National Hygiene Survey 2018

Bangladesh Bureau of Statistics (BBS)
Statistics and Informatics Division
Ministry of Planning

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for every child

WaterAid

National Hygiene Survey 2018

December, 2020

Demography and Health Wing
Bangladesh Bureau of Statistics
Statistics and Informatics Division
Ministry of Planning

Published by:
Bangladesh Bureau of Statistics with financial and technical assistance of WaterAid Bangladesh and UNICEF Bangladesh

Published on: December, 2020

ISBN: 978-984-34-9724-6

Cover Design:
B M Al-Emran
WaterAid Bangladesh

Photo Credit:
WaterAid Bangladesh

Contact about the report:

Md. Mashud Alam
Director
Demography and Health Wing
Bangladesh Bureau of Statistics (BBS)
Parishankhyan Bhaban
E-27/A, Agargaon, Dhaka-1207
Phone (Office) : 02-55007058
E-mail: mashud2003@yahoo.com
Website : www.bbs.gov.bd

Faysal Abbas
Manager, Advocacy and Communications
WaterAid Bangladesh
House 97/B, Road 25, Block A, Banani, Dhaka-1213
Phone (Office): 02-58815757
E-mail: faysalabbas@wateraid.org

Compose and Design:
Core team, National Hygiene Survey 2018, BBS

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Minister
Ministry of Planning
Government of the People's Republic of Bangladesh

Message

I am happy to know that Bangladesh Bureau of Statistics (BBS) of the Statistics and Informatics Division (SID) is going to publish the report on National Hygiene Survey 2018. This is praiseworthy that BBS has conducted the National Hygiene Survey 2018 in collaboration with WaterAid Bangladesh - one of the lead actors in the WASH sector. Though Bangladesh has achieved tremendous success in reducing infant and child death, yet diarrheal and infectious diseases remain the leading cause of childhood death which is mainly due to inadequate knowledge and practice relating to water, sanitation and hygiene (WASH). Government of Bangladesh has developed adequate infrastructure for access to water, sanitation and other hygienic system.

The survey findings show that the WASH situation has improved over the years, however more works to be done to achieve SDG 6 "Ensure availability and sustainable management of water and sanitation for all". I hope the survey findings will help us to improve access to safe water, sanitation and hygiene for ensuring a sustainable system for urban slum, rural poor and hard-to-reach areas.

I like to thank Secretary, Statistics and Informatics Division, Director General, Bangladesh Bureau of Statistics and Focal Point, National Hygiene Survey 2018 for their hard work in conducting the survey and bringing out the report. Special thanks to the WaterAid Bangladesh - a well experienced NGO in innovating, scaling up and managing large scale WASH projects targeting poor, vulnerable and marginalized people.

I hope this report will be useful to the planners, policy makers, researchers and other users for achieving the goals and targets of SDG 6.

December, 2020

M. A. Mannan, MP

Secretary
Statistics and Informatics Division
Ministry of Planning
Government of the People's Republic of Bangladesh

Foreword

I am delighted to know that the report of the National Hygiene Survey 2018 is being published by Bangladesh Bureau of Statistics (BBS). This survey was conducted in collaboration with WaterAid Bangladesh. The survey represents the senerio of water, sanitation and hygiene (WASH) knowledge & practices in households, schools, hospitals, restaurants & street food vendors which will meet the data needs of Sustainable Development Goal-6 (SDG 6).

The hygiene survey is a milestone in enriching our knowledge about proper use of water, soap and other hygiene practice to protect us from many communicable diseases which are one of the leading causes of infant and child death in Bangladesh. Survey findings guide us that, even with a remarkable improvement, awareness campaign and WASH practice need to be continued and strengthened for sustainable 'WASH' knowledge, attitude and practice.

I would like to thank Director General, BBS and Director, Demography & Health Wing and Focal Point of National Hygiene Survey 2018 for conducting the survey and bringing out the report. All the distinguished members of the Steering Committee, Technical Committee and Monitoring Committee also deserve special thanks. WaterAid Bangladesh deserves a special appreciation for its performance in WASH sector, in general and partnering with BBS for this survey, in particular.

It is my firm belief that this report will be helpful for the policy makers, planners, researchers, development partners, NGOs and other stakeholders to guide the formulation of programms and strategies for the development of WASH sector.

December, 2020

Mohammad Yamin Chowdhury

Director General
Bangladesh Bureau of Statistics
Dhaka

Preface

Bangladesh Bureau of Statistics (BBS) as the National Statistical Organization (NSO) conducts a number of censuses and surveys to meet the data need of planners, policy makers, researchers and other stakeholders within the government and outside. Presently, one of the main focuses of BBS is to generate data for the Sustainable Development Goals (SDGs). BBS conducted the 'National Hygiene Survey 2018' in collaboration with WaterAid Bangladesh. This report presents nationally representative findings from the data collected across five different components: household, schools, health facilities, restaurants and street food vendors. The main objective of the survey was to allow monitoring of the progress of hygiene related indicators of SDGs, Five Year Plan, vision 2021 & 2041 etc.

National Hygiene Survey 2018 is the first standalone survey on 'Hygiene' conducted by BBS where separate questionnaire was used for each five components. In this survey data were collected on knowledge, attitudes and practices related to water, sanitation and hygiene (WASH) from all five components. Team approach was followed for field data collection process. Seven days long training was given to the data collectors and supervisors. Data collection activities were monitored strongly on regular basis for the assurance of data quality.

I would like to express my sincere thanks and gratitude to Mr. Mohammad Yamin Chowdhury, Secretary, Statistics and Informatics Division, Ministry of Planning for providing all out support and guidance for completing the report. Members of the technical committee and working committee deserve special thanks for their contribution in conducting the survey and improvement of the report.

My appreciation for the survey team led by Mr. Md. Mashud Alam, Focal Point Officer who actively coordinated the survey and prepared the final report. My special thanks are due to WaterAid Bangladesh for their technical and financial support to this important survey.

I hope this report will be useful for monitoring the progress of the relevant indicators of SDG 6 and for them who are working in WASH sector.

Suggestions and recomendations for further improvement of the future series of this report will be highly appreciated.

December, 2020

Mohammad Tajul Islam

Country Director
WaterAid Bangladesh

Message

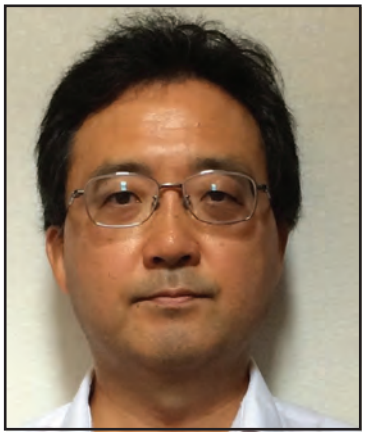
It is with great pleasure and a sense of privilege that I write this message for the National Hygiene Survey (NHS) 2018. As we approach the last decade of the Sustainable Development Goals (SDGs), the availability of timely, accurate data has become more of a priority than ever. Sustainable Development Goal 6, which addresses water, sanitation and hygiene (WASH), is of great importance to Bangladesh. Our Honourable Prime Minister Sheikh Hasina intends Bangladesh to be a role model for Goal 6, and if we are to attain this vision, we need to be prepared with evidence-based programmes and informed policies that effectively address gaps and scales up successes. This is why the NHS is such an important survey – it will highlight areas of progress and challenges, and support more effective planning and financing in the WASH sector.

When we supported the first round of the National Hygiene Survey five years ago, we knew this would be a landmark initiative. The National Hygiene Baseline Survey 2014 gave us the first-ever nationally representative, quantifiable picture of hygiene behaviour in the country, that went on to shape policies, programme design and research. Since its publication, evidence from the survey has been key to different government and non-government reports, a circular on sanitation in secondary schools, and academic publications. In the intervening years, we have seen a quickening in the pace of this country's economic and social progress that is leaving its mark in every part of life, and it will be very interesting to see what effects these larger trends have had on hygiene behaviour.

Bangladesh Bureau of Statistics (BBS) as a National Statistical Office (NSO) is the right custodian for this survey, and we are proud to be their partner. Demography and Health Wing of BBS has shown exceptional commitment and leadership in conducting a complex survey with great rigour. I thank all those involved in providing technical and financial assistance, including Policy Support Branch, UNICEF and the Bill and Melinda Gates Foundation. This report will be an invaluable resource not just for those working in WASH, but those interested in public health, education and food safety.

December, 2020

Hasin Jahan



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Representative
UNICEF Bangladesh

Message

The overall objective of UNICEF in the area of water, sanitation and hygiene (WASH) is to contribute to the realization of children's rights to survival and development through promotion of the sector and support to national programmes that increase equitable and sustainable access to, and use of, safe water and basic sanitation services, and promote improved hygiene. UNICEF is committed to improve the lives of children everywhere, and key among the indicators to measure this is the mortality rate of those five years of age. Mortality rates among children under five years have decreased considerably in Bangladesh in the past two decades, from 52 per 1,000 live births in 2009 to 40 today. Improvements in water, sanitation and hygiene (WASH) have no doubt been part of this great achievement, but there is still much work to be done, and measuring hygiene levels is a critical component in ensuring safe WASH for children. This second National Hygiene Survey benchmarks the hygiene behaviours across the country for the beginning of the Sustainable Development Goals (SDGs) era. The National Hygiene Survey in 2014 was the first of its kind in Bangladesh, and now we can see where improvements are happening and identify areas where more support is needed.

The report covers the hygiene in almost every aspect of society where it is critical. Households, health facilities, schools, restaurants and food vendors have all be surveyed. Water sources, latrine types, handwashing practice and menstruation have all been assessed with regard to the knowledge, attitude and practice of people.

Practicing of hygiene behaviours of course is a difficult area to monitor because it is mostly related to personal wish and desire shaped by knowledge, attitude and above all the overall environment the individuals live in. The data presented in this report indicates there is an improvement from 2014 to 2018 in personal hygiene, menstrual hygiene management, school hygiene and cleanliness however, still we go a long way to change the social norms for hygiene and environmental cleanliness.

Perhaps the most critical indicator in this survey is handwashing practice. Research shows that washing hands with soap is a highly cost-effective health practice that can drastically reduce the incidence of diarrhoeal disease. When children wash their hands with soap after going to the toilet or before eating, they reduce their risk of getting diarrhoea by more than 40%[1]. The survey found that 61% of households have adequate handwashing facilities, an increase from 40% in 2014. This is evidence that shows hygiene promotion efforts are gaining momentum, but much more efforts are required. We should not stop until handwashing is a social norm.

The government of Bangladesh has a commitment to ensure safe environment through promoting personal hygiene practices as mentioned in the 2012 National Hygiene Strategy for Water Supply and Sanitation sector.

[1] *"Effect of Handwashing on Child Health: A randomized controlled trial', The Lancet, vol.366, no.9481, July 2005,pp.225-233.*

Many WASH sector partners are implementing programmes to promote good hygiene practices. This survey is critical to measure the overall progress and impact of all these programmes.

This is an important step in ensuring a safe environment for the people of Bangladesh. The data generated from the survey is critical for the WASH sector in Bangladesh for advocacy, planning and implementation of programmes. The data is already being used to monitor SDG progress and will be instrumental in guiding policy for the WASH sector.

I would like to congratulate WaterAid and the Bangladesh Bureau of Statistics for their tremendous efforts to implement this survey. UNICEF is proud to be part of this excellent initiative.

December, 2020

Tomoo Hozumi

Director
Demography and Health Wing
Bangladesh Bureau of Statistics (BBS)

Acknowledgements

It is my immense pleasure to acknowledge the contributors who were engaged in conducting the survey and preparation of the report 'National Hygiene Survey 2018'. Bangladesh Bureau of Statistics (BBS) conducted the Survey in collaboration with WaterAid Bangladesh (WAB) during the period March to May 2018 using two-stage stratified cluster sampling method. Total 176 Enumeration Areas (EAs) were selected of which 106 were in rural and 70 were urban. This report presents findings from the data collected across five different components; households, schools, health facilities, restaurants and street food vendors.

I would like to express my profound regards and deep sense of gratitude to Honorable Secretary Mr. Mohammad Yamin Chowdhury, Statistics and Informatics Division and Respected Director General Mr. Mohammad Tajul Islam, Bangladesh Bureau of Statistics for their valuable suggestions, continuous guidance and all out support in smooth completion of all activities and bringing the report into its final shape.

It is worth mentioning that WaterAid Bangladesh has provided financial and technical support in the implementation of the National Hygiene Survey 2018. I take the opportunity to express my indebtedness to the International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) for its cooperation.

I am extremely grateful to Deputy Director General, BBS, Professor Muhammad Shuaib, Institute of Statistical Research and Training (ISRT), Dhaka University, Mr. Md. Shamsul Alam, Ex-Director, BBS and all the members of the Working Committee for their technical inputs and kind cooperation in conducting the survey.

My sincere thanks for the National Hygiene Survey 2018 team for their extensive hard work to make the survey successful. All the Enumerators, Supervisors and Monitoring Officers deserve special thanks for their effort.

I hope this report will be useful to the policy-makers, planners, researchers, development partners and other stakeholders. Suggestions and comments for further improvement will be highly appreciated.

December, 2020

Md. Mashud Alam

Acronyms

BBS	Bangladesh Bureau of Statistics
BDHS	Bangladesh Demographic and Health Survey
DHS	Demographic and Health Survey
EA	Enumeration area
GEE	Generalized Estimating Equations
GoB	Government of Bangladesh
HH	Household
icddr,b	International center for diarrhoeal diseases research, Bangladesh
ISRT	Institute of Statistical Research and Training
JMP	Joint Monitoring Programme (JMP) by WHO/UNICEF for Water Supply and Sanitation
MICS	Multiple Indicator Cluster Survey
MHM	Menstrual Hygiene Management
NGO	Non-government Organization
PSU	Primary Sampling Unit
SDGs	Sustainable Development Goals
UNICEF	United Nations International Children's Emergency Fund
WAB	WaterAid Bangladesh
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization

Chapter 1

Background

Diarrheal and respiratory infections remain the leading causes of childhood death in Bangladesh (BDHS 2014).The high rates of these infections are likely due, at least in part, to sub-optimal knowledge, attitudes and practice relating to water, sanitation and hygiene (WASH) and to inadequate WASH facilities which present barriers to good practice (Huda et al. 2012) (S. P. Luby et al. 2018) (Ayse et al. 2015). In 2012, the government of Bangladesh committed to a national strategy for hygiene promotion. Nationally representative data are important to assist in planning appropriately targeted interventions.

The Bangladesh Demographic and Health Surveys (BDHS) and Multiple Indicator Cluster Surveys (MICS) are useful sources of data on water, sanitation and hygiene facilities and practices. However, BDHS and MICS do not cover a comprehensive list of indicators with regards to hygiene across all contexts including household and schools, food hygiene in restaurants and among street food vendors, and hygiene in health facilities. To date, the questions incorporated in these surveys likely do not adequately assess handwashing with soap and adequacy of facilities.

The World Health Organization (WHO) reported that health-care associated infections affect up to 30% of patients (WHO 2008), yet basic WASH requirements are not met in many health-care settings. Similarly, although the WASH situation in Bangladesh has

improved overall, including 84% of schools having toilets, only 24% of schools had improved and functional and clean toilets, while only 45% were unlocked (UNICEF 2019). These data indicated that lack of good sanitation and handwashing infrastructure in schools and health facilities may hamper efforts to improve handwashing and sanitation behaviors in these institutional settings.

It has been suggested that if schools and health facility compounds improve access to handwashing locations and promote proper disposal of waste in combination with behavioral change communication for students, teachers, patients/caregivers and facility staff, the risk of disease transmission in Bangladesh could be reduced (icddrb internal publications)[2]. Health facility data from the national hygiene baseline survey 2013 also suggested that increasing hand hygiene provision and handwashing behaviors could improve infection control in Bangladeshi health-care facilities (Horng et al. 2017). Hand-washing and improved water management practices by restaurants and street food vendors could also reduce viral and bacterial diarrhea associated with poor hygiene in restaurants and by food handlers (Todd et al. 2010).

To provide a comprehensive list of indicators relating to WASH Bangladesh Bureau of Statistics (BBS) initiated the stand alone National Hygiene Survey 2018. To obtain data from a representative population, this survey design aimed to include a sufficient number of randomly selected households. Since institutional settings such as schools and health facilities are also important for transmission of diarrhea and respiratory infections, schools and health facilities were included in this survey. In addition, the survey assessed the handwashing practices of persons working in different roles in restaurants and as street food vendors.

The main aim of the survey was to allow monitoring of the progress of hygiene related indicators of SDGs and Five Year Plan.

Specific objectives were to assess:

- The current status of household toilet facilities, water sources, water management, food and environmental hygiene.
- Handwashing facilities, student's hand cleanliness, and handwashing practice in schools.
- Student's access to school sanitation facilities, water sources, and environmental hygiene.
- Menstrual hygiene management knowledge, facilities and practices in households and schools.
- Restaurant and street food vendor's handwashing, hand cleanliness, hygiene skills and availability of soap.
- Hospital sanitation facilities, drinking water sources and environmental hygiene.

The Bangladesh Bureau of Statistics (BBS) conducted the countrywide sample survey during the period of March to May 2018, in collaboration with WaterAid Bangladesh (WAB). This report presents nationally representative findings from the data collected across four different components; household, schools, food hygiene in restaurants & food vendors and health facilities.

[2]*Rimi, N. A., R. Sultana, M. S. Islam, M. Uddin, M. Sharker, N. Nahar, S. P. Luby, E. S. Gurley (2012). "Risk of Infection from the Physical Environment in Bangladeshi Hospitals: Putting Infection Control into Context." HSB (Health Science Bulletin)10(3): 9-15 (En), 19-15 (Bengali)*

Chapter 2

Survey Methodology

1. Study design

The sample for the National Hygiene Survey 2018 was designed to provide estimates for the large number of indicators of Hygiene and Sanitation situation of the household, school, food vendors & restaurants and the health facility providers. This was a cross sectional survey. The survey comprised of four broad components (1) Household-level hygiene component including Menstrual Hygiene Management (MHM) among girls and women in the age group 10 – 49 years, (2) School hygiene including MHM, (3) Food hygiene in restaurants and among street food vendors, and (4) Health facility hygiene (see Table A).

2. Sample size and sampling units

The household survey used two-stage stratified cluster sampling. First 176 Enumeration Areas (EAs) were selected from the total of 293,570 EAs in Bangladesh using Probability Proportional to Size (PPS) Sampling. These EAs formed the Primary Sampling Units (PSUs or clusters), 176 PSUs were covered in the survey throughout the country. The Bangladesh Population and Housing Census 2011 was used as the sampling frame with modifications as some rural areas had been declared urban since the 2011 census (BBS 2012). The mean PSU size was 120 households.

The sample size was determined by using the formula shown below with varying precision, prevalence and design effect at 95% confidence level for the corresponding household component, school component, restaurant & vendors component and health facility component.

