment information

Period: Monthly

Note that this indicator is not applicable to UHCs.

Indicator - Procedure equipment: endoscope

Definition: Number of functioning endoscopes measured against number of available endoscopes

Numerator: Number of functioning endoscopes

Denominator: Number of available endoscopes

Dataset: Monthly major equipment information

Period: Monthly

Note that this indicator is not applicable to UHCs and DHs.

LEADERSHIP/GOVERNANCE/MANAGEMENT

Indicator – Number of Hospital Management Committee (HMC)/Hospital Coordination Meetings (HCM) held on a monthly basis

Definition: At least one HMC/HCM meeting needs to be held each month

Numerator: Number of meetings held each month

Denominator: 1

Dataset: Monthly HMC meeting

Period: Monthly

Indicator – Number of decisions taken in the HMC/HCM meeting

Definition: There is provision to make at least 3 three decisions taken in every HMC/HCM meeting

Numerator: Number of decisions taken from in HMC meeting

Denominator: 3

Dataset: Monthly HMC meeting

Period: Monthly

ACCESS

Indicator – Bed occupancy rate

Definition: Monthly bed occupancy rate in that facility

Numerator: Average number of beds occupied

Denominator: 100

Dataset: Monthly hospital bed statement

Period: Monthly

Indicator – The number of OPD visits in the catchment area

Definition: The number of OPD visits for the facility than the previous year

Numerator: Number of OPD visits in that month

Denominator: Average number of OPD visits in past 12 months

Dataset: Daily OPD and emergency visits, admission dataset

Period: Monthly

QUALITY

Indicator – ANC rate

Definition: The number of ANC visits for the facility scored against the average of the past 12 months

Numerator: Number of ANC services provided in the facility in that month

Denominator: Average number of ANC services provided by the facility in the past 12 months

Dataset: Monthly EmONC dataset

Period: Monthly

Indicator – Very severe disease referral from IMCI

Definition: WHO recommendation is to refer 100% of children diagnosed with very severe disease to a higher centre

Numerator: Number of children referred for very severe disease

Denominator: Number of children with very severe disease

Dataset: Monthly IMCI dataset

Period: Monthly

Indicator – Use of SMS complaint/suggestion system

Definition: Total number of SMS' in a month

Numerator: Number of SMS' in that month

Denominator: 5

Dataset: DGHS: Dashboard

Period: Monthly

COVERAGE**Indicator – Percentage of normal vaginal delivery (NVD)**

Definition: As disbursement-linked indicator (DLI), percentage increase in NVD from previous year will be measured and scored against a target of 5% increase from the past year

Numerator: $(\text{Number of NVDs this year} - \text{number of NVDs in the past year}) * 100$

Denominator: Number of NVDs in the past year

Dataset: Monthly EmONC dataset with genital fistula

Period: Monthly

Indicator – Caesarean section rate

Definition: Number of caesarean sections scored against the expected number of caesarean sections for that type of facility

Numerator: Number of deliveries by caesarean section

Denominator: Total number of deliveries

Dataset: Monthly EmONC dataset

Period: Monthly

Indicator – Percentage of minor surgeries

Definition: Number of minor surgeries in a month calculated for the facility and scored against the expected number of minor surgeries for the facility type

Numerator: Total number of minor surgeries done in the facility in a month

Denominator: Average number of minor surgeries for that type of facility in the past 12 months

Dataset: Monthly HMC meeting

Period: Monthly

Indicator – Percentage of major surgery

Definition: Number of major surgeries in a month calculated for the facility and scored against the expected number of major surgeries for the facility type

Numerator: Total number of major surgeries done in the facility in a month

Denominator: Average number of major surgeries for that type of facility in the past 12 months

Dataset: Monthly HMC meeting

Period: Monthly

SAFETY

Indicator – Safe blood transfusion

Definition: Number of safe blood transfusions in a month scored against the expected number of safe blood transfusions for that specific type of facility

Numerator: Number of safe blood transfusions in a month

Denominator: Average number of safe blood transfusions for that type of facility in the past 12 months

Dataset: Monthly EmONC dataset with genital fistula

Period: Monthly

Note that this indicator is not applicable to UHCs and SpHs (except Institute of Child and Mother Health, Matuail).