Determination of Sample Size:

$$n = \frac{Z^2 p(1-p)}{d^2} \times (deff.)$$

Where, n= Size of sample

Z= Value of the standard normal variable, which is equal to 1.96 at 5% level of significance

P= Expected prevalence of a specific indicator

deff.= Design effect

d= The level of precision

Sample size calculation for the indicator wise is given in the following table:

Indicators	Baseline study findings %	Precision %	95% confidence level (Z^2 value)	Design effect	Sample size	National	Sample size per cluster
Handwashing location with water and soap	40	2.8	3.8416	4.5	-	5250~5280	30
HW locations in primary school with both soap and water available	30	6.5	3.8416	1.5	286	572	4.0
HW locations in secondary school with both soap and water available	53	6.5	3.8416	1.5	339	680~704	4.0
Adolescent school girls knew/heard about menstruation at menarche	36	4.0	3.8416	2.5	1382	2766~2816	16
Available water and soap in HW location for restaurant staff only	34	8.5	3.8416	1.5	176	356	2
Food vendors hands appeared clean	34	6.0	3.8416	1.5	355	710~704	4
None or non-functional toilet for doctor in the hospital	19	5.0	3.8416	1.8	425	851~880	5

Component wise final sample size is given below:

Sl	Component	Sample Size
1	Household component	5280
2	School component	704
3	Restaurant and Food vendor component	352 & 704
4	Health facility provider component	880

In case of school, restaurant and food vendors and health facility component, the field team also listed the available primary and secondary level schools, restaurants, street food vendors, and all available health facilities (government, non-government and private) around the household clusters. Later on, from the list of primary and secondary school, four schools were selected with the ratio of primary and secondary education is 2:3. This means for every 10 schools, 4 schools were primary and other six schools were secondary level. In the restaurants or street food vendors' component, two restaurants and four street food vendors were sampled and in the health facility components, five health facilities were selected from the list at each cluster. Now to have an estimate for WASH situation in this study population precision of 3.6 to 4.5 with design effect of 4.5 has been considered.

The sampling technique of schools, restaurants, street food vendors and health facilities was aimed to maximize study efficiency; the alternative of using separate sampling frames for each population would make the study very costly. This strategy also allows linkages between households and the schools, restaurants/vendors, and health facility providers them service.

3. Sampling units, selection criteria and data collection methods

3.1 Household Component

As for primary sampling unit 176 Enumeration Areas were selected; thereafter listed all the Enumeration Areas and then 30 households were selected by using systematic sampling technique at each Enumeration Areas. If any of the eligible respondents of the household was not available or refused to participate, then the next eligible household from the list was surveyed. However, the replacement was taken after having multiple visits (up to three) at households for those respondents was not instantly available.

Sampling unit for MHM - If the household had more than one adolescent female then randomly selected one girl for the interview. If there was no adolescent girl in the household, the team administered the menstrual hygiene module to the female caregiver if she was in the reproductive age range. If the female caregiver was not in the reproductive age range, the team interviewed any women of that household in the reproductive age range.

Informed consent and participant eligibility criteria: Households were considered eligible if the following criteria were met.

- Household head or available primary caregiver of the children in the household provided informed consent for this survey and spot checks.
- For MHM survey, if the household had an adolescent girl then the female data collectors took informed consent from her and her guardian and performed the interview. An adolescent girl (10-19 years) if available and a female of age group 20 to 49 years.

Method of data collection and data collection tools –

Household level data collection was done by face-to-face interviews with the eligible respondents, conducted spot checks for sanitation facilities and hand hygiene practices, and by conducting handwashing demonstrations of households caregivers, and children under-five years of age.

The primary target respondent for hand cleanliness spot-checks and handwashing demonstrations were the youngest child <5 years of age, and the primary caregiver of the children (male or female) since s/he has the closest contact with the children.

For the menstrual hygiene data, our female data collectors conducted interviewed face to face to adolescent females (10 to 19 years old) and similarly for women in age group (20 to 49 years old).

3.2 School Component

Around the household cluster communities from which the study households were sampled, the field team listed eight nearby primary and secondary level schools. From the list, four nearby schools were selected for the survey and hence the sample size stands at 704 schools in the 176 randomly selected clusters. If any of the school refused to participate, the next nearby school from the list was included for survey.

In consultation and permission from the headmasters in the sampled schools, the team selected 4 students for face to face interviews at each school with equal proportion of boys and girls. For primary schools, girls were selected for MHM from Class V only and for secondary schools, the girls were selected from Class VI-X. Four girls who menstruated before the survey were selected for the interview by the head masters at each school.

School survey eligibility criteria and consent taking: Schools were considered eligible for the survey if the following criteria were met.

- Primary or high school.
- Headmaster or designated school teacher provided informed consent for the survey.
- The field team excluded Madrasahs (Islamic teaching institutions) and English medium schools (following the British curriculum) as they used different curricula and are controlled by a different school board. If any of the authorities from the selected school refused to participate in the study, the team replaced it with the next school from the list.

Method of data collection and data collection tools -

In the eligible schools, interview was conducted with headmasters/designated teachers and conducted spot checks to water, sanitation, handwashing facilities and MHM facilities at schools. Also, Four sampled students were interviewed face to face using structured questionnaires.

The team observed handwashing skills of students by conducting handwashing demonstrations.

Finally, the female team members conducted MHM face to face interviews with sampled girls in secondary schools.

3.3 Restaurant Component

Across all clusters where the household survey was conducted, the field team listed all restaurants around the household survey clusters by conducting transact walks and talking to the key informants in the communities. From the list of restaurants two restaurants were randomly selected at each cluster or Enumeration Areas. If the sampled restaurant was refused to participate, the field team replaced the restaurant by the next available restaurant from the list Eligibility criteria: Restaurants were considered eligible for the survey if the following criteria were met:

- Cooked food at least one time in a day inside the restaurant and sold food at least 5 hours time in a day
- Head/manager of the restaurant was available to give informed consent for observations, and conducting surveys and spot checks

Method of data collection and data collection tools -

In the eligible restaurants, the survey team initially conducted face to face interviews and spot-checks of available facilities (handwashing locations, covering of foods in the kitchen and other locations, sanitation facilities and water points). For the face to face interviews and spot-checks, the field team used structure questionnaires. The team conducted 3 face-to-face interviews to determine knowledge and practices of handwashing and sanitation behaviors with the manager/ owner of the restaurant (1), cook/food maker (1) and service boy (1).

In order to check the safe drinking water serving practices of service staff at restaurants, the interviewers requested the service a glass of drinking water and then recorded the critical handwashing behaviour before serving drinking water.

The team observed handwashing skills of service staff by conducting handwashing demonstrations.

At the end, the team members conducted 90-minute structured observations of the handwashing behaviors of the restaurant staff and their customers. Structured list of questionnaire was used for recording the handwashing behaviors.

3.4 Street food vendor Component

As described for restaurants, the field team listed all available street food vendors in public points in or nearby to the household survey clusters where the people of survey communities mostly travel and have food from the street food vendors. The field team identified street food vendors by conducting transact walks and in discussion with the key informant in the communities. Thereafter four street food vendors were selected from the list for each cluster by using the simple random sampling technique. Since street vendors are highly mobile, many of the sampled vendors from the list were not available during the time of the survey. In these cases, food vendors available in the list at the time of the survey were interviewed instead.

Eligibility criteria: Street food vendors were considered eligible for the survey if they met the following criteria:

- Reported as a source of readymade food by household members during the survey
- Available to give informed consent and spot-check
- Sold at least one food item which was made involving his/her own hand contact

Method of data collection and data collection tools -

In the eligible food vendors, the survey team initially conducted face to face interviews and spot-checks of available facilities (handwashing locations, covering of foods, sanitation facilities and water points). For the face to face interviews and spot-checks, the field team used structured questionnaires. The team conducted face-to-face interviews to determine knowledge and practices of handwashing and sanitation behaviors with food vendors.

In order to check the safe drinking water serving practices of food vendors, the interviewers requested the service a glass of drinking water and then recorded the critical handwashing behaviour before serving drinking water.
The team observed handwashing skills of service staff by conducting handwashing demonstrations.

At the end, the team conducted 90-minute structured observations of the handwashing behaviors of the food vendors and its customers. Handwashing events before food contacted events and after fecal contacted events were recorded. The urination events were confirmed by the observers if there was no symptom of defecation in latrine/toilet. Structured set of questionnaire was used for recording the handwashing behaviors.

3.5 Health facility Component

Initially the field team listed up to 10 health facilities (tertiary level hospitals or private/non-government health facilities that provide overnight inpatient healthcare facilities) within the upazila in which the household cluster was sampled. This listing was done in consultations with key informants in the communities, and upazila (sub-district) level health offices. Thereafter five health facilities were selected randomly for conducting face to face survey, spot-checks and structured observations. If any of the sampled facility authorities refused to participate in the study, the field team replaced it with the nearest facility from the list. In this way 880 sampled health facilities data were collected i.e; 5 from each of the 176 clusters/PSUs. In case there were insufficient numbers of health facilities in the upazila, the full district was considered instead of the upazila, and the health facility closest to the PSU was listed. In the sampled health facilities 4 wards (1 male ward, 1 female ward, 1 pediatric ward and 1 common ward) were chosen for spot checks related to sanitation and hygiene.

At each cluster, out of the sampled five facilities, one health facility was sampled for conducting 5-hour structured observations of handwashing practices of hospital staff and patients/caregivers available in the observation wards. The health facility at each PSU/cluster for structured observations was selected based on the facility that had maximum number of patients admitted. The maximum number of patients in a facility was determined from the data of face to face interview and spot checks section. Usually structured observations were conducted in the pediatric ward in the sampled facility. In case the pediatric ward not available, the ward that was attended by the maximum number of patients was selected for the structured observations.

Eligibility criteria: Health facilities were considered eligible for the survey if the following criteria were met:

- tertiary level hospitals or private/ non-government health facilities that provided overnight inpatient healthcare service inside the health facilities

- At least one patient admitted to health facility on the day of interview
- Facility head was available to give informed consent for the survey, spot check and 5-hour structured observation

Method of data collection and data collection tools -

The team conducted 5-hour structured observations in the pediatric ward at in the sampled health facilities using structured set of checklist of handwashing behaviors. The observations included handwashing before touching patients, before conducting clean/aseptic procedures, after body fluid exposure or toileting, after touching patients or wounds, after touching patient surroundings in addition to other key handwashing events such as before feeding, before eating, after general cleaning, after sneezing/coughing and before preparing/serving food or water. The team observed handwashing skills of service staff by conducting handwashing demonstrations. The urination events were confirmed by the observers if there was no symptom of defecation in latrine/toilet. Once the team started recording a handwashing event to observe, the observation of that event continued till the event ends, and then started to observe another handwashing event.

The field team conducted interviews with doctors/administrators of the facilities, nurse and ward boy/ayas. The spot-checks were conducted to the available facilities including toilets, water points, handwashing locations and handwashing agents at each of the wards (male, female, pediatric and common wards) and corridors in the facilities. The team also recorded the functionality of each and other basic information including number of beds, average number of admitted patients per day, number of doctors and nurses. Finally, the team conducted environmental cleanliness and general waste disposal systems in hospital compounds and spot checks in clinic disposal systems in pathological labs (if available).

The summary of sample size, eligibility criteria, interview participants, data collection methods are given in Table A.

Table A – Summary of population sampling units, participants and data collection methods

Sampling unit (number per cluster)	Participants	Data collection methods
30 households (HH) <=30 adolescent @ 1per HH for MHM <=30 women in age group (19 to 49) at 1 per HH for MHM	**For main survey** • Caregiver or head of household **For menstrual hygiene management:** • Adolescent girls aged 10-19 years (if available at home) • Women 20-49 year age in the age group	• Face to face interview • Spot-checks • Handwashing demonstration
4 Schools	• Headmaster or teacher • 4 students at each school • For menstrual hygiene: 4 selected girls with menstruation experience	• Face to face interview • Spot-checks • Handwashing demonstration
2 Restaurants 4 Street food vendors	Restaurants; one each • Manager/owner • Cook • Service boy • Street food vendor • Proprietor **Observed safe drinking water serving practices at restaurants and street food vendors** • Service staff at restaurants and street food vendors	• Face to face survey • Spot check • Observed safe drinking water serving practices • Handwashing demonstration • Structured observation
5 Health facilities	• Administrator/ doctor • Nurse • Ward boy/aya • Patient/ caregivers /visitors	• Face to face survey • Spot check • Structured observation

4. Instrument designing

The data collection instruments were designed by Demography and Health Wing Team of BBS. The BBS team arranged several consultations workshops together with the experts from BBS, WaterAid, Institute of Statistical Research and Training (ISRT) of Dhaka University, and the International Center for Diarrheal Diseases Research, Bangladesh (icddrb).

5. Recruitment of field team, training and data collection

For data collection, 25 teams of skilled field professionals were recruited. Each team comprised 1 supervisor, 1 male enumerator and 3 female enumerators. The teams attended seven days in-house training and one day field practice in Dhaka prior to data collection. Training was conducted together and sequentially for all study components (household, school, restaurant and food hygiene and health facilities) one after another. Immediately after the in-house training, day-long field test was conducted based on the integrated set of tools.

Data collection started from 23 March 2018 and continued till 14 May 2018.

6. Data quality control

Data were captured using paper based data collection technique. The supervising team had multiple levels of supervision, and ongoing quantitative evaluation of the amount of work achieved by each field team and its quality. The study team developed standard operating procedures for data collectors, supervisors and followed those standard operating procedures to ensure quality of data. The supervising team monitored the field work by assessing the number of household and school visits completed each week by each field team. The field level team supervisor reviewed all collected data daily to ensure that it was in the proper format. Collected data was checked regularly for completeness and consistency.

Data processing team was responsible to entry of the survey data using CS Pro Software. The data entry team maintained strong liaison with the data collection team in case any error was noted in the paper-based questionnaire.

7. Data analysis

Data were analyzed using STATA©version 14.2.

For determining standard estimates representing each cluster population, weighted proportions and means were calculated by adjusting the inverse probability weighting (listed numbers/sampled numbers) for national estimates.

Data are mostly presented in figures and tables.

For preparation of the wealth index variable, principal component analysis (PCA) was done and a proxy variable of wealth scores using variables of household ownership of assets, utilities and services was created. The wealth scores are grouped into quintiles called – poorest, 2nd, 3rd, 4th and richest quintiles. Numerous studies have used such technique of poverty analysis (Vyas and Kumaranayake 2006).

8. Ethical considerations

Each member of the field team received formal training on how to protect the rights of the participants prior to conducting our survey, including obtaining written informed consent. As part of the consent process the team made clear the amount of time they were asking prospective participants to give. They explained that there were no individual benefits or compensation for participating, that there would be questions about use of water or toilet facilities and handwashing, and they noted that these topics could be sensitive, and/ or that it could be uncomfortable to have a stranger interviewing them and conducting spot check in their household or in the school. During the consent process the field workers specified that participation was voluntary. They explained to the beneficiaries that they could withdraw their consent at any time. Study supervisors made unannounced visits to field teams to ensure that the enrolment and consent process were followed.

9. Limitations

Household survey followed the population based random sampling technique for example BDHS or MICS in Bangladesh and so it is a nationally representative hygiene survey. However, samples for school, restaurant, food vendor and health facilities were selected from a list based on the availability of

the respected components in the household cluster or nearby. Since the list is not exhausted, the results may not be represented nationally.

Sampling strategy followed the replacement criteria to maintain the sample size and therefore, this may have deviated from the standard sampling strategy of 'no replacement'.

The study followed paper based data collection technique. Therefore, for such a huge volume of data to enter may have had some level of errors. To minimize data entry error, the data entry supervisors rechecked at least 5% of the entered data and analyzed the level of errors were done, shared the errors with data entry members. After data entry and editing, if any further inconsistency was observed, the analysis team cross-checked and corrected the errors.

When conducting structured observations at health facilities, restaurants and food vendors it was not possible to maintain a uniform time slot due to travelling distance, lack of transportation facilities and consent taking process. However, this probably had minimal impact on sampling error because the observations were uniformly conducted during the official hours at health facilities and peak business hours at restaurants and food vendors.

Chapter 3

Indicators at a glance

Household Component

Household characteristics	%
Female respondent	83
Housing materials	
Roof concrete	19
Wall concrete	45
Floor concrete	47
Electricity connection	88
Almirah/wardrobe	52
Any table	70
Chair/Bench	78
Watch/clock	46
TV-color	51

Household characteristics	%
Refrigerator	33
Bicycle	25
Motor cycle	8.7
Sewing machine	16
Mobile phones	88
Land phone	4.8
Engine –shallow/ husking/ thresher/ rickshaw	7.0
Car/ tractor / taxi	2.0

Access to and management of water at households	%
Sources of drinking water -	
Shallow tube well/tara pump	51
Deep tube well/tara pump	30
Protected dug well/spring	1.1
Tap water inside dwelling	8.1
Tap water in outside	7.5
Unimproved sources	2.5
Source of cooking water -	
Shallow tube well/tara pump	48
Deep tube well/tara pump	23
Protected dug well/spring	0.4
Tap water inside dwelling	11
Tap water in outside	7.5
Unimproved sources	9.1
Households stored drinking water in containers	60
Households stored drinking water in covered containers	44
Treated source water at household after collecting	14

Knowledge of handwashing and sanitation messages	%
Respondents could mention following key handwashing (HW) times using water and soap:	
1. Before preparing food/serving	36
2. Before eating	40
3. Before feeding the baby	15
4. After defecation	55
5. After cleaning child's anus	9.1
6. After cleaning child's faeces	4.9

Access to latrines, water availability and clean appearance of latrines	%
1. Access to improved latrine (not shared)	56
2. Improved latrines had water available (in or nearby)	55
3. Improved latrine slab and floor appeared clean (no visible faeces)	41
4. Access to improved latrine:(including shared)	86
5. Access to latrine by category (including shared):	
Improved:	
Piped sewer system	13
Septic tank	24
Pit - sanitary	49
Unimproved:	
Flush to open sources	6.5
Open pit	4.2
Hanging toilet	1.4
No Latrine:	
No latrine	1.7

Proxy indicators of handwashing behaviors	%
1a. Handwashing location available within 30 feet from the latrine structure (including improved and unimproved toilet)	84
1b. Handwashing location with water available within 30 feet from the latrine structure (including improved and unimproved toilet)	77
1c. Handwashing location with water and soap available within 30 feet from the latrine structure (including improved and unimproved toilet)	61
2a. Mothers' hands appeared clean	39
2b. Youngest child (< 5 years age group) in household's hands appeared clean	38
3. Handwashing demonstration:	
3a. 3-5 year old children washed both hands with soap	14
3b. Mothers/female caregivers washed both hands with soap	55
3c. Male caregivers washed both hands with soap	56

Food and environmental hygiene (spot-checks)	%
1. Households stored ready/cooked food	91
2. Stored ready/cooked food had been covered	74
3. Household disposed their household wastes into:	
Pit or drum	39
River/dam/lake/ponds/stream	16
Road side	2.7
Drain	0.6
Besides homestead/kitchen	3.4
In Jungle	11
4. Disposed of child faeces into a pit or toilet (reported)	71