ANNEX B. DISTRIBUTION OF MARKS

	Building blocks	Indicators	UHC	DH	MCH	SpH
Input	Service delivery	Availability of major surgery (excluding caesarean section)	NA	1.07	1.28	3.20
	Service delivery	Availability of minor surgery	1.28	1.07	1.28	3.20
	Service delivery	Availability of postnatal care (PNC)	1.28	1.07	1.28	NA
	Service delivery	Availability of caesarean section	1.28	1.07	1.28	NA
	Service delivery	Rate of initiation of breastfeeding (within 1 hour) at facility for newborn	1.28	1.07	1.28	NA
	Service delivery	Rate of mobile phone service provided in each month	1.28	1.07	NA	NA
	Health workforce	Functionality of the biometric attendance machine	1.60	1.60	NA	NA
	Health workforce	Presence of average number of staff	1.60	1.60	NA	NA
	Health workforce	Completeness of HRM data (facility)	1.60	1.60	3.20	3.20
	Health workforce	Completeness of HRM data (provider)	1.60	1.60	3.20	3.20
	Health information system	Percentage of reporting forms submitted	1.60	1.60	1.60	1.60
	Health information system	Timely submission of reporting forms	1.60	1.60	1.60	1.60
	Health information system	Completeness of data fields in the reporting forms	1.60	1.60	1.60	1.60
	Health information system	Percentage of inpatients diagnosed using ICD-10 codes/ICD-O codes	1.60	1.60	1.60	1.60
	Access to essential medicines/logistics	Proportion of functioning diathermy machines	0.91	0.80	0.49	0.49
	Access to essential medicine/logistic	Proportion of functioning basic equipment: ECG machines	0.91	0.80	0.49	0.49
	Access to essential medicines/logistics	Proportion of functioning basic equipment: Suction machines	0.91	0.80	0.49	0.49
	Access to essential medicines/logistics	Proportion of functioning basic equipment: X-ray machines	0.91	0.80	0.49	0.49
	Access to essential medicines/logistics	Proportion of functioning ambulances	0.91	0.80	0.49	0.49
	Access to essential medicines/logistics	Proportion of functioning desktop computers	0.91	0.80	0.49	0.49
	Access to essential medicines/logistics	Proportion of functioning laptops	0.91	0.80	0.49	0.49
	Access to essential medicines/logistics	Essential ICU equipment: ventilator	NA	NA	0.49	0.49
	Access to essential medicines/logistics	Essential ICU equipment: defibrillator	NA	NA	0.49	0.49
	Access to essential medicines/logistics	Upgraded radiological equipment: CT scan	NA	NA	0.49	0.49
	Access to essential medicines/logistics	Upgraded radiological equipment: MRI machine	NA	NA	0.49	0.49
	Access to essential medicine/logistic	Upgraded radiological equipment: ultrasonography machine	NA	0.80	0.49	0.49
	Access to essential medicines/logistics	Procedural equipment (endoscopy)	NA	NA	0.49	0.49
	Leadership	No. of Hospital Management Committee (HMC) meetings /Hospital Coordination Meetings (HCM) held on a monthly basis	3.22	3.19	3.215	3.215
	Leadership	No. of decisions taken in the HMC meeting	3.22	3.19	3.215	3.215

Output	Access	Bed occupancy rate	6.00	6.00	6.00	8.40
	Access	Number of OPD visits in the catchment area	6.00	6.00	6.00	8.40
	Quality	ANC rate	3.00	3.00	3.00	NA
	Quality	Very severe disease referral from IMCI	3.00	3.00	3.00	NA
	Quality	Use of SMS complaint/suggestion system	3.00	3.00	3.00	14.40
	Coverage	Percentage of normal vaginal delivery (NVD)	4.00	3.00	3.00	NA
	Coverage	Caesarean section rate	NA	3.00	3.00	NA
	Coverage	Percentage of minor surgeries	4.00	3.00	3.00	8.40
	Coverage	Percentage of major surgeries	NA	3.00	3.00	8.40
	Safety	Number of safe blood transfusions	12.00	12.00	12.00	NA

ANC: antenatal care; DH: district hospital; HRM: human resource management; ICD: International Classification of Diseases; ICU: intensive care unit; IMCI: Integrated Management of Childhood Illness; MCH: medical college hospital; NA: not applicable; OPD: outpatient department; PNC: postnatal care; SMS: short messaging service; SpH: specialty postgraduate institute and hospital; UHC: upazila health complex.

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