Menstrual hygiene management of adolescent girls and women	%
1. Adolescent (age: 10-19)	18
2. Adult (age: 20 - 49)	82
Adult (20 - 35)	54
Adult (36 - 49)	28
3. Ever heard about menstruation before your first menstruation	
Adolescent (age: 10-19)	36
Adult (age: 20 - 49)	30
4. People/source with whom respondent ever discussed or heard about menstruation issues	
Adolescent (age: 10-19)	
Mother/sister/in-laws /aunty /grandmother, …	22
Friends	15
Teachers	3.5
TV/radio/reading	4.1
Adult (age: 20 - 49)	
Mother/sister/in-laws /aunty /grandmother, …	24
Friends	11
Teachers	1.5
TV/radio/reading	1.3
5. Materials used during menstruation	
5.a Adolescent:	
New cloth	5.1
Old cloth	50
Disposable pad	43
Cotton/tissue/cloth rag	1.6
Nothing	--
5.b Adult:	
New cloth	3.3
Old cloth	64.7
Disposable pad	29
Cotton/tissue/cloth rag	1.9
Nothing	1.1

Menstrual hygiene management of adolescent girls and women	%
6. Among those who used old cloth for repeated use, material to clean/wash:	
Only with water -- adolescent	1.0
With soap- adolescent	52
Only with water -- adult	1.5
With soap- adult	62
7. Among those who used old cloth for repeated use, washed cloth with soap and improved source of water and dried in sunlight:	
Adolescent	12
Adult	18

Health Facilities Component

Water sources at health facilities (spot-checks)	%
General use of water in the hospital	
1. Common water sources for general use	
More than one water source	28
Improved water source	99
2. Water source for general use located inside the hospital/ facility building	80
Drinking water sources for patients and caregivers in the hospital	
3. Patients/caregivers water sources for drinking	
More than one water source	34
Improved water source	82
4. Water source for drinking located inside the hospital/ facility building	76

Access to sanitation and handwashing facilities for patients and caregivers (spot-checks)	
1. For patients/caregivers use: (spot checked)	
All Hospitals	
Male ward – improved	100
Female ward –improved	99
Pediatric ward – improved	98
Common ward – improved	97
Male ward – unimproved	--
Female ward – unimproved	0.3
Pediatric ward – unimproved	--
Common ward – unimproved	2.1

Access to sanitation and handwashing facilities for patients and caregivers (spot-checks)	%
Faeces were visible on slab or floor	
Male ward	18
Female ward	17
Pediatric ward	29
Common ward	8.3
No HW location after toileting	
Male ward	0.9
Female ward	1.9
Pediatric ward	2.2
Common ward	--

Latrine ratios in health facilities, and access to sanitation and handwashing facilities for doctors and nurses (spot-checks)	%
1. Latrine ratios in health facilities	
Bed to latrine ratio	5.1
Patient / caregivers to patient latrine	3.2
Latrine to handwashing location ratio	1.13
2. Access to sanitation and handwashing facilities for doctors (spot-checks)	%(n/N)
None or nonfunctional latrine	12
Improved latrine	88
Types of latrine-	
Piped sewer	20
Septic tank	53
Ventilated improved pit	12
Faeces were visible on slab or floor	3.7
HW locations seen after latrine use	
No location	13
Basin	49
Tap	36
Others (tw, pot, drum, pond)	2.0
Water available	86
Soap/detergent available	82
Water and soap available	81
3. Access to sanitation and handwashing facilities for Nurses and other staff use:	
None or nonfunctional	9.1
Unimproved latrine	-- (0/880)
Improved latrine	91
Type of latrine-	
Piped sewer	22
Septic tank	54
Ventilated improved pit	12

Latrine ratios in health facilities, and access to sanitation and handwashing facilities for doctors and nurses (spot-checks)	%
Faeces were visible on slab or floor	5.5
HW locations seen after toileting	
No location	10
Basin	46
Tap	42
Others (tw, pot, drum, & pond)	1.6
Water available	89
Soap/detergent available	77
Water and soap available	77

Sanitation and hygiene awareness/management training	%
All Sampled Hospitals	
1. Sanitation and hygiene awareness/ management training received by	
Doctors/officials:	
None	68
General waste disposal	18
Clinical waste disposal	16
Sterilization of clinical equipment	13
Hospital cleanliness management	26
Nurses:	
None	55
General waste disposal	20
Clinical waste disposal	19
Sterilization of clinical equipment	27
Hospital cleanliness management	30
Ward boys/Ayas:	
None	73
General waste disposal	16
Clinical waste disposal	9.9
Sterilization of clinical equipment	5.5
Hospital cleanliness management	18

School Component

Summary of school and respondent characteristics	%
1. Type of School:	
Primary	40
Secondary	60
2. Female teachers at school:	
Primary	70
Secondary	32
All schools	47
3. Female students in school:	
Primary	53
Secondary	59
All schools	57
4. Respondents from school:	
Head master	68
Teacher	32
Female students	70

Drinking water sources at schools (spot-checks)	%
1. Improved functional drinking water source:	
Primary	87
Secondary	96
All schools	92
2. Types of drinking water sources at schools:	
Shallow tube-well	42
Deep tube-well	46
Protected dug-well/spring	0.3
Tap-water at school compound	9
Tap-water outside compound	5
Direct/ unprotected channel	4
Nonfunctional water sources	0.1
3. Arsenic contamination tested in last year	
Primary	47
Secondary	51
All schools	50

Access to latrines for students	%
Functional improved latrines available at schools for students	
Primary	98
Secondary	100
All schools	99
	Mean
Number of students per toilet	
Primary	120
Secondary	112
All schools	115
Number of students per functional, improved, unlocked toilet	
Primary	121
Secondary	107
All schools	113
Water available inside the toilet or nearby (<30 feet from the toilet)	%
Primary	89
Secondary	93
All schools	91
Water and soap available inside or nearby (<30 feet from the toilet)	
Primary	81
Secondary	88
All schools	85

Access to sanitation facilities for students: Segregation by sex (Co-education schools only)	%
Schools with separate improved, unlocked toilets	
Boys	67
Girls	70
For both boys and girls	65
Improved, unlocked, accessible toilets that have soap and water available	
Boys	40
Girls	41
For both boys and girls	39

Handwashing knowledge – students' report	%
1. Important times to wash hands with soap-awareness of students (open ended)	
a. Before food preparation	14
b. Before eating	91
c. Before feeding a child	05
d. After defecation	91

Environmental hygiene at schools compounds	%
Schools have drum/pit for solid waste disposal (spot check):	
Primary	51
Secondary	57
All schools	55
Containment of waste in the pit or drum (no wastes lying outside the pit/drum (spot check):	
Primary	40
Secondary	47
All schools	44
Improved sources of water points appeared as clean	
Primary	55
Secondary	61
All schools	59

Mean age of girls and source of their knowledge about menstruation	%
1. Average age at first menstruation	11.8
2. Students knew / heard about menstruation before they started menstruating	53
3. People / source with whom students discussed or heard about menstruation (all students)	
Mother/sister/aunty/ grand mother	80
Friends/relatives	5.8
Others	12
Menstrual hygiene education is provided for girls at school	
Primary	11
Secondary	51
All students	36

Materials used for menstruation and management of menstrual materials	%
1. Materials used during menstruation **while at school:**	
Old cloth (rag)	34
New cloth	3.0
Pad	62
Cotton/Tissues/ waste fabrics of garments	1.0
2. Materials used during menstruation while **NOT at school (home or outside):**	
Old cloth (rag)	39
New cloth	3.6
Pad	56
Cotton/Tissue / waste fabrics of garments	1.2
3. Among those used old cloth for repeated use, cleaned with soap and improved source of water	79

Materials used for menstruation and management of menstrual materials	%
4. Those used old cloth for repeated use, cleaned with soap & improved source of water & dried outside in sunlight	21

Schools had toilets /change rooms with availability of hygiene materials	%
1. Schools had separate improved toilet for girls used for menstrual management purposes had:	
Water available	58
Soap and water available	32
Sanitary pad disposal bins available	22
2. Place in the school to dispose the used cloth / pad for menstrual hygiene	23
3. Schools had hygiene kit (dettol, rag/cotton, soap) for using during menstruation	13

Girls' absenteeism at schools, forbidden activities, faced health problems and sought treatment	%
1. Students missed school during menstruation in last 6 months:	30
2. Mean number of days students missed school during each menstruation cycle:	2.5
3. Forbidden activities during menstruation	
Nothing forbidden	34
Do not allow touching certain things and or to use other's bed	5.6
Do not allow eating certain foods	13
Do not allow cooking	4.8
Do not allow travel outside	14
Do not allow performing/ attending religious activities	46

Restaurant Component

Access to and management of water	%
1. Source of drinking water by category:	
Shallow tube well	37
Deep tube well	29
Tap water inside restaurant	13
Tap water outside restaurant	-
Filter	14
No water source / not applicable	2

Access to and management of water	%
2. Source of cooking water by category:	
Shallow tube well	39
Deep tube well	27
Tap water inside restaurant	25
Tap water outside restaurant	1
Direct channel/unprotected (river/ pond/ lake)	5
No water source / not applicable	--
3. Source of water for cleaning utensils by category:	
Shallow tube well	40
Deep tube well	28
Tap water inside restaurant	27
Tap water outside restaurant	1
Direct channel/unprotected (river, pond, lake)	3
No water source/not applicable	--
4. Treat customer drinking water after collection	25

Access to toilets for the restaurant staff during business hours	%
1. Access to latrine during business hours (restaurant):	
Improved latrine for staff	26
Unimproved latrine	03
No facilities	71
2. Functional improved latrines floor and slab appeared clean (spot checked)	18
3. Median distance of latrine from kitchen in feet (among restaurants those had latrines)	20
4. Median distance of latrine from water source in feet	14

Reported washed hands with soap by restaurant service staff and cooks	%
Mean number of handwashing times using soap during business hours in last 24-hours times:	
Service staff (Mean number)	Mean=11
Cooks (Mean number)	Mean=10
Washed hands with soap during the business hours:	
Service staff	63
Cooks	68
Respondents washed hands with soap (in last 24 hours):	
Service staff	
Washed at least 3 of the events out of 10	51
1. After cleaning bench, table, chair, floor	43
2. After cleaning utensils	23
3. After cleaning/removing wastage/left over	15

Reported washed hands with soap by restaurant service staff and cooks	%
4. Before food preparation	08
5. Before mashing food/salad preparation	09
6. Before eating	42
7. Before serving food	36
8. After cutting fish/meat/raw vegetables	02
9. After defecation/cleaning a defecated child	49
10. After cleaning human/animal faeces	03
Cooks	
Washed at least 3 of the events out of 10	53
1. After cleaning bench, table, chair, floor	03
2. After cleaning utensils	09
3. After cleaning/removing wastage/leftovers	06
4. Before food preparation	49
5. Before mashing food/salad preparation	27
6. Before eating	47
7. Before serving food	15
8. After cutting fish/meat/raw vegetables	27
9. After defecation/cleaning a defecated child	53
10. After cleaning human/animal faeces	03

Food hygiene at restaurants (Spot checks)	%
1. Food items stored in a covered and clean pot/container for sell:	
a. Rice/hotchpotch (rice, lentil &vegetable mix)	23
b. Plain bread	13
c. Fish	19
d. Meat/egg	21
e. Lentil soup	19
f. Vegetables	18
g. Salad	15
h. Fried food item made up of eggplant, lentils, potato, onion, shrimp (Piyaju, beguni, singara,...)	15
i. Mashed food- potato, fish, egg, shrimp, spices, lentil, vegetable	19
j. Sweets/curd/milk	32

Food Vendor Component

Access to and management of water	%
1. Source of drinking water by category:	
Shallow tube well	34
Deep tube well	29
Tap water inside restaurant/food vending structure	06
Tap water outside restaurant/food vending structure	02
Filter	06
No water source/not applicable	05

Access to and management of water	%
2. Source of cooking water by category:	
Shallow tube well	37
Deep tube well	32
Tap water inside restaurant/food vending structure	11
Tap water outside restaurant/food vending structure	04
Direct channel/unprotected (river/ pond/ lake)	01
No water source/not applicable	11
3. Source of water for cleaning utensils by category:	
Shallow tube well	36
Deep tube well	31
Tap water inside restaurant/food vending structure	11
Tap water outside restaurant/food vending structure	05
Direct channel/unprotected (river, pond, lake)	01
No water source/not applicable	12
4. Treat customer drinking water after collection	06

Access to toilets for the food vendors during business hours	%
Reported defecation locations used by the food vendors during business hours if needed:	
Public latrine nearby market of mosque	68
Latrines owned by nearby residential houses	23
Latrines nearby school/collage/hospital	13
No facility/bush/field--open defecation	01

Reported washed hands with soap by food vendors	%
Mean number of handwashing times using soap during business hours in last 24-hours times:	
Washed hands with soap during the business hours:	
Reported they washed hands with soap (in last 24 hours):	
Mentioned at least 3 out of 10	53
1. After cleaning bench, table, chair, floor	15
2. After cleaning utensils	32
3. After cleaning/removing wastage/left over	12
4. Before food preparation	38
5. Before mashing food/salad preparation	16
6. Before eating	64
7. Before serving food	19
8. After cutting fish/meat/raw vegetables	02
9. After defecation/cleaning a defecated child	75
10. After cleaning human/animal faeces	03

Food hygiene at street food vendors (Spot checks)	%
1. Food items kept in a covered and clean pot/container for sale:	
a. Puffed rice with chilies and oils/nuts	18
b. Fried food item made up of eggplant, lentils, potato, onion, shrimp (Piyaju, beguni, singara, ...)	9
c. Fushka/chotpati/golgoppa (boiled diced potatoes, onions, chilies, chickpeas with grated eggs on top with roasted spice powder)	25
d. Tea, biscuits, dry cake	67
e. Variety of dried fruits kept in oil (called pickles)	23
f. Variety of juice	58
g. Sliced raw fruits	23
h. Variety of cake-rice cake, steamed rice cake, rice cake fried in oil	12
i. Mashed food- potato, fish, egg, shrimp, spices, lentil, vegetable	7
j. Rice, lentils and vegetable mix	71
k. Plain bread	33
l. Curry (fish, lentil, meat, egg, vegetable)	48
m. Sweets/curd/milk	56

Chapter 4

Results

Part A: Household Component

1.1 Sampling coverage and household characteristics

The household component includes results from 176 PSU from all over Bangladesh to provide a nationally and geographically representative survey of the overall hygiene situation in Bangladesh. There were a total of 5,280 households covered under the survey.

Table 1.1 presents data on characteristics of the surveyed households, respondents were mostly female (over 83%). Close to one third of the respondents (30%) had no formal education. Illiteracy rates among respondents was higher in rural areas (34%) compared to urban (24%). Female headed households were 12% overall. Illiteracy was more likely among household heads (37%) compared to survey respondents (30%). Illiteracy was more likely among female heads of households (46%) compared to the male (36%). Over one-third of households (35%) had a child under-five years of age and this proportion was similar in both rural and urban locations. The mean number of persons in a household was 4.49.

Table 1.1: Household characteristics, 2018

Indicator	Rural (%)	Urban (%)	National (%)
Female respondent	**83**	**84**	**83**
Education of respondent			
Completed over 5 years	39	51	44
Completed 1 to 5 years formal education	27	24	26
No formal education	34	24	30
Female headed household	**10**	**13**	**12**
Education of household head			
Completed over 5 years	30	48	38
Completed 1 to 5 years formal education	27	22	25
No formal education	43	29	37
Education of female household head[3]			
Completed over 5 years	21	42	31
Completed 1 to 5 years formal education	21	25	23
No formal education	57	33	46
Education of male household head[4]			
Completed over 5 years	31	49	38
Completed 1 to 5 years formal education	28	22	25
No formal education	41	29	36
Households with child under-five	36	34	35
Household size – mean (95% CI)	4.6	4.3	4.49

1.2 Material wealth

Table 1.2 presents the asset ownership of households in 2018. The majority of households had electricity connections, functional cell phones, chairs or benches, tables, almirah or wardrobe and color televisions. Two-third of households (68%) lived in single room houses, 84% households owned homestead lands and 41% had other land besides homestead lands.

Table 1.2 - Material wealth of households, 2018

Indicator	National (%)
Household owned	
Electricity connection	88
Almirah/wardrobe	52
Any table	70
Chair/Bench	78
Watch/clock	46
TV-color	51
Refrigerator	33

[3]*Denominator N=613 female headed households*
[4]*Denominator N=4,667 male headed households*

Indicator	National (%)
Bicycle	25
Motor cycle	8.7
Sewing machine	16
Mobile phones	88
Land phone	4.8
Engine –shallow/ husking/ thresher/ rickshaw	7.0
Car/ tractor / taxi	2.0
Households with one living room	68
Owned homestead land	
None	16
1-10 decimal	47
>10 decimal	37
Owned land in addition to homestead	41
Housing materials	
Roof concrete	19
Wall concrete	45
Floor concrete on	47

1.3 Household water sources

Table 1.3 shows data on; access to improved sources of drinking water, household ownership of improved water sources (mainly shallow or deep tube wells) and ownership of improved water sources disaggregated by wealth quintile. Almost all households (97%) had access to an improved water source. The analysis followed the JMP definitions of improved water sources. 42% of households owned an improved water source. The analysis of ownership of improved water sources by wealth quintile indicated a linear trend of increase from lowest in poorest to the highest in richest quintile in national label. Table 1.3 shows that up to 9% of households used water from unimproved water sources including unprotected dug wells, unprotected springs, tanker truck, cart with small tank or directly from river/ dam /lake /pond /stream /canal /irrigation channel. The table also shows that half of the households used water from shallow tube-wells, 30% from deep tube-wells, and the remainder of households collected either from a tap or protected well.

Table 1.3– Access to and management of water at households, 2018

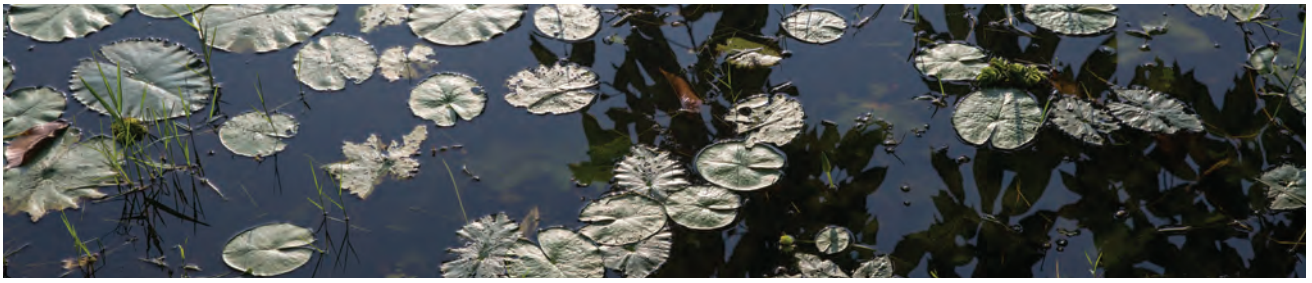
Indicator	National (%)
Sources of drinking water -	
Shallow‡ tube well/tara pump	51
Deep tube well/tara pump	30
Protected dug well/spring	1.1
Tap water inside dwelling	8.1
Tap water in outside	7.5
Unimproved sources§	2.5

‡ *Less than 250 feet deep;*

§ *unimproved sources included bottled water, boiled water, unprotected dug well, unprotected spring water, tanker truck, cart with small tank, directly from river/ dam /lake /ponds /stream /canal /irrigation channel);*

Indicator	National (%)
Source of cooking water -	
Shallow‡ tube well/tara pump	48
Deep tube well/tara pump	23
Protected dug well/spring	0.4
Tap water inside dwelling	11
Tap water in outside	7.5
Unimproved sources§	9.1
Source of water for cleaning fruits and vegetables	
Shallow‡ tube well/tara pump	50
Deep tube well/tara pump	23
Protected dug well/spring	0.3
Tap water inside dwelling	11
Tap water in outside	6.4
Unimproved sources§	9.4
Ownership of improved‖ sources of water:	
Household owned (shallow or deep tube-well)	42
Household owned improved sources of water (shallow or deep tube-well) by wealth quintiles¶	
Poorest quintile	26
2nd	38
3rd	41
4th	47
Wealthiest quintile	59

The field team carried out spot-checks of the cleanliness of surroundings of improved household water sources to assess for presence of water logging, faeces and visible dirt. 30% of the improved water sources appeared clean. Overall, 60% of households stored drinking water in containers, 44% in containers which were covered and 14% of households treated water (boiled or filtered or chemical). Up to 95% individual tube-wells were tested for arsenic contamination and 94% shared tube-well were tested for arsenic contamination.



‡ Less than 250 feet deep;
§ unimproved sources included bottled water, boiled water, unprotected dug well, unprotected spring water, tanker truck, cart with small tank, directly from river/ dam /lake /ponds /stream /canal /irrigation channel);
‖According to JMP Definition Improved sources are: Piped water into dwelling or yard/plot, Public tap or standpipe, Tube-well, Protected dug well, protected spring, Rainwater;
¶ Denominator has been changed here due to break down into wealth quintiles;
†† Tap water not included

Table 1.4– water point cleanliness and storage and treatment of drinking water, 2018

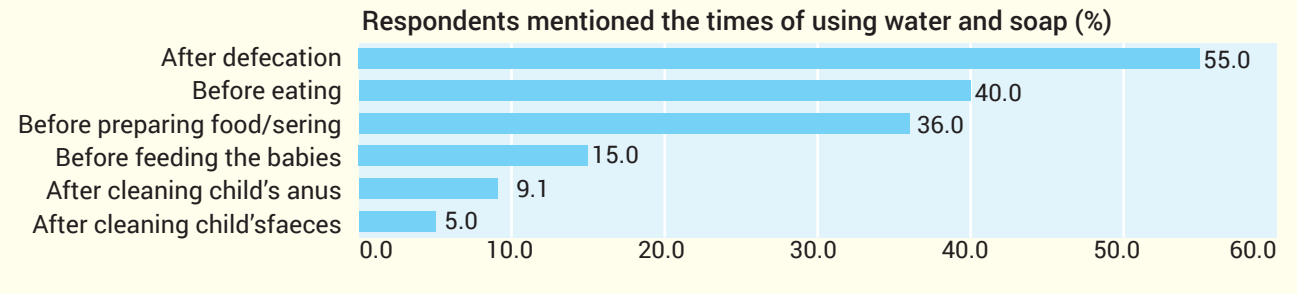
Indicator	National (%)
Household owned improved water points appeared clean**	30
Arsenic tested ever for arsenic contamination prior to survey:	
Individual tube well tested	95
Shared tube well tested	94
Households stored drinking water in containers	60
Households stored drinking water in covered containers	44
Treated source water at household after collecting	14

**No water logging, no faeces, and no visible dirt immediately adjacent to the water point or platform, observed during spot check;

1.4 Knowledge of handwashing and sanitation message.

Respondents were asked "What did they mean by handwashing or when do people need to wash hands with soap?" The field team recorded six handwashing critical times. The majority of respondents (61%) mentioned at least one out of six critical times to wash hands with soap. The majority of respondents (55%) mentioned washing hands with soap after defecation, 40% mentioned before eating, 36% before food preparation and or service food, 15% before feeding babies, 09% after cleaning a child post-defecation and 5% after cleaning up child faeces mentioned in the figure 1.1.

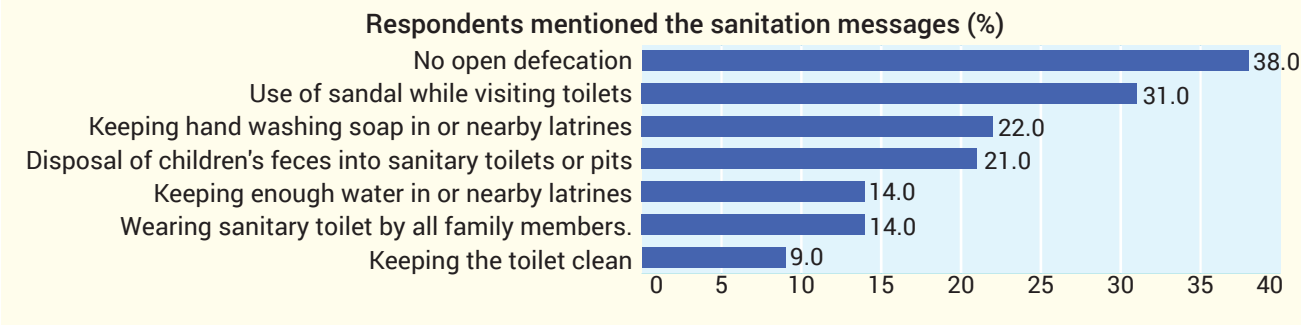
Figure 1.1 –Knowledge of handwashing, 2018



The household respondents were asked an open-ended question "What do they understand or know about sanitation behaviors or practices?" The interviewers recorded mention of any of seven messages; 1) Use of a sanitary latrine by all family members including children; 2) Disposal of children's faeces in sanitary toilets or pits; 3) No open defecation; 4) Keeping the toilet clean; 5) Wearing sandals while visiting toilets; 6) Keeping water in or nearby latrines; and 7) Keeping handwashing soap in or nearby latrines. The majority of the respondents (56%) were able to mention at least one out of the seven messages, and close to half (47%) of the respondents mentioned at least two.

The most commonly mentioned response was no open defecation (38%), 31% mentioned wearing sandals while visiting the toilet/latrine, 22% mentioned keeping soap at or nearby to latrine/toilet, 21% mentioned disposing of child faeces in pits or sanitary latrines and 14% mentioned use of a sanitary latrine by all household members and keep water in or nearby latrines and 9% mentioned keep the toilet clean. Detailed data are in the figure 1.2

Figure 1.2 – Knowledge of sanitation messages, 2018



1.5 Access to sanitation facilities

The study followed the JMP (WHO/UNICEF) definition of improved sanitation access. Table 1.5 shows access to improved latrines, water availability at the improved latrines, and latrine cleanliness (no visible faeces present on the latrine floor and slab) data were disaggregated by the wealth quintiles.

Overall, 56% households had access to an improved latrine (shared latrines not included), 55% had improved latrines and had water available at or nearby the latrines, and 41% had improved latrines, which had water available and were free from fecal contamination of the floor or slab. Improved latrine ownership and latrine cleanliness were lowest among households in the poorest quintile and highest in the richest quintile. Overall, 86% households had access to an improved latrine of which 49% were pit latrines, 24% septic tanks and 13% piped to a sewer system. About 2% households had no latrine access and those were decreasing from poorest quintile to wealthiest quintile

Table 1.5–Access to latrines, water availability and clean appearance of latrines

Indicator	National (%)
1. Access to improved‡ latrine (no shared)	56
By wealth quintiles:	
Poorest quintile	34
2nd	49
3rd	50
4th	58
Wealthiest quintile	88
2. Improved latrines had water available (in or nearby)	55
3. Improved latrine slab and floor appeared clean (no visible faeces)	41
By wealth quintiles	
Poorest quintile	16
2nd	30
3rd	35
4th	45
Wealthiest quintile	79
4. Access to improved latrine:(including shared)	86

Indicator	National (%)
5. Access to latrine by category (including shared):	
Improved:	
Piped sewer system	13
Septic tank	24
Pit - sanitary	49
Unimproved:	
Flush to open sources	6.5
Open pit	4.2
Hanging toilet	1.4
No Latrine:	
No latrine	1.7
6. No access to a latrine	1.7
By wealth quintiles:	
Poorest quintile	6.8
2nd	1.3
3rd	0.4
4th	0.2
Wealthiest quintile	--

‡*Improved toilet according to JMP: Flush or pour-flush to - piped sewer system, septic tank, pit toilet, Ventilated improved pit (VIP) toilet, Pit toilet with slab, Composting toilet and No shared toilet*

1.6 Proxy indicators of handwashing behaviors

Table 1.6 presents spot-checks data of locations for handwashing after defecation; presence of water and soap at handwashing locations; hand cleanliness for children and mothers / caregivers; observed handwashing demonstrations for the children and mothers / caregivers; and reported amount of money spent for soap purchasing in 30 days prior to the survey. Data are disaggregated by wealth quintiles.

Handwashing locations within 30 feet of latrine structures

The majority (84%) of households had handwashing locations for use after defecation within 30 feet of the latrine. The data across wealth quintiles showed that in the poorest quintile 69% of households had handwashing locations within the 30 feet from the latrine, whereas it was 96% in the richest quintile.

Handwashing locations with soap and water available

77% of households had water available at the available handwashing location and 61% had both water and soap available. Detailed data across wealth quintiles are shown in Table 1.6.

Hand cleanliness

Spot-checks has been conducted of hands of mothers/ caregivers and children (<5 years of age). Overall, 39% mothers/ caregivers' and 38% children's hands appeared clean (i.e. no visible dirt over palms, finger pads and nails). Further, clean appearance of hands for mothers/child caregivers and young children were lowest (18% for mothers/caregivers and 21% for young children) among households in the poorest quintile and highest (62% for mothers/caregivers and 52% for young children) in the richest quintile.

Handwashing demonstrations for children, female caregivers/mothers and male caregivers

Handwashing demonstrations were conducted with children under-five years of age, female caregivers/mothers, and male caregivers. 14% of children, 55% of female caregivers/mothers and 56% of male caregivers washed both hands with soap. Like other findings, washing both hands with soap and water was lowest in poorest quintiles and gradually

Table 1.6 – Proxy indicators of handwashing behaviors – handwashing locations, soap availability at handwashing locations, hand cleanliness; handwashing demonstrations, and soap purchasing, 2018

Indicator	National (%)
1. Handwashing locations after defecation:	
1a. Handwashing location available within 30 feet from the latrine structure (including improved[§] and unimproved toilet)	84
Poorest quintile	69
2nd	77
3rd	85
4th	91
Wealthiest quintile	96
1b. Handwashing location with water available within 30 feet from the latrine structure (including improved[§] and unimproved toilet)	77
Poorest quintile	57
2nd	68
3rd	79
4th	85
Wealthiest quintile	93
1c. Handwashing location with water and soap available within 30 feet from the latrine structure (including improved and unimproved toilet)	61
Poorest quintile	33
2nd	48
3rd	60
4th	73
Wealthiest quintile	88
2. Hand cleanliness:	
2a. Mothers' hands appeared clean[¶]	39
Poorest quintile	18
2nd	29
3rd	36
4th	47
Wealthiest quintile	62
2b. Youngest child's (< 5 years age) hands appeared clean[5]	38
Poorest quintile	21
2nd	30
3rd	37
4th	46
Wealthiest quintile	52

Indicator	National (%)
3. Handwashing demonstration:	
3a. 3-5 year old children washed both hands with soap[6]	14
Poorest quintile	8.5
2nd	11
3rd	11
4th	18
Wealthiest quintile	21
3b. Mothers/female caregivers washed both hands with soap[7]	55
Poorest quintile	38
2nd	51
3rd	54
4th	60
Wealthiest quintile	73
3c. Male caregivers washed both hands with soap[8]	56
Poorest quintile	34
2nd	38
3rd	61
4th	63
Wealthiest quintile	74
4. Average amount of Taka spent per household in last 30 days for bar or liquid soap purchase	125
Poorest quintile	87
2nd	107
3rd	112
4th	130
Wealthiest quintile	190

‡Household members use that specific place for handwashing after defecation such as: tube well, basin, tap, drum with tap, bucket/ piped/tank/container and mug together; ¶ No visible dirt over palms, finger pads and over/ under finger nails; § Improved toilet according to JMP: Flush or pour-flush to - piped sewer system, septic tank, pit toilet, Ventilated improved pit toilet, Pit toilet with slab, Composting toilet; ‖ Shared toilets are toilets shared between a group of households in a single building or plot/ compound

1.7 Food and environmental hygiene

Table 1.7 presents data on food and environmental hygiene including safe storage of cooked food, waste disposal practices and disposal of child faeces.

Ninety-one 91% of households stored cooked food in containers, and 74% stored in containers which were covered. Overall, 39% of households disposed of household waste in pits or in drums, while 22% of households had no such facility outside like the pit or drum. Inappropriate disposal of household wastes was common, for example 16% households disposed of these in a river/dam/lake/ pond/ stream and 11% disposed in the bush/jungle. 12% of households with young children reported that they defecated at some place other than in the latrine and 71% of these households disposed of child faeces in a latrine or pit.

[5]Data of 2018 are based on available babies at 1,816 households out of 5,280
[6]Data were available for 886 households for 2018
[7]Total female caregivers were 4,751 in 2018 (denominator)
[8]Total female caregivers were 449 in 2018 (denominator)

Table 1.7 - Food and environmental hygiene (spot-checks), 2018

Indicator	National (%)
1. Households stored ready/cooked food	91
2. Stored ready/cooked food had been covered	74
Poorest quintile	61
2nd	65
3rd	74
4th	80
Wealthiest quintile	91
3. Household disposed their household wastes into:	
Pit or drum	39
River/dam/lake/ponds/stream	16
Road side	2.7
Drain	0.6
Besides homestead/kitchen	3.4
In Jungle	11
4. Disposed wastes into pits or drums by wealth quintiles	
Poorest quintile	29
2nd	36
3rd	38
4th	42
Wealthiest quintile	50
5. Containment‡ of waste in the pit or drum	22
By Wealth quintiles	
Poorest quintile	10
2nd	16
3rd	20
4th	25
Wealthiest quintile	35
6. Households had children defecated into potty/ homestead/diaper (reported)	12
7. Disposed of child faeces into a pit or toilet (reported)¥	71
Poorest quintile	36
2nd	57
3rd	71
4th	84
Wealthiest quintile	92

‡No waste outside the pit or drum; ¥ Among those had children defecated into potty, homestead or diaper

1.8 Menstrual Hygiene Management (MHM)

Coverage

The menstrual hygiene management related data were collected from adolescent girls and women of which (18%) were adolescent girls in the age group of 10-19 years the remaining 3832 (82%) were women in the age group 20-49 years .

Menstruation awareness before the first experience of menstruation

Among the adolescent girls, 36% reported that they had heard about menstruation before the onset of menarche, whereas 30% women heard about menstruation before menarche (Table 1.8).

The data collection team asked from where the girls and women first heard or learnt about menstruation. Respondents reported that the most common sources were relatives (mother, sister, aunt and grandmother). The other sources were: friends (15%), TV/radio/reading (4.1%) and teachers (3.5%). For women in the age group 20-49 years, the other sources were: friends (11%), TV/radio/reading (1.3%) and teachers (1.5%).

Materials used for menstruation management purposes

The majority of adolescent girls (50%) and women (64%) used old cloth for menstrual hygiene management. Use of disposable pads was more likely among adolescents (43%) compared to women (29%).

Table 1.8 shows data on use of old cloth and use of disposable pad by girls and women by wealth quintile. It shows that among adolescent girls, use of old cloth increased as wealth reduced (77% to 21% from richest to poorest), whereas use of disposable pads increased as wealth increased (11% to 74% from poorest to the richest). A similar pattern is seen among women.

Washing/cleaning practices for the repeated use of cloths for MHM

Among those using old cloth, the majority of adolescent girls (52%) and women (62%) washed/cleaned the cloths with soap and water. 8% of adolescents and 12% of women used unprotected water (surface water sources) for this.

Drying and storage of MHM cloths

Across all three seasons, dry, winter and rainy, the majority of adolescent girls and women dried MHM cloths in hiding (55% to 67%). 40% adolescent and 44% of women store of the washed and dried the cloths in hiding.

Privacy at home and taboo activities

18% of adolescent girls and 16% of women reported privacy problems when changing menstrual cloths at home.

Almost half of adolescent girls (47%) and more than half of women (57%) reported that they were not allowed to perform religious activities during the time of menstruation. One-fourth of the girls (25%) reported that they were not allowed to perform some other activities (other than religious) such as cooking or travelling.

65% of adolescent girls and 74% of women reported that they did not face any health problems in previous six months attributable to menstruation. Menstruation related problems faced by adolescents and women included itching/irritation/redness/swelling/lumps and blisters, smelly discharge, unusual discharge and pain in the lower abdomen. About 8% of women and 6% of adolescent girls reported itching/irritation/redness/swelling/lumps related health problems. About 5% women and 4% adolescents reported smelly discharge or unusual discharge. A higher proportion of adolescents (28%) reported of having pain in lower abdomen compared to women (15%).

Table 1.8 -Menstrual hygiene management of adolescent girls and women, 2018

Indicator	National (%)
1. Adolescent‡ (age: 10-19)	18
2. Adult (age: 20 - 49) Adult (20 - 35) Adult (36 - 49)	82 54 28

Indicator	National (%)
3. Menstruation regular:	
Adolescent (age: 10-19)	94
Adult (age: 20 - 49)	78
Adult (age: 20 - 35)	81
Adult (age: 36 - 49)	74
4. Ever heard about menstruation before your first menstruation	
Adolescent (age: 10-19)	36
Adult (age: 20 - 49)	30
5. People/source with whom respondent ever discussed or heard about menstruation issues	
Adolescent (age: 10-19)	
Mother/sister/in-laws /aunty /grandmother, …	22
Friends	15
Teachers	3.5
TV/radio/reading	4.1
Adult (age: 20 - 49)	
Mother/sister/in-laws /aunty /grandmother, …	24
Friends	11
Teachers	1.5
TV/radio/reading	1.3
6. Materials used during menstruation	
6.a Adolescent:	
New cloth	5.1
Old cloth	50
Old cloth use by wealth quintile:	
Poorest quintile	77
2nd	68
3rd	50
4th	44
Wealthiest quintile	21
Disposable pad	43
Disposable pad use by wealth quintile:	
Poorest quintile	11
2nd	27
3rd	44
4th	48
Wealthiest quintile	74
Cotton/tissue/cloth rag	1.6
Nothing	--
6.b Adult:	
New cloth	3.3
Old cloth	64.7
Old cloth use by wealth quintile:	
Poorest quintile	89
2nd	82
3rd	71
4th	60
Wealthiest quintile	28

Indicator	National (%)
Disposable pad	29
Disposable pad use by wealth quintile:	
Poorest quintile	6.1
2nd	13
3rd	21
4th	31
Wealthiest quintile	65
Cotton/tissue/cloth rag	1.9
Nothing	1.1
7. Washing of MHM cloths:	
Only with water -- adolescent	1.0
With soap- adolescent	52
Only with water -- adult	1.5
With soap- adult	62
8. Water source for washing MHM cloths:	
Adolescent: open channel/unprotected water source	8.0
Adult: open channel/ unprotected water source	12
9. Use of soap and an improved water source for washing MHM cloths:	
Adolescent	44
Adult	52
10. Use of soap and an improved water source for washing	
MHM cloths and sun for drying	
Adolescent	12
Adult	18
11. Dry the menstrual cloth for repeated use: in dry season	
In hiding-adolescent	61
In hiding- adult	55
12. Dry the menstrual cloth for repeated use: in winter season	
In hiding-adolescent	60
In hiding- adult	55
13. Dry the menstrual cloth for repeated use: in rainy season	
In hiding-adolescent	67
In hiding- adult	62
14. Store of menstrual cloth for repeated use:	
In hiding-adolescent	40
In hiding- adult	44
15. Faced privacy problem while changing menstruation cloth at home	
Adolescent[9]	18
Adult[10]	16

[9]Data were available for 352 adolescent out 377
[10]Data were available for 1,740 adults women out of 2,107

Indicator	National (%)
16. Forbidden activities during menstruation	
Adolescent	
Religious activities	47
Other activities§	25
Adult	
Religious activities	57
Other activities§	18
17. Health problems faced in last six (6) months	
Adolescent:	
Itching/irritation/redness/swelling/lumps and blister	6.2
Smelly discharge/ unusual discharge	4.3
Pain in lower abdomen	28
No problem faced	65
Adult:	
Itching/irritation/redness/swelling/lumps and blister	7.5
Smelly discharge/ unusual discharge	5.3
Pain in lower abdomen	15
No problem faced	74

‡Adolescent were 10-19 years of age according to UNICEF/WHO; § Other than religious includes: Not go to certain places, touch certain things and eat certain foods; not allowed to cook and to go out.

Part B: School Component

2.1 School characteristics

The 2018 survey sampled four schools in each of 176 clusters. The ratio of primary to secondary schools in these clusters was 2:3. In all primary and secondary schools, close to half (47%) of the teachers were female. In primary schools, the majority of teachers (70%) were female but in secondary schools it was 32%. (Table 2.1)

The sample included 573 (81%) co-education schools, (278 primary and 295 secondary) out of the total of 704 schools (not shown in table).

The mean number of students was 701 (all school), in primary the mean number of students was 486 and in secondary the mean number of students was 847. The majority of students were female (57%).

Table 2.1: Summary of school and respondent characteristics 2018

Indicator	National (%)
Types of Schools:	
Primary	40
Secondary	60
Female teachers at school:	
Primary	70
Secondary	32
All schools	47

Indicator	National (%)
Female students in school:	
Primary	53
Secondary	59
All schools	57
Mean number of students per school:	Mean
Primary	486
Secondary	847
All school	701
Respondents from school:	%
Head master	68
Teacher	32
Female students	70
Age group of interviewed students:	
<10 years	7
< 10 years (female)	4

2.2 Source of drinking water

Following JMP definitions, improved sources of water include; piped water into building or yard/plot, public tap or standpipe, tube-well, protected dug well, protected spring, and rainwater. Functional drinking water sources means water available during the survey period and year-round. 92% of schools had improved and functional drinking water sources. Access to a functional drinking water source was more likely in secondary schools (96%) than primary (87%).

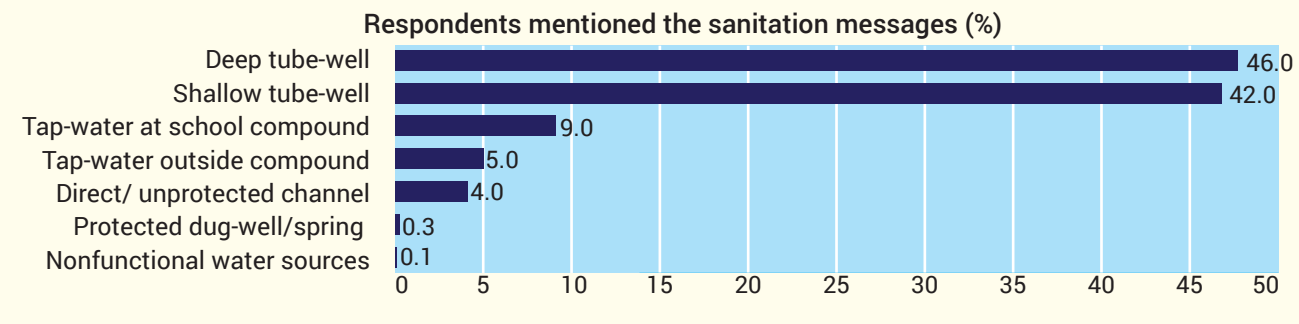
Table 2.2 - Percentage of the drinking water sources at schools (spot-checks)

Indicator	National (%)
1. Improved‡ functional§ drinking water source:	
Primary	87
Secondary	96
All schools	92
2. Arsenic contamination tested in last year‖:	
Primary	47
Secondary	51
All schools	50

‡ According to JMP Definition Improved sources are: Piped water into dwelling or yard/plot, Public tap or standpipe, Tubewell or borehole, Protected dug well, Protected spring, Rainwater; § Water is available during the survey period and year round (Observed); ‖Information given by headmaster/ teacher (Reported) or identified as red painted tubewell during spot check; ¶ Unprotected spring or dug well, river, pond, canals, etc.

At school label 46% used deep tube-well as for drinking source of water followed by the shallow tube-well (42%), tap-water at school compound (9%), tab-water outside compound (5%), direct/ unprotected channel (4%) and nonfunctional water sources (0.1%) detailed data provide in the figure 2.1

Figure 2.1: Percentage of drinking water sources at primary and secondary school by types



Detail drinking sources of water at primary school and secondary school level data is in the figure 2.2 and in figure 2.3. In the primary and secondary school deep tube-well source of water are remain same (46%) and more likely in the primary school. In the secondary school the sources of drinking water are same in deep tube-well and shallow tube-well/tara pump. Shallow tube-well (35%) experienced in the primary school is the second sources of drinking water likely in the secondary school. In the primary school direct/ unprotected channel sources of water is 4.0% whereas, 0% in the secondary school.

Figure 2.2: Percentage of drinking water sources at primary school by types

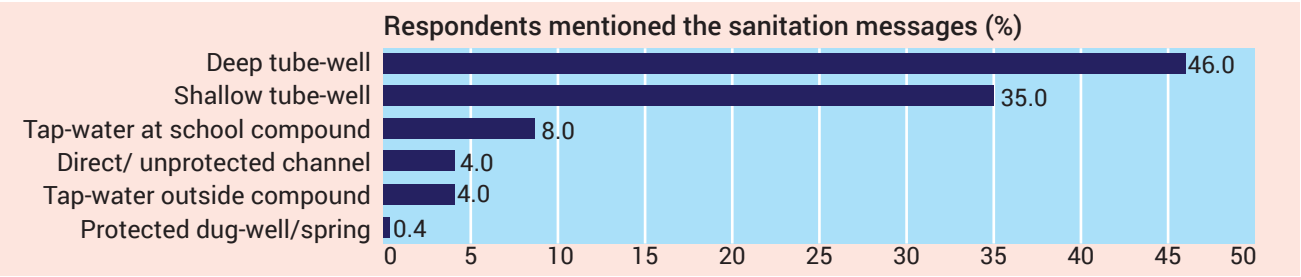
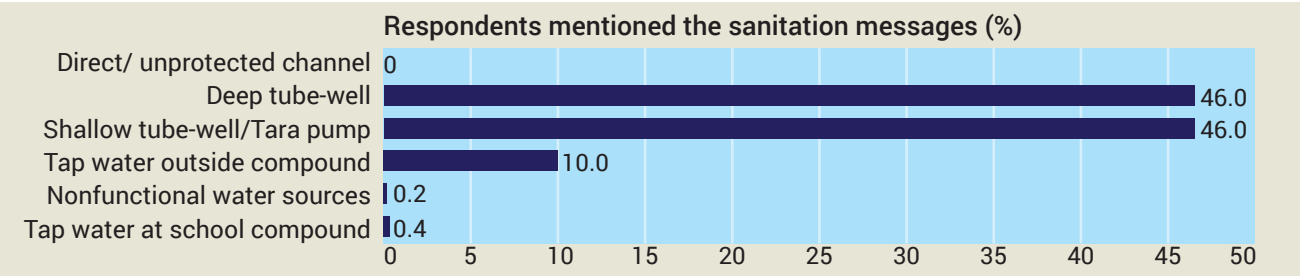


Figure 2.3: Percentage of drinking water sources at secondary school by types



2.3 Access to sanitation facilities for students

Table 2.3 shows that almost all schools (99%) provided functional, improved latrines for students. However, 66% of schools provided functional, improved and unlocked latrines for students. 64% unlocked latrines appeared clean i.e. no visible faeces were seen on floor, pan or slab.

There was an average of 113 students per unlocked, functional, improved latrine. The majority (52%) of school latrines were sanitary pit latrines. 91% of school latrines had water available within 30 feet, and 85% of latrines had water and soap available within 30 feet.

Table 2.3 - Access to latrines for students

Indicator	National (%)
Functional‡ improved§ latrines available at schools for students	
Primary	98
Secondary	100
All schools	99
No toilet at school for students	
Primary	2
Secondary	0.2
All schools	1
	Mean† (median, N)
Number of students per toilet	
Primary	120
Secondary	112
All schools	115
Number of students per functional, improved, unlocked toilet	
Primary	121.3
Secondary	107.1
All schools	113.1
	National (%)
Functional Improved unlocked‖ toilets for students	
Primary	70
Secondary	63
All schools	66
Schools that have toilet for students by category:	
Piped sewer system- improved	13
Septic tank- improved	19
Pit- Sanitary- improved	52
Flush anywhere- unimproved	3
Open pit- unimproved	3
No facilities	10
Water available inside or nearby (<30 feet from the toilet[11])	
Primary	89
Secondary	93
All schools	91
Water and soap available inside or nearby (<30 feet from the toilet)	
Primary	81
Secondary	88
All schools	85
Functional improved unlocked toilet for students that appeared clean (floor, slab & pan)	
Primary	67
Secondary	62
All schools	64

‡ Toilets were useable year the round; § Improved toilet according to JMP: Flush or pour-flush to - piped sewer system, septic tank, pit toilet, Ventilated improved pit (VIP) toilet, Pit toilet with slab, Composting toilet; ‖Toilet always unlocked for students during school hours.

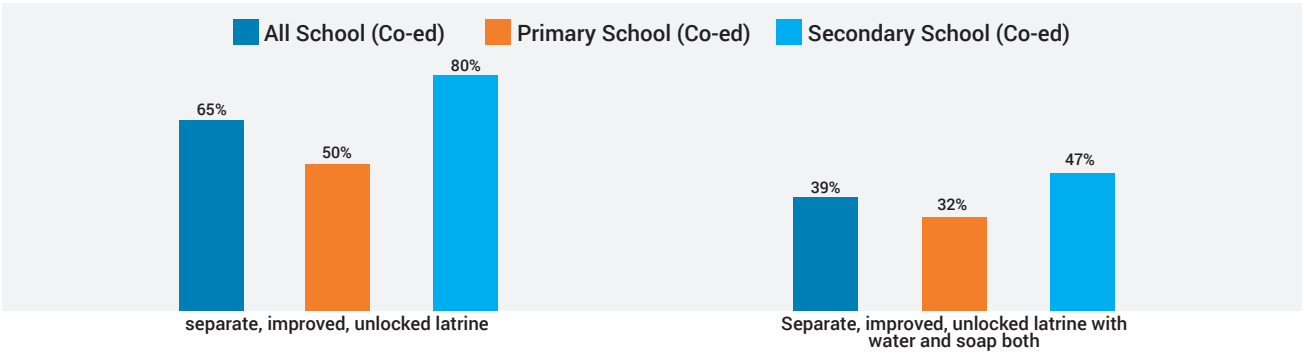
[11]Based on data across all available toilets as spot checked

Table 2.4: Access to sanitation facilities for students: by sex (Co-education schools only)

Indicator	National (%)
Schools with separate improved, unlocked toilets	
Primary	
Boys	51
Girls	53
For both boys and girls	50
Secondary	
Boys	82
Girls	86
For both boys and girls	80
Primary + Secondary	
Boys	67
Girls	70
For both boys and girls	65
Improved, unlocked, accessible toilets that have soap and water available‡	
Primary	
Boys	32
Girls	33
For both boys and girls	32
Secondary	
Boys	48
Girls	49
For both boys and girls	47
Primary + Secondary	
Boys	40
Girls	41
For both boys and girls	39

Table 2.4 presents sex disaggregated data on access to separate, improved and unlocked latrines with water and soap available in co-education schools. Separate, improved and unlocked latrines were more common in secondary schools (80%) than primary (50%). Overall, 65% of co-education schools had separate, improved latrines for boys and girls which were unlocked for use at any time during school hours. However, fewer latrines had water and soap available. Availability of water and soap at unlocked latrines was 39%.

Figure 2.4: Access to separate, improved, unlocked latrines and availability of soap and water at co-education schools



2.4 Proxy indicators of handwashing behaviors

2.4.1 Handwashing knowledge

Students were asked an open-ended question – "What are the important times when you wash hands with soap?" The interviewers recorded mentions of 4 critical times; 1) before food preparation, 2) before eating, 3) before feeding, and 4) after defecation. The majority (91%) of children reported that they washed hands with soap before eating and after defecation. Reported proportions were similar for both primary and secondary school. Other behaviors are more rarely performed by children and consequently mentions were less frequent (3-16%) including washing hands with soap before food preparation, and before feeding (Table 2.5).

Table 2.5: Handwashing knowledge – students' practice, 2018

Indicator	National (%)
1. Important times to wash hands with soap-awareness of students (open ended)	
a. Before food preparation	
Primary	10
Secondary	16
All schools	14
b. Before eating	
Primary	89
Secondary	92
All schools	91
c. Before feeding a child	
Primary	3
Secondary	7
All schools	5
d. After defecation	
Primary	89
Secondary	93
All schools	91

**No water logging, no faeces, and no visible dirt immediately adjacent to the water point or platform, observed during spot check;

2.4.2 Handwashing locations

Spot-checks

Table 2.6 presents spot-check data on presence of handwashing locations with water and with both soap and water among schools with functional, improved, unlocked latrines. The table also presents students' reported data of availability of handwashing locations, water available, and water and soap available at handwashing locations.

91% of 704 schools had handwashing locations which had water available (primary 89% and secondary 93%). 85% of schools had both water and soap available

In co-education schools where students had access to unlocked latrines (65% of schools had unlocked latrines) for both boys and girls (Table 2.4), 39% of schools had water and soap available for both boys and girls in the separate handwashing locations for boys and girls. Having water and soap at unlocked latrines, separate for boys and girls was more likely in secondary schools (47%) than primary schools (32%).

Students' reports

82% of students reported that they had a handwashing location in the school compound, 78% of students reported their school had water available at the handwashing location, 35% of students reported their school had soap available at the handwashing location and 34% of students reported both water and soap available.

Table 2.6 - Handwashing locations and availability of soap and water (spot checks and reported), 2018

Indicator	National (%)
1. Handwashing facilities (spot-checks at latrines)	
1a. Handwashing locations & water available inside or <30 feet from the latrines[12]	
Primary	89
Secondary	93
All schools	91
1b. Water and soap available inside or <30 feet from the latrine	
Primary	81
Secondary	88
All schools	85
1c. Water and soap available for students <30 feet from the latrine	
Primary	45
Secondary	50
All schools	48
2. Handwashing locations by gender (Co-education only)	National (%)
2a. Improved and unlocked latrines with soap & water available‡at handwashing locations	
Primary- both boys and girls had separate latrines	32
Secondary - both boys and girls had separate latrines	47
Primary + Secondary - both boys and girls had separate latrines	39
3. Students' reported handwashing facilities	National (%)
3a. Handwashing locations‡ available in the school compound	
Primary	80
Secondary	84
All schools	82
3b. Handwashing locations with water available	
Primary	75
Secondary	80
All schools	78
3c. Handwashing locations with soap available	
Primary	37
Secondary	34
All schools	35
3d. Handwashing locations with both soap and water available	
Primary	36
Secondary	33
All schools	34

2.4.3 Hand cleanliness, handwashing demonstrations and cost of soap purchase

Table 2.7 presents data on other proxy handwashing indicators including: spot-checks on hand cleanliness, handwashing demonstrations, and amount of money spent by the school on soap in 30 days prior to the survey.

Hand cleanliness

Over half (52%) of the children's palms, finger pads and finger nails appeared clean. Clean appearance of hands was more likely among children in secondary schools (61%) than primary schools (38%).

Handwashing demonstrations

Close to half of the students (49%) washed both hands with soap during the handwashing demonstrations. Similar proportions of primary students (48%) and secondary students (50%) washed both hands with soap.

Cost of soap purchased for handwashing in last 30 days

The mean amount spent by schools on soap purchase in the preceding 30 days was Taka 365.

[12]*Based on data across all available latrines as spot-checked*

Table 2.7 -Hand cleanliness, handwashing demonstration, and amount spent for soap purchasing, 2018

Indicator	National (%)
1. Hand cleanliness spot checks	
1a. Students hands cleanliness -finger pad, finger nails inside and outside and palms appeared clean	
Primary	38
Secondary	61
All schools	52
2. Handwashing demonstrations	**National (%)**
2a. Handwashing demonstration: Students washed both hands with soap	
Primary	48
Secondary	50
All schools	49
3. Average amount spent (in tk)	**National (tk)**
3a. Average amount of Taka spent per school in last 30 days for bar or liquid soap purchase (Reported by headmaster/ teacher)	
Primary	205
Secondary	471
All schools	365

2.5 Environmental hygiene

Table 2.8 presents data related to environmental hygiene in schools including; having drums or pits for solid waste disposal, disposing of solid wastes appropriately so there is no waste lying outside the pit or drum, clean water point surroundings and no water logging in the water point surrounding locations.

Overall, 55% of schools had pits or drums for the solid waste disposal, whereas 44% schools contained waste in the pit or drum with no contamination outside. The majority (59%) of school water source catchments appeared clean, 91% of water sources had a concrete platform to prevent contamination, 88% of water points had no water logging at the tube-well catchment area and 82% of water points with a platform had no water logging around the platform. Detailed data are presented in Table 2.8.

Table 2.8: Environmental hygiene at schools compounds, 2018

Indicator	National (%)
Schools have drum/pit for solid waste disposal (spot check):	
Primary	51
Secondary	57
All schools	55
Containment‡ of waste in the pit or drum (no wastes lying outside the pit/drum (spot check):	
Primary	40
Secondary	47
All schools	44

Table 2.8: Environmental hygiene at schools compounds, 2018

Indicator	National (%)
Improved sources of water points appeared as clean‡:	
Primary	55
Secondary	61
All schools	59
Improved sources of water points with platform available:	
Primary	87
Secondary	94
All schools	91
Improved sources of water points with no water logging at the tube well catchment:	
Primary	87
Secondary	89
All schools	88
Improved sources of water points with platform available and no water logging:	
Primary	78
Secondary	84
All schools	82

2.6 Menstrual Hygiene Management (MHM)

Coverage

A total of 2800 girls (1,113 from primary and 1,687 from secondary schools) qualified for the interview on menstrual hygiene management. Students' average reported age at first menstruation was close to 12 years.

Heard about menstruation before the menarche, sources of knowledge, and MHM education

Overall 53% school girls heard/knew about menstruation before reaching menarche. Knowing about menstruation before menarche was more likely among girls in secondary level schools (64%) compared to the primary students (37%). Table 2.9 presents data on the proportion of girls who knew/heard about menstruation before the onset of menstruation and the sources of their knowledge. In an open-ended question regarding the sources of knowledge about menstruation, the single highest source was parents, sisters, aunt and grand-mother and their family (80%). 6% girls reported their friends and other relatives as the source of knowledge and 12% of the girls reported that they learned about the menstruation through teachers, television, and social networks.

Over one-third of the girls (36%) reported that their school arranged menstrual hygiene education sessions for girls. Menstrual hygiene education for girls at schools was less likely in primary schools (11%) compared to secondary (51%). Overall 23% of girls (primary 6%, secondary 33%) reported that they had received information from the school on menstrual hygiene management prior to the onset of menstruation.

Table 2.9: Mean age of girls and source of their knowledge about menstruation, 2018

Indicator	National (%)
1. Average age at first menstruation	
Primary students	11.5
Secondary students	11.9
All students[13]	11.8

[13]In 2013 6 girls were excluded because of unknown age at school. Here it is included by replacing average age of other girls.

Indicator	National (%)
2. Students knew/heard about menstruation before they started menstruating	
Primary	37
Secondary	64
All students	53
3. People/source with whom students discussed or heard about menstruation (all students)	
Mother/sister/aunt/ grand mother	80
Friends/relatives	5.8
Others	12
Menstrual hygiene education is provided for girls at school	
Primary	11
Secondary	51
All students	36
Girls received info. regarding MHM at school before the onset of menstruation	
Primary	6.2
Secondary	33
All students	23

Materials used for menstruation and management of menstrual materials

Girls' use of MHM materials was similar while they were at school, home or elsewhere (Table 2.10).

The majority (79%) of girls cleaned MHM clothes with soap and used an improved source of water for this. However, only 21% dried MHM clothes outside in sunlight. Across all seasons, the majority of girls dried MHM clothes in hiding and stored them in hiding.

Table 2.10 - Materials used for menstruation and management of menstrual materials, 2018

Indicator	National (%)
1. Materials used during menstruation while at school:	
Primary	
Old cloth (rag)	61
New cloth	4.2
Pad	34
Cotton/Tissues/waste fabrics of garments	0.6
Secondary	
Old cloth (rag)	18
New cloth	2.3
Pad	78
Cotton/Tissues/ waste fabrics of garments	1.2
All schools	
Old cloth (rag)	34
New cloth	3.0
Pad	62
Cotton/Tissues/ waste fabrics of garments	1.0
2. Materials used during menstruation while NOT at school (home or outside):	
Old cloth (rag)	39
New cloth	3.6
Pad	56
Cotton/Tissue / waste fabrics of garments	1.2

Indicator	National (%)
3. Among those used old cloth for repeated use, cleaned with soap and improved source of water	
Primary	77
Secondary	83
All schools	79
4. Those used old cloth for repeated use, cleaned with soap & improved source of water & dried outside in sunlight	
Primary	15
Secondary	32
All schools	21
5. Dry the menstrual cloth: in dry season	
In hiding-primary	63
In hiding- secondary	48
In hiding- all schools	58
6. Dry the menstrual cloth: in winter season	
In hiding-primary	59
In hiding- secondary	48
In hiding- all schools	55
7. Dry the menstrual cloth: in rainy season	
In hiding-primary	61
In hiding- secondary	59
In hiding- all schools	61
8. Store of menstrual cloth for repeated use:	
In hiding-primary	74
In hiding- secondary	71
In hiding- all schools	73

Separate change rooms/toilets with water, soap, disposal bins and hygiene kits available

Table 2.11 shows that 58% of schools had water available at the separate change rooms/toilets for girls, 35% of school had soap available at the change room, 32% of schools had soap and water available at these change rooms/toilets, 22% of schools had sanitary pad disposal bins available and 13% of schools had hygiene kits available. When children were asked what they do in case there was no place in the school to dispose of MHM materials in the schools that did not have a change room or separate toilet for girls, 74% of girls reported that they do not change at school and 23% of girls reported that they throw the MHM materials into latrine.

Table 2.11–Schools had toilets /change rooms with availability of hygiene materials

Indicator	National (%)
1. Schools had separate improved toilet for girls used for menstrual management purposes had:	
1a. Water available	
Primary	35
Secondary	73
All schools	58
1b. Soap available	
Primary	23
Secondary	41
All schools	35

Indicator	National (%)
1c. Soap and water available	
Primary	24
Secondary	38
All schools	32
1d. Sanitary pad disposal bins available	
Primary	6.1
Secondary	31
All schools	22
2. Place in the school to dispose the used cloth/pad for menstrual hygiene	
Primary	6.0
Secondary	33
All schools	23
3. What students do, if there was no place in the school to dispose menstrual cloth/pad:	
Openly disposed	1.7
Disposed inside toilet pan	23
Hiding inside classroom	0.3
Don't change at school	74
4. Schools had hygiene kit (dettol, rag/cotton, soap) for using during menstruation	
Primary	7.0
Secondary	17
All students	13

Girls' school absenteeism, forbidden activities and health problems and sought treatment

Table 2.12 presents girls' school absenteeism data, activities forbidden during menstruation, problems faced by the girls during menstruation and health treatments sought. 85% of girls' attended school during their last six month period prior to the survey. Based on a six-month recall period, 30% of girls reported that they missed school due to menstruation. Among those who missed school due to menstruation, the mean number of days missed was 2.5 at each cycle in last 6 months.

Based on a six-month recall period, overall 35% girls reported facing health problems related to menstruation. The most common health problem reported was pain in lower abdomen (29%).Other reported problems were itching/irritation/redness/swelling/lumps/blisters (4%), and smelly discharge/unusual discharge (5%). 45% of girls sought treatment for health problems related to menstruation. 26% sought health treatment from unqualified health practitioners and 19% from qualified health practitioners.

Table 2.12 - Girls' absenteeism at schools, forbidden activities, faced health problems and sought treatment, 2018

Indicator	National (%)
1. Girls attended schools during menstruation in last 6 months prior to the survey	
Primary	76
Secondary	92
All students	85
2. Students missed school during menstruation in last 6 months:	
Primary	43
Secondary	22
All schools	30

Indicator	National (%)
3. Mean number of days students missed school during each menstruation cycle:	
Primary	2.8
Secondary	2.1
All schools	2.5
4. Forbidden activities during menstruation	
Nothing forbidden	34
Do not allow touching certain things and or to use other's bed	5.6
Do not allow eating certain foods	13
Do not allow cooking	4.8
Do not allow travel outside	14
Do not allow performing/ attending religious activities	46
5. Girls faced health problems during the time of menstruation in last 6 months	
Primary	37
Secondary	34
All schools	35
6. Types of health problems faced by girls during menstruation in last 6 months	
Itching/irritation/redness/swelling/lumps and blisters	3.6
Smelling discharge/unusual discharge	4.6
Pain at lower abdomen	29
7. Sought treatments for the health problems faced during the menstruation in last 6 months	
No health treatment taken	55
Visited unqualified health care[α]	26
Visited qualified health care[β]	19

[α] visited pharmacy or traditional/spiritual healer or taken self-treatment suggested by family members or friends; [β] visited clinic or MBBS doctor

Part C: Restaurants & Street Food Vendors Component

This component of the study includes data from 352 restaurants and 704 street food vendors in 176 clusters.

3.1 Respondent demographic and business characteristics

Table 3.1 presents characteristics of the restaurants and food vendors' stalls and staff. The demographic characteristics include respondents gender, age and relationship to the business owner. Business characteristics include educational status, nature or area of business location, business seasons, business mobility, length of business, business hours, ownership of business houses and housing conditions.

Restaurants

Interviews were conducted among three respondent groups; managers or owners, customer service staff, and cooks in the restaurants. Managers/owners were mainly male, 65% of interviewed service staff was male, and 57% of the interviewed cooks were male. The median age of respondent managers were 41 years, customer service staff 25 years and cooks 35 years. About one-fifth (21%) of restaurant managers and owners had no formal education. The median year of education of managers/ owners were 8 years. The majority 76% of managers of restaurants were also the owners, while 14% were salaried, 7% were relative of the owner, 4% were son/daughter/ spouse of owner. Most of the restaurant located in Bazar (60%) followed by 22% in the street gathering location, 14% in the bus

stations. Restaurants open daily and the median duration of opening was 14 hours per day. Slightly over one-fifth (21%) of restaurants structures were owned by the restaurant owners. Detail data shown in the table 3.1.

Food vendors

There were 704 street food vendors sampled for the survey. Almost all (97%) of the street food vendors were male and their median age was 38 years. 41% of respondents had no education and a median of two (2) years of education had been completed by the respondents. 14% of the vendors did not run the business year-round but did so seasonally, and 38% of the business stalls were mobile. The street food vendors worked a median of 8 hours in a day and ran the business 7-days a week.

Table 3.1 -Demographic information and business characteristics of restaurants and food vendors, 2018

Indicator	Restaurant National (%)	Street food vendor National (%)
1. Sex of respondents (male):		
Owner/Manager	99	97
Customer service staff	65	-
Cook	57	-
2. Median‡ age of respondents	Age	Age
Owner/Manager	41	38
Customer service staff	25	-
Cook	35	-
3. Respondents' education– manager/owner:		
No formal education	21	41
Median‡ years of formal education	8	2
4. Relation of respondents with the business owners:		
Self	76	95
Son/daughter/spouse of owner	4	2
Relative of owner	7	-
Manager/salaried	14	-
5. Relation of Service staff respondents with the business owners:		
Self	1	-
Son/daughter/spouse of owner	4	-
Relative of owner	12	-
Managers	--	-
Other-salaried	48	-
6. Relation of cook respondents with the business owners:		
Self	1	-
Son/daughter/spouse of owner	8	-
Relative of owner	9	-
Manager	0.3	-
Other-salaried	51	-

Indicator	Restaurant National (%)	Street food vendor National (%)
7. Nature of area/location‡:		
Bazar	60	-
Street gathering location	22	-
Bus station	14	-
8. Business season - seasonal	--	14
9. Business mobility (Food vendors):		
Semi-ambulant/mobile locations	--	38
10. Length of time (month) business in operation (median§):	48	5
11. Hours remain open each day (median§)	14	8
12. Days open each week (median§)	7	7
13. Mean number of staff including owner	8.0	-
14. Mean number of male staff	6.9	-
15. Mean number of female staff	1.1	-
16. Mean number of customers per day	228	-
17. Mean customer number that could be accommodated at one time	27	-
18. Ownership of restaurant structure:		
Self	21	-
Rented	78	
Others	--	-
19. Materials of restaurant building:		
Roof- tin	70	-
Roof- concrete/metallic	29	-
Floor- concrete/metallic	64	-
Floor- katcha (not concrete)	14	-
Wall-tin	25	-
Wall-cement/metallic	64	-
Wall- straw /tarpaulin /wood	3	-

‡ Nonparametric equality-of-medians test; §Nature of area/location was single answer and spot-checked for close proximity;

3.2. Sources of water and water management at restaurants and food vending stalls

Table 3.2 presents data on access to water for drinking, cooking, and cleaning purposes; water storage practices; and practices of water serving for restaurant staff and customers and for food vendors.

Access to and management of water in restaurants

People in restaurants used water from a variety of sources for drinking, cooking, and cleaning purposes including; shallow tube-wells, deep tube-wells, tap water piped inside or outside restaurants, filtered

water and unprotected and surface water sources. As many as 68% restaurants stored drinking water into containers, 31% stored drinking water in clean containers which was covered with lids or covers, 25% restaurants stored drinking water in clean containers which had lids/covered and treated further before drinking using filters and or other mechanisms (boil or mixing chlorine powders), and 14% restaurants just used filters for drinking water.

62% of restaurants maintained a clean water source i.e. no water logging, no human or animal faeces, no stale food, no dead animals and no waste fish/ meat/ raw vegetables/ fruits on the platform. 86% of service staff from whom a glass of drinking water was requested, washed the glass before pouring water into it, 31%washed hands with water before pouring water into the glass, and 12% washed hands with soap.

Access to and management of water for food vendors

Table 3.2 data shows the access to water for drinking, cooking and cleaning purpose for the food vendors. 5% of food vendors had no water available however few food vendors provided filtered drinking water for customers 6%. For cooking and cleaning, 11% of food vendors used tap water and 32% used tube-well water. Although storing of water for drinking at food vending stalls were very common (70%), few food vending stalls stored drinking water in clean and covered containers (3%). 67% of food vendors stored water for cleaning utensils or other purposes for example handwashing. The practice of washing glass and hands when serving water on request was infrequent, 39% washed the glass, 2% washed hands and use of soap was nil.

Table 3.2 - Access to and management of water

Indicator	Restaurant National (%)	Street food vendor National (%)
1. Source of drinking water by category:		
Shallow‡ tube well	37	34
Deep tube well	29	29
Tap water inside restaurant/food vending structure	13	6
Tap water outside restaurant/food vending structure	-	2
Filter[14]	14	6
No water source/not applicable	2	5
2. Source of cooking water by category:		
Shallow tube well	39	37
Deep tube well	27	32
Tap water inside restaurant/food vending structure	25	11
Tap water outside restaurant/food vending structure	1	4
Direct channel/unprotected (river/ pond/ lake)	5	1
No water source/not applicable	--	11
3. Source of water for cleaning utensils by category:		
Shallow tube well	40	36
Deep tube well	28	31
Tap water inside restaurant/food vending structure	27	11
Tap water outside restaurant/food vending structure	1	5
Direct channel/unprotected (river, pond, lake)	3	1
No water source/not applicable	--	12
4. Treat customer drinking water after collection	25	06

[14]*Ceramic/other filter which is refilled by a plastic jar; considered as "not improved" according to JMP definition*

Indicator	Restaurant National (%)	Street food vendor National (%)
5. Drinking water source appeared clean[9](spot-checks)	62	-
6. Stored drinking water in container	68	70
7. Stored drinking water in covered and clean[¶]containers	31	3
8. Stored drinking water in a covered and clean[¶] container and kept above ground level[**]	5	2
9. Stored water for cleaning utensils	51	67
10. Used stored water for cleaning utensils:		
Poured water on the utensils	55	18
Dipped utensils inside the stored water	36	48
11. Drinking water serving behaviors recorded while offered a glass of water upon requested by the interviewer :		
Washed the glass with water before pouring water	86	39
Washed hands with water only	31	2
Washed hands with soap	12	-
Hand came to contact with water inside the glass	3	3
Glass dipped into the water container	3	3
Water poured from container	23	15
Brought directly from tube well/source water	26	1
No water available	-	3

[‡] Less than 250 feet deep; [§] Direct channel/unprotected sources (Arsenic filter, Arsenic free treatment plant, Bottled water, Unprotected dug well, Spring water, Tanker truck, Cart with small tank, Directly from river/ dam /lake /ponds /stream /canal /irrigation channel); [9]No water logging, no human or animal faeces , stale food, dead animal, waste of fish/ meat/ raw vegetables/ fruits on the platform of water source ; [¶] No black, green or yellow spots appeared inside the container;[**]Minimum 6 inches high from the ground

3.3 Access to toilets for the restaurant staff and food vendors during business hours, 2018

Table 3.3 details access to toilets for the restaurant staff and food vendors during business hours. 26% of restaurant staff had access to an improved latrine and 18% of latrines were clean (i.e. absence of stool on the pan/ slab or floor of the latrine). The majority (71%) of restaurants had no latrine for staff. Latrines used by the street food vendors were mainly public latrines at locations such as mosques, markets, schools, and hospitals. 68% reported using a latrine at a mosque, 23% a private latrine owned by a nearby household and 13% a latrine owned by a nearby school, college or hospital.

Table 3.3 - Access to toilets for the restaurant staff and food vendors during business hours, 2018

Restaurants	
Indicator	**National (%)**
1. Access to latrine during business hours (restaurant):	
Improved‡latrine for staff	26
Unimproved latrine	3
No facilities	71
2. Functional§ improved latrines with clean floor and slab¶(spot checked)	18
3. Median distance of latrine from kitchen in feet (among restaurants those had latrines)	20
4. Median distance of latrine from water source in feet	14
Food vendors	
Indicator	**National (%)**
5. Reported defecation locations used by the food vendors during business hours if needed:	
Public latrine at mosque	68
Latrines owned by nearby residential houses	23
Latrines nearby school/collage/hospital	13
No facility/bush/field--open defecation	1

‡Handwashing locations were different from location of toilet; §Improved toilet according to JMP: Flush or pour-flush to - piped sewer system, septic tank, pit toilet, Ventilated improved pit (VIP) toilet, Pit toilet with slab, Composting toilet and No shared toilet §Year round functional ¶No stool visible on the pan/ slab or floor of the toilet

3.4 Handwashing knowledge, facilities and behavior

3.4.1 Handwashing awareness/ knowledge

Table 3.4 presents data on handwashing knowledge and awareness of how to wash hands and what the critical handwashing times are among restaurant service staff and cooks at and street food vendors.

Responding to the open-ended question "For you, what constitutes good handwashing behavior?", the majority of respondents (52% of service staff, 57% of cooks and 58% of street food vendors) mentioned washing both hands with soap and water.

Respondents were also asked the open-ended question "What are the important times to wash hands with soap during the business hours?" The interviewers recorded responses for 10 handwashing critical times. The majority of cooks and street food vendors mentioned at least three critical times to wash hands with water and soap. The rate among service staff was slightly less than half (47%). Most frequently mentioned by service staff, (53%) was to wash hands with water and soap after defecation or cleaning a child post-defecation. This was followed by before eating (42%), before serving food (40%), after cleaning bench, table, chair, floor (29%), after cleaning utensils (18%) and after cleaning/removing waste/left overs (17%).

Most frequently mentioned by cooks, 54% was to wash hands with water and soap after defecation or cleaning a child post-defecation. This was followed by before food preparation (46%), before eating (44%), before mashing food/salad preparation (27%), after cutting fish/ meat/raw vegetables (24%) and before serving food (19%).
Most frequently mentioned by street food vendors (89%) was to wash hands with soap and water after defecation/cleaning a child post-defecation, followed by before eating (74%), before food preparation (51%) and after cleaning utensils (33%).

Table 3.4 - Handwashing awareness of restaurant staff and food vendors, 2018

Restaurants

Indicator	National (%)
1. Response to 'What constitutes good handwashing to you?' (open ended)-	
Service staff	
Washing hands with soap and water	9
Wash both hands with soap and water	52
Cooks	
Washing hands with soap and water	8
Wash both hands with soap and water	57
2. Respondents mentioned key times for washing hands with soap during the business hours (open ended)-	
2.a Service staff	
Mentioned at least 3 out of 10:	47
1. After cleaning bench, table, chair, floor	29
2. After cleaning utensils	18
3. After cleaning/removing wastage/left over	17
4. Before food preparation	15
5. Before mashing food/salad preparation	10
6. Before eating	42
7. Before serving food	40
8. After cutting fish/meat/raw vegetables	6
9. After defecation/cleaning a defecated child	53
10. After cleaning human/animal faeces	4
2.b Cooks	
Mentioned at least 3 out of 10:	52
1. After cleaning bench, table, chair, floor	8
2. After cleaning utensils	14
3. After cleaning/removing wastage/left over	10
4. Before food preparation	46
5. Before mashing food/salad preparation	27
6. Before eating	44
7. Before serving food	19
8. After cutting fish/ meat/raw vegetables	24
9. After defecation/cleaning a defecated child	54
10. After cleaning human/animal faeces	2

Food vendor	
Indicator	**National (%)**
3. Response to 'What constitutes good handwashing to you?' (open ended)-	
Food vendors	
Washing hands with soap and water	31
Wash both hands with soap and water	58
4. Respondents mentioned key times for washing hands with soap during the business hours (open ended)-	
Food vendors	
Mentioned at least 3 out of 10:	69
1. After cleaning bench, table, chair, floor	14
2. After cleaning utensils	33
3. After cleaning/removing wastage/left over	18
4. Before food preparation	51
5. Before mashing food/salad preparation	19
6. Before eating	74
7. Before serving food	24
8. After cutting fish/meat/raw vegetables	3
9. After defecation/cleaning a defecated child	89
10. After cleaning human/animal faeces	4

3.4.2 Water and soap at handwashing locations, hand cleanliness and handwashing demonstrations

Handwashing locations with water and soap

Almost all restaurants (92%) had water and soap available, however, for street food vendors, only 38% had water available and only16% of vendors had water and soap available for handwashing before or after taking meals.

Hand cleanliness

Half of the service staff, 27% of cooks and 32% of food vendors' hands appeared clean.

HW demonstrations

The field team requested respondents to demonstrate how they wash hands before serving food. 85% of service staff, 64% of cooks, and 11% of street food vendors washed both hands with soap and water (Table 3.5).

Table 3.5 - Availability of water and soap at handwashing locations, hands cleanliness, and handwashing demonstrations

Restaurants	
Indicator	**National (%)**
1. Handwashing locations for customers & staff had water and soap (spot checked):	
Available water	97
Available water and soap	92

Restaurants	
Indicator	**National (%)**
2. Respondents' hands appeared clean§ (spot checked):	
Service staff	50
Cooks	27
3. Respondents washed both hands with soap during handwashing demonstration (observed):	
Service staff	85
Cooks	64
Food vendors	
Indicator	**National (%)**
4. Handwashing location for customers (spot checked):	
Available water	38
Available water and soap	16
5. Respondents' hands appeared clean§(spot checked):	
Service staff/Food vendors	32
6. Respondents washed both hands with soap during handwashing demonstration (observed):	
Service Food vendors	11

‡Customers use that specific place for handwashing after eating food from the vendor such as: tube well, basin, tap, drum with tap, bucket/ piped/tank/container and mug together; §No visible dirt over palms, finger pads and over/ under finger nails;ϑBothhandwashing and cleaning utensils purposes

3.4.3 Reported handwashing behavior of restaurant staff and food vendors

Table 3.6 presents the self-reported handwashing and soap use practices of restaurant service staff, cooks, and street food vendors. Service staff and cooks at restaurants and street food vendors were asked that how many times they washed hands with soap during business hours in the 24-hour prior to survey. The mean number of times reported for washing hands with water and soap was 11 for service staff, 10 for cooks and 5 for food vendors. During business hours, 63% of service staff and 68% cooks at restaurants, and 49% street food vendors washed hands with soap at least once.

Respondents were asked about the critical times at which as they washed hands with water and soap in last 24-hours. The interviewers recorded the 10 critical times. 51% of restaurant service staff and 53% of cooks, and 53% of street food vendors reported that they had washed hands with soap on at least three times out of 10 critical times during business hours in the previous 24-hours.

The most frequently reported occasions for handwashing with soap by service staff were after fecal contact events (49%), followed by after cleaning bench, table, chair or floor (43%), before eating (42%) and before serving food (36%).

For cooks, the most frequent self-reported occasion for handwashing with soap was after fecal contacted events (53%), followed by before food preparation (49%) and before eating (47%). For street food vendors, 75% reported washing hands with soap after fecal contacted events, 64% before eating and 38% before food preparation.

Table 3.6 - Reported handwashing with soap by restaurant service staff and cooks, and food vendors, 2018

Restaurants	
Indicator	**National**
1. Mean number of handwashing times using soap during business hours in last 24-hours times:	
Service staff (Mean number)	Mean=11
Cooks (Mean number)	Mean=10
	National (%)
2. Washed hands with soap during the business hours:	
Service staff	63
Cooks	68
3. Respondents washed hands with soap (in last 24 hrs):	
Service staff	
Washed at least 3 of the events out of 10	51
1. After cleaning bench, table, chair, floor	43
2. After cleaning utensils	23
3. After cleaning/removing wastage/left over	15
4. Before food preparation	8
5. Before mashing food/salad preparation	9
6. Before eating	42
7. Before serving food	36
8. After cutting fish/meat/raw vegetables	2
9. After defecation/cleaning a defecated child	49
10. After cleaning human/animal faeces	3
Cooks	
Washed at least 3 of the events out of 10	53
1. After cleaning bench, table, chair, floor	3
2. After cleaning utensils	9
3. After cleaning/removing wastage/leftovers	6
4. Before food preparation	49
5. Before mashing food/salad preparation	27
6. Before eating	47
7. Before serving food	15
8. After cutting fish/meat/raw vegetables	27
9. After defecation/cleaning a defecated child	53
10. After cleaning human/animal faeces	3

Food Vendors	
Indicator	**National**
4. Mean number of handwashing times using soap during business hours in last 24-hours times:	
Food vendors	Mean=5

Food Vendors	
Indicator	**National (%)**
5. Washed hands with soap during the business hours:	
Food vendors	49
6. Reported they washed hands with soap (in last 24 hrs):	
Mentioned at least 3 out of 10	53
1. After cleaning bench, table, chair, floor	15
2. After cleaning utensils	32
3. After cleaning/removing wastage/left over	12
4. Before food preparation	38
5. Before mashing food/salad preparation	16
6. Before eating	64
7. Before serving food	19
8. After cutting fish/meat/raw vegetables	2
9. After defecation/cleaning a defecated child	75
10. After cleaning human/animal faeces	3

3.4.4 Observed handwashing behaviors of restaurant staff, food vendors and customers

Table 3.7 presents observed handwashing data for restaurants and street food vendors. Ninety minutes (90) handwashing observation data are presented separately across service staff, cooks and customers at restaurants, and street food vendors and customers at food vending shops. Handwashing data for eleven (11) handwashing critical times were recorded for service staff, cooks and food vendors; whereas for customers at restaurants and food vending shops, there were seven (7) handwashing critical times recorded. The lists of critical times are provided with data in the table.

Service staff at restaurants

Out of 11 handwashing critical times, we do not discuss results for two fecal contact related critical times (1. after defecation or cleaning a child post-defection, and 2. after cleaning human/animal faeces) because there were few events observed. For the remaining nine critical times, the most frequently observed behavior was to not wash hands. There were 3 notable exceptions to the lack of handwashing prevalent for the majority of events. These were 1) after cleaning/ removing waste/leftovers, 2) before eating, and 3) after cutting fish/meat/raw vegetables.

The most frequently observed occasions for washing hands with soap and water, were before eating (41%) and after cutting fish/meat/raw vegetables (41%), followed by after cleaning/removing waste/leftovers (25%), before food preparation (23%), after cleaning bench/ table/chair/floor (22%), before mashing food/salad preparation (22%), after cleaning utensils (17%) and after cleaning cough/sneeze/nose/eyes/ mouth (16%).The least frequent was before serving food for customers (11%).

Cooks' handwashing behavior

Similar to service staff at restaurants, we do not discuss the results of two fecal contacted related critical handwashing times (1. after defecation or cleaning a defecated children, 2. after cleaning human/animal faeces) due to the few observed events.

The highest rates of washing hands with soap and water by cooks were; after cleaning/removing waste/leftovers (54%), after cutting fish/meat/raw vegetables (43%), before food preparation (27%), and before mashing food/salad preparation (26%).

Street food vendors' handwashing behavior

Overall, the frequency of washing hands with soap for food vendors was much lower (1-9%) across all recorded critical times compared to cooks (12-54%)

and service staff (11-41%). Across all recorded critical times, the majority of vendors did not wash hands

Customers' handwashing behaviors at restaurants and at street food vendors'

Handwashing with water and soap by customers at restaurants was as follows – a) before eating (46%), b) after cleaning cough/sneezing/nose/eyes/mouth (18%), c) before contacting/touching food with hands, (22%), and d) before feeding a child (39%).However, washing hands with soap by customers at food vendors was very rare (<1%).

Table 3.7 - Observed (90-minute structured observations) handwashing behavior of restaurant staff, street food vendors and customers, 2018

Observations at restaurants	
Indicator	**National (%)**
1. Service staff 's handwashing behavior	
1a. Washed hands with water only	
1. After cleaning bench, table, chair, floor	22
2. After cleaning utensils	26
3. After cleaning/ removing waste/leftovers	35
4. Before food preparation	25
5. Before mashing food/salad preparation	25
6. Before eating	30
7. Before serving food	18
8. After cutting fish/meat/raw vegetables	28
9. After defecation/cleaning a child after defecation	18
10. After cleaning human/animal faeces	8
11. After cleaning cough/sneeze/nose/eyes/ mouth	14
1b. Washed hands with soap and water	
1. After cleaning bench, table, chair, floor	22
2. After cleaning utensils	17
3. After cleaning/ removing waste/leftovers	25
4. Before food preparation	23
5. Before mashing food/salad preparation	22
6. Before eating	41
7. Before serving food	11
8. After cutting fish/meat/raw vegetables	41
9. After defecation/cleaning a child after defecation	50
10. After cleaning human/animal faeces	74
11. After cleaning cough/sneeze/nose/eyes/ mouth	16
2. Cooks' handwashing behavior	
2a. Washed hands with water only	
1. After cleaning bench, table, chair, floor	29
2. After cleaning utensils	26
3. After cleaning/ removing waste/leftovers	11
4. Before food preparation	27
5. Before mashing food/salad preparation	47
6. Before eating	53

Observations at restaurants	
Indicator	**National (%)**
7. Before serving food	29
8. After cutting fish/meat/raw vegetables	30
9. After defecation/cleaning a child after defecation	13
10. After cleaning human/animal faeces	-
11. After cleaning cough/sneeze/nose/eyes/ mouth	17
2b. Washed hands with soap and water	
1. After cleaning bench, table, chair, floor	14
2. After cleaning utensils	26
3. After cleaning/ removing waste/leftovers	54
4. Before food preparation	27
5. Before mashing food/salad preparation	26
6. Before eating	36
7. Before serving food	12
8. After cutting fish/meat/raw vegetables	43
9. After defecation/cleaning a child after defecation	62
10. After cleaning human/animal faeces	-
11. After cleaning cough/sneeze/nose/eyes/ mouth	12
3. Customers handwashing behavior	
3a. Washed hands with water only	
1. Before eating	27
2. Before water handling	8
3. After cleaning cough/sneezing/nose/eyes/ mouth	16
4. Before contacting /touching food with hand	18
5. Before feeding a child	31
3b. Washed hands with soap and water	
1. Before eating	46
2. Before water handling	10
3. After cleaning cough/sneezing/nose/eyes/ mouth	18
4. Before contacting /touching food with hand	22
5. Before feeding a child	39
Observations at street food vendors	**National (%)**
4. Food vendors' handwashing behaviors	
4a. Rinsed/ washed hands with water only	
1. After cleaning bench, table, chair, floor	37
2. After cleaning utensils	33
3. After cleaning/ removing waste/leftovers	41
4. Before food preparation	27
5. Before mashing food/salad preparation	24
6. Before eating	34
7. Before serving food	13
8. After cutting fish/meat/raw vegetables	33
9. After defecation/cleaning a child after defecation	20
10. After cleaning human/animal faeces	38
11. After cleaning cough/sneeze/nose/eyes/ mouth	31

Observations at street food vendors	National (%)
4b. Washed hands with soap and water	
1. After cleaning bench, table, chair, floor	9
2. After cleaning utensils	4
3. After cleaning/ removing waste/leftovers	8
4. Before food preparation	3
5. Before mashing food/salad preparation	2
6. Before eating	1
7. Before serving food	1
8. After cutting fish/meat/raw vegetables	6
9. After defecation/cleaning a child after defecation	8
10. After cleaning human/animal faeces	-
11. After cleaning cough/sneeze/nose/eyes/ mouth	4
5. Customers' handwashing behavior	
5a. Observed rinsing/washing hands with water only	
1. Before eating	7
2. Before water handling	12
3. After cleaning cough/sneezing/nose/eyes/inside	17
4. Before contacting /touching food with hand	6
5. Before feeding a child	17
5b. Observed washing hands with any soap	
1. Before eating	1
2. Before water handling	-
3. After cleaning cough/sneezing/nose/eyes/inside	1
4. Before contacting /touching food with hand	1
5. Before feeding a child	1

3.5 Food hygiene

Table 3.8 presents food hygiene data including; types of ready food sold, maintenance of food safety by covering, and hygienic storage of unsold cooked food at restaurants and at food vendors' stalls. The table also presents data related to safe disposal of restaurant waste, and clean maintenance of restaurant interiors and surroundings.

Food hygiene at restaurants

There were ten (10) categories of cooked food items available at sampled restaurants during the structured observations (Table 3.8). Rice/hotchpotch was very common across all restaurants (81%). Besides rice, the other most commonly available food items in restaurants were lentil soup (82%), followed by meat/egg (81%), vegetables (76%) and fish (73%). Although a good proportion of restaurants kept food items in clean containers, covered with lids during business hours, there was a sizable proportion that did not. For example, 81% of restaurants had rice already cooked to serve for customers but only 23% of the restaurants stored rice containers covered with a lid. Similarly, 82% of restaurants had lentil soup to serve to customers but only 19% restaurants had soup stored in a container with a lid; 81% of restaurants had meat/egg curry to serve for customers but only 21% stored this in a container with a lid.

A spot-check was conducted at locations where cooked and or uncooked food items were stored for use. A large proportion of restaurants did not store food in clean, covered containers. 63% of restaurants disposed of wastes in a pit/drum/dustbin. However, only 32% of restaurants disposed of waste so that no visible dirt remained inside or outside the containers. Half of restaurant interiors appeared clean.

Food hygiene at street food vendors' stalls

There were thirteen (13) different varieties of cooked food items available for sale at sampled food vendors' stalls (Table 3.8). Most frequent items were puffed rice mixed with chilies, oils and nuts (27%), followed by fried food item made up of eggplant, lentils, potato, onion, shrimp (called as piyaju, beguni, singara, samosa, etc.) 21%, and fushka/chotpati/golgoppa (boiled diced potatoes, onions, chilies, chickpeas with grated eggs on top with roasted spice powder) 20%.

Overall, the majority of food vendors did not keep food items in clean, covered containers.

Table 3.8 –Spot-check data of food hygiene at restaurants and street food vendors, 2018

Restaurants	
Indicator	**National (%)**
1. Food items sold at restaurant:	
1. Rice/hotchpotch (hotchpotch: rice, lentil &vegetable mix)	81
2. Plain bread	64
3. Fish	73
4. Meat/egg	81
5. Lentil soup	82
6. Vegetables	76
7. Salad	57
8. Fried food item made up of eggplant, lentils, potato, onion, shrimp (Piyaju, beguni, singara, samosa etc)	51
9. Mashed food- potato, fish, egg, shrimp, spices, lentil, vegetable	46
10. Sweets/curd/milk	37
2. Food items stored in a covered and clean‡ pot/container for sale:	
1. Rice/hotchpotch (rice, lentil &vegetable mix)	23
2. Plain bread	13
3. Fish	19
4. Meat/egg	21
5. Lentil soup	19
6. Vegetables	18
7. Salad	15
8. Fried food item made up of eggplant, lentils, potato, onion, shrimp (Piyaju, beguni, singara, samosa etc)	15
9. Mashed food- potato, fish, egg, shrimp, spices, lentil, vegetable	19
10. Sweets/curd/milk	32
3. Unsold food items stored in a covered pot/container after end of a day at closing:	
1. Rice/hotchpotch (rice, lentil &vegetable mix)	68
2. Plain bread	47
3. Fish	85
4. Meat/egg	84
5. Lentil soup	57
6. Vegetables	58
7. Salad	33
8. Fried food item made up of eggplant, lentils, potato, onion, shrimp (Piyaju, beguni, singara, samosa etc)	65
9. Mashed food- potato, fish, egg, shrimp, spices, lentil, vegetable	53
10. Sweets/curd/milk	74

Restaurants	
Indicator	**National (%)**
4. Disposed restaurant wastes into:	
Pit/drum/dustbin	63
River/dam/lake/ponds/stream/canal	21
Road side/drain/bush/jungle/no specific place	12
4a. Disposed waste appropriately‡ into a pit/drum or dustbin	32
5. Restaurant interior appeared clean§	50
6. Area surrounded by the restaurant (within 10 feet) appeared clean§	39

Food Vendors	
Indicator	**National (%)**
1. Food items sold by food vendors:	
1. Puffed rice with chilies and oils/nuts	27
2. Fried food item made up of eggplant, lentils, potato, onion, shrimp (Piyaju, beguni, singara, samosa etc)	21
3. Fushka/chotpati/golgoppa (boiled diced potatoes, onions, chilies, chickpeas with grated eggs on top with roasted spice powder)	20
4. Tea, biscuits, dry cake	10
5. Variety of dried fruits kept in oil (called pickles)	10
6. Variety of juice	9
7. Sliced raw fruits	7
8. Variety of cake-rice cake, steamed rice cake, rice cake fried in oil	5
9. Mashed food- potato, fish, egg, shrimp, spices, lentil, vegetable	3
10. Rice, lentils and vegetable mix	2
11. Plain bread	2
12. Curry (fish, lentil, meat, egg, vegetable)	2
13. Sweets/curd/milk	2
2. Food items kept in a covered and clean‡ pot/container for sale:	
1. Puffed rice with chilies and oils/nuts	18
2. Fried food item made up of eggplant, lentils, potato, onion, shrimp (Piyaju, beguni, singara, samosa etc)	9
3. Fushka/chotpati/golgoppa (boiled diced potatoes, onions, chilies, chickpeas with grated eggs on top with roasted spice powder)	25
4. Tea, biscuits, dry cake	67
5. Variety of dried fruits kept in oil (called pickles)	23
6. Variety of juice	58
7. Sliced raw fruits	23
8. Variety of cake-rice cake, steamed rice cake, rice cake fried in oil	12
9. Mashed food- potato, fish, egg, shrimp, spices, lentil, vegetable	7
10. Rice, lentils and vegetable mix	71
11. Plain bread	33
12. Curry (fish, lentil, meat, egg, vegetable)	48
13. Sweets/curd/milk	56

‡ No visible dirt inside or outside the containers; § No visible dirt was seen;

Part D: Health Facilities Component

4.1 Health facility characteristics

Table 4.1 shows the overall health facility characteristics. There was health facilities sampled and covered under the perview of the survey. Facility types included; Govt. medical college, Govt. maternal and child welfare centers, Govt. district hospitals, Govt. upazila hospitals, Govt. union-level health clinics, Non-govt. medical college/ specialized, private hospitals/clinics and NGO hospitals/clinics.

The mean number of patients found admitted on sits during the survey time was 38 (median 8). Overall, 32% were female beds, and 3.4% were pediatric beds and 32% private cabins. There were 0.57 patients per bed in all hospital. The ratio of beds to full time doctors was 8:1 in 2018 and the ratio of beds to nurses was 3:1. The mean number of hospital beds was 55.

Table 4.1 - Hospital characteristics and respondents (interviews and spot-checks), 2018

Indicator	National (%)
All health facilities (Unweighted)	100
Government facilities[15]	20
Hospital categories-	
Govt. medical college/ specialized	3.1
Govt. maternal child welfare center	0.5
Government district	4.1
Government upazila	14
Government union	0.2
Non-govt. medical college/ specialized	2.8
Non-government private	75
Non-government organization	1.8
2. Mean number of hospital beds	55
Govt. medical college/ specialized	496
Govt. maternal child welfare center	29
Government district	193
Government upazila	47
Government union	10
Non-govt. medical college/ specialized	313
Non-government private	31
Non-government organization	37
3. Mean number of patients found admitted on site visit dates (all hospitals)	38
Govt. medical college/ specialized	892
Govt. maternal child welfare center	10
Government district	174
Government upazila	31
Government union	4
Non-govt. medical college/ specialized	118
Non-government private	13
Non-government organization	17

Table 4.1 - Hospital characteristics and respondents (interviews and spot-checks), 2018

Indicator	National (%)
4. Distribution of hospital beds	
All facilities	
Female beds	32
Pediatric beds	3.4
Private cabins	32
5. Patient to bed ratio	
All Hospitals	0.57
6. Bed to full time doctor ratio	
All Hospitals	8
7. Bed to nurse ratio	
All Hospitals	3
8. Female respondents -	
Head medical officer/ administrator	11
Nurse	100
Ward boy/aya	55
Patient / caregiver	63

[15]*Government: Medical college/ specialized, Maternal child welfare center, district hospital, upazila and union level inpatient hospitals; Non-government health facilities included commercial hospitals/clinics, NGO-hospitals/clinics, private medical colleges.*

4.2 Water supplies in health facilities

Although an improved source of water for general uses such as cleaning, bathing, and washing, was available in all health facilities. 77% of health facilities had an improved, functional water source with a concrete platform and no water logging whereas 76% of improved water sources for drinking for patients and caregivers were inside the health facility buildings, 59% of improved water sources for drinking were functional with a concrete platform and had no water logging. (Table 4.2)

Table 4.2 -Water sources at health facilities (spot-checks)

Indicator	National (%)
General use of water in the facilities	
1. Common water sources for general use	
All	
More than one water source	28
Improved water source‡	99
2. Water source for general use located inside the hospital/ facility building	
All	80
3. Unsold food items stored in a covered pot/container after end of a day at closing:	
Improved, functional, concrete platform and no water logging	
All facilities	77
Drinking water sources for patients and caregivers in the facilities	
4. Patients/caregivers water sources for drinking	
All	
More than one water source	34
Improved water source‡	82
5. Water source for drinking located inside the hospital/ facility building	
All	76
6. Condition of drinking water points for patients/ caregivers (spot checked)	
All	
Improved, functional, concrete platform and no water logging	59
Piped/concrete drainage system	60
7. Drinking water supply for patients/ caregivers were insufficient	
All	1

‡JMP Definition for "Improved sources" includes: piped water into dwelling or yard/plot, public tap or standpipe, tube well or borehole, protected dug well, protected spring, rainwater;

4.3 Sanitation and handwashing facilities

4.3.1 Access to sanitation and handwashing facilities for patients and caregivers

Table 4.3 shows access to sanitation and handwashing facilities for use after defecation for patients and caregivers. Spot-check data showed that the access to improved latrines was common in the sampled wards across male, female, pediatric and common wards. Spot-check data was captured of fecal contamination of latrine floors and slabs. This indicator was used as proxy for latrine cleaning practices.

Table 4.3 - Access to sanitation and handwashing facilities for patients and caregivers (spot-checks)

Indicator	National (%)
1. For patients/caregivers use: (spot checked)	
All Hospitals	
Male ward – no latrine	0.3
Female ward – no latrine	0.6
Pediatric ward – no latrine	2.0
Common ward – no latrine	0.5
Male ward – unimproved	--
Female ward – unimproved	0.3
Pediatric ward – unimproved	--
Common ward – unimproved	2.1
Male ward – improved‡	100
Female ward –improved‡	99
Pediatric ward – improved‡	98
Common ward – improved‡	97
Faeces were visible on slab or floor	
Male ward	18
Female ward	17
Pediatric ward	29
Common ward	8.3
No HW[9] location after toileting	
Male ward	0.9
Female ward	1.9
Pediatric ward	2.2
Common ward	--
HW[9] location after latrine use- Basin	
Male ward	9.5
Female ward	10
Pediatric ward	8.1
Common ward	7.1
HW[9] location after latrine use- Tap	
Male ward	22
Female ward	22
Pediatric ward	33
Common ward	36
HW[9] location after latrine use- TW	
Male ward	55
Female ward	52
Pediatric ward	43
Common ward	53

Indicator	National (%)
HW[9] location – Others (drum, pond)	
Male ward	13
Female ward	13
Pediatric ward	12
Common ward	2.7
Water available at HW[9] location	
Male ward	96
Female ward	95
Pediatric ward	94
Common ward	97
Water & soap available at HW[9] loc.	
Male ward	45
Female ward	51
Pediatric ward	34
Common ward	53

[‡]JMP Definition of improved latrine: Piped sewer system, septic tank, VIP, and pit latrine[9]HW - Handwashing

4.3.2 Access to sanitation and handwashing facilities for doctors and nurses

Table 4.4 shows access to sanitation and handwashing facilities for use after latrine use for doctors and nurses. Overall, there was an average of one latrine per five beds and one latrine per three patients. In 12% health facilities, doctors had no separate improved latrine. Up to 13% facilities had no handwashing locations for use after defecation for doctors and nurses. Handwashing locations for use after defecation were mostly basins and taps.

For doctors, in 86% of health facilities had water available, 82% of health facilities had soap/ detergent available and 81% of health facilities had both water and soap available for sanitation and handwashing practices.

For nurses and other staff, in 89% of health facilities had water available, 77% of health facilities had soap/ detergent available as well as both water and soap available for sanitation and handwashing practices.

Table 4.4 -Latrine ratios in health facilities, and access to sanitation and handwashing facilities for doctors and nurses (spot-checks), 2018

Indicator	National (%)
1. Latrine ratios in health facilities[16]	
All	
Bed to latrine ratio	5.1
Patient/caregivers to patient latrine	3.2
Latrine to handwashing location ratio	1.13

[16]7 hospitals in 2018 dataset had no bed and hand no patient as well and so were excluded from the analysis;

Indicator	National (%)
2. Access to sanitation and handwashing facilities for doctors (spot-checks)	
2a All hospital	
None or nonfunctional latrine	12
Improved latrine‡	88
Types of latrine-	
Piped sewer	20
Septic tank	53
Ventilated improved pit	12
Faeces were visible on slab or floor	3.7
HW[9] locations seen after latrine use	
No location	13
Basin	49
Tap	36
Others (tw, pot, drum, pond)	2.0
Water available	86
Soap/detergent available	82
Water and soap available	81
3. Access to sanitation and handwashing facilities for nurses and other staff (spot-checks)	
3a All hospital	
None or nonfunctional latrine	9.1
Unimproved latrine	(0/880)
Improved latrine‡	91
Types of latrine-	
Piped sewer	22
Septic tank	54
Ventilated improved pit	12
Faeces were visible on slab or floor	5.5
HW[9] locations seen after latrine use	
No location	10
Basin	46
Tap	42
Others (tw, pot, drum, pond)	1.6
Water available	89
Soap/detergent available	77
Water and soap available	77

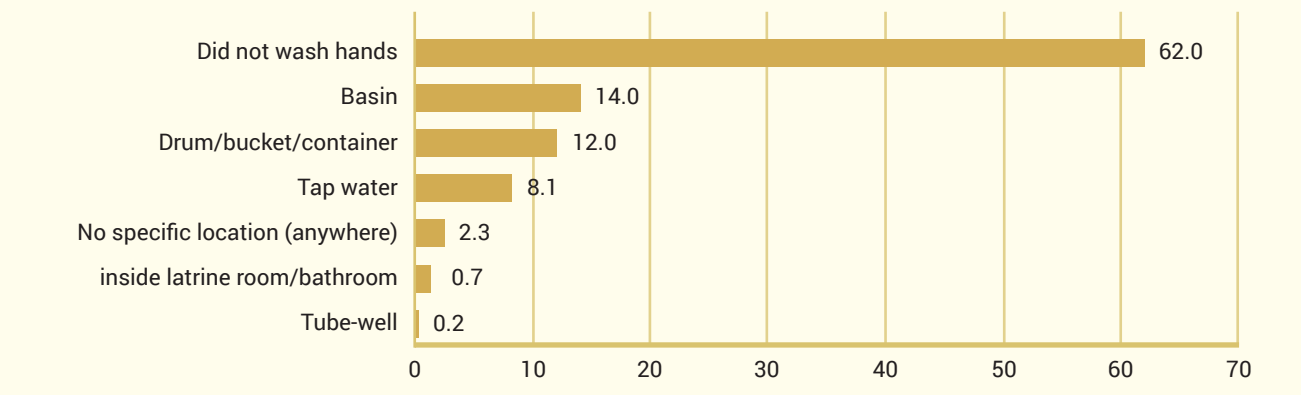
‡JMP Definition of improved latrine: Piped sewer system, septic tank, VIP, and pit latrine; HW[9] – Handwashing

4.4 Five-hour structured observations of handwashing locations in health facilities

In 2018, five-hour structured observations were conducted in 176 health facilities Overall, there were 6,849 handwashing events observed for patients and caregivers inside the health facility buildings/structures.

Figure 4.1 presents data on observed handwashing locations for patients and caregivers/visitors. Overall in 62% of events patients and caregivers did not wash hands. During 14% of the incidents observed patients washed hands at a basin, 8% at a water tap, 12% at a drum/bucket/container, 0.7% inside latrine/ shower room and the remaining 2% at no designated handwashing location.

Figure 4.1 – Percentage of water sources observed to use by patients & caregivers for handwashing (%)



4.5 Five-hour structured observations of handwashing behaviors

4.5.1 Summary of observed handwasing behaviors at different handwashing critical times

Table 4.5 presents handwashing data based on the WHO recommended handwashing critical times in health facilities (WHO 2009). These critical times are; 1) Before touching patients, 2) Before clean/aseptic procedures, 3) After body fluid exposure or toileting, 4) After touching patients or wounds, 5) After touching patients' surroundings (clothes, bed, or floors), 6) Before preparing/serving food, and 7) Before taking/giving medicine to patients. WHO recommended handwashing is defined as 1) washing both hands with soap and air drying or 2) washing both hands with soap and drying with clean cloth or 3) using alcohol hand sanitizer.

Table 4.5 also presents handwashing data for other handwashing critical times (before self-eating or feeding others,after sneezing/coughing, and after general cleaning - dishes, drums, pots, bins).These are not listed by WHO but are considered important in other handwashing studies (Nasreen et al. 2010)(Halder et al. 2010)(Huda et al. 2012). The table disaggregates data by handwashing techniques; WHO recommended technique, no hand wash, washed with water only, and washed hand using other technique (e.g. washed either hand with water and soap or, washed either hand with water and soap substitute (ash, soil, and mud), did not air dry or did not dry with clean cloth.

Before touching patients: There was a total of 660 handwashing events observed relating to before touching patients. These events mainly involved nurses and doctors. In the majority of events (91%), hands were not washed. In 6% of events, hands were washed following WHO recommended handwashing practices.

Before clean/aseptic procedures: There was a total of 1,334 handwashing events observed preceding clean and/or aseptic procedures on patients. These events mainly involved doctors, nurses and lab technicians. In the majority of cases (75%), people did not wash hands. However, a significantly higher proportion of people (15%) washed hands as per WHO recommended practices than was noted before touching patients.

After (self/patient) toileting: Toileting events were described as use of toilet/latrine compound for other than defecation purposes and mainly related to urinating. There was a total of 331 toileting events observed. For the majority of these events (61%) people did not wash hands. Handwashing according to WHO recommended practice occurred in 3.4% of events and handwashing with water only in 26% of events.

After defecation: In 8% of defecation events WHO recommended practices was followed.

After faeces and or vomit exposure: After 10% of faeces and or vomit exposure events WHO recommended practice was followed. Hands were not washed in one-third of the events.

After touching patients' wounds: In 12% of cases after touching patients' wounds, hands were washed per recommended practices. On 84% of these occasions, hands were not washed.

After touching patient surroundings (clothes, bed, or floors): Almost 5% of these occasions hands were washed per recommended practices. In 69% of cases, hands were not washed and in 15% of cases, hand were washed with water only.

Before preparing/serving food or water: On the majority of occasions observed hands were not washed before serving or preparing food (74%). Washing hands following WHO recommended technique did not exceed 1.3%.

Before taking or giving medicine (self & others): Hands were washed following recommended practice on 1.7% of occasions. In 92% of cases hands were not washed.

Before eating (self) or feeding others: The majority of people (51%) did not wash hands before eating or feeding and in 2.7% of cases hands were washed as per WHO recommended practice.

After sneezing/coughing: The majority of people (85%) did not wash hands after sneezing/coughing. Those peoples who washed hands after sneezing/coughing, mostly washed with water only.

After general cleaning (dishes, drums, pots, bins): On only 5.2% of events were hands washed per recommended practices.

Table 4.5 - Summary of handwashing behaviors across different critical handwashing events – observed, 2018

Indicator	Practiced recommended handwashing*	No handwashing	Washed with water only	Others**
	(%)	(%)	(%)	(%)
WHO recommended five critical times of Hand Hygiene				
1. Before touching patients	6	91	1.6	1.5
2. Before clean/aseptic procedures	15	75	4.1	5.5
3. After body fluid exposure or toileting (urine; vomit; faeces; lab samples)	7.2	41	28	23
After toileting/lab samples exposure	3.4	61	26	9
After defecation	8.1	40	23	28
After exposure of any faeces/vomits	10	33	31	27
4. After touching patients' wounds	12	84	1.1	3.1
5. After touching patient surroundings (clothes, bed, or floors)	4.8	69	15	11
6. Before preparing/serving food or water	1.3	74	21	4.1
7. Before taking or giving medicine (self & others)	1.7	92	4.1	2.3

Indicator	Practiced recommended handwashing*	No handwashing	Washed with water only	Others**
	(%)	(%)	(%)	(%)
Other key critical handwashing times				
8. Before eating (self) or feeding others	2.7	51	41	5.3
9. After sneezing/coughing (self & others)	1.6	85	10	3.1
10. After general cleaning (dishes, drums, pots, bins)	5.2	49	39	6.5

**Recommended handwashing is defined as 1) washing both hands with soap and air drying or 2) washing both hands with soap and drying with clean cloth or 3) using alcohol hand sanitizer; ** Others: Washed any hand with water and soap or, washed any hand with water and other materials, did not do air dry or did not dry with clean cloth, etc.*

4.5.2 Observed handwashing behaviors-staff, patients and caregivers

Table 4.6 presents handwashing data by doctor, nurse, laboratory technicians, wardboy/aya, and patients/caregivers for each of the handwashing critical times.

Before touching patients: Out of total instances of touching patients observed, 6% of doctors, 7% of nurses and 4% of caregivers washed as per recommended practice. Most of the time the doctor (92%), nurse (91%), and caregivers (92%) were not practices handwashing before touching patients.

Before clean/aseptic procedures: Out of the total clean/aseptic procedures, doctors washed hands as per recommended practice about one third of events (30%), followed by lab technicians (13%), nurses (13%) and caregivers 22%.

After body fluid exposure (urine, stool, vomit): Out of the total body fluid exposure or toileting observed, fourteen 14% of nurses, 10% of other staff, and 8% of patients/caregivers washed hands as per recommended practice. Over 40% of people did not wash hands before body fluid exposure or toileting sample collection.

After defecation: 33% of staff members and 8% of patients/caregivers washed hands per recommended practice.

After faeces and / or vomit exposure: 12% of staff members, 9% of patients and 15% of caregivers washed hands per recommended practice.

After touching patients' wounds: Out of the total occurrences of 'touching patients' wounds 16% of doctors and 15% of nurses washed hands as per recommended practice.

After touching patient surroundings (clothes, bed, or floors): Out of the total handwashing observed instances of 'touching patients' surroundings (clothes, bed, or floors)' 7% of events involving wardboys/ayas and 3% of events involving patients/caregivers hands were washed per recommended practice.

Before preparing/serving food or water: Out of the total events 'before preparing/serving food or water' about 6% of events for staff and about 1% of events for patients/in hands were washed per recommended practice.

Before taking or giving medicine (self & others): Out of the total observed occasions of 'taking/giving medicine' majority of patients and caregivers (93%) did not wash their hands.

Before feeding patients: Out of the total occasions of feeding patients observed, majority of the caregivers did not wash hands before feeding to the patients.

Before eating: Out of the total occurrences of eating' observed, half of the caregivers (53%) did not wash hands before eating. Washing hands following WHO recommended technique was rare (2.7%).

After sneezing/coughing: Out of the total events observed, majority of patients and caregivers (male 91% and female 86%) did not wash hand after sneezing/coughing. Fewer than (2%) of patients/caregivers washed hands following WHO recommended technique after sneezing/coughing.

After general cleaning (dishes, drums, pots, bins): Out of the total cleaning events observed half (56%) of the wardboys/ayas did not wash hands after doing general cleaning. Close to one third (32%) of the patients/caregivers did not wash hands after doing general cleaning.

Table 4.6 - Observed handwashing behaviors by different critical handwashing times, 2018

Indicator	Practiced recommended handwashing*	No handwashing	Washed with water only	Others**
	(%)	(%)	(%)	(%)
WHO recommended handwashing critical times of Hand Hygiene				
1. Before touching patients				
Doctor	5.6	92	0.6	1.5
Nurse	6.9	91	2.0	1.5
Other staff (Wardboy, aya)	--	33	67	--
Caregivers	4.3	92	1.9	1.9
2. Before clean/aseptic procedures				
Doctor	30	60	1.6	9
Nurse	13	77	4.3	5.3
Lab technicians	13	77	4.8	5.2
Other staff (Wardboy, aya)	5.2	85	--	10
Patients/caregivers	22	71	6.0	--
3. After body fluid exposure or toileting (urine, vomit,stool, and lab samples)				
Nurse	14	53	8.1	25
Other staff (Wardboy, aya)	10	38	13	39
Patients/caregivers	8.1	40	30	22
Patient/caregiver - male	8.7	47	28	16
Patient/caregiver - female	8.0	39	30	23
3.1) After toileting and lab samples exposure				
Nurse	--	43	--	--
Other staff (Wardboy, aya)	--	59	17	24

Indicator	Practiced recommended handwashing*	No handwashing	Washed with water only	Others**
	(%)	(%)	(%)	(%)
Patients/caregivers	5.3	61	27	5.9
Patient/caregiver - male	8.2	61	27	3.4
Patient/caregiver - female	4.0	62	28	7.0
3.2) After defecation				
Other staff (Wardboy, aya)	33	52	15	--
Patients/caregivers	7.6	37	25	30
Patient/caregiver - male	2.9	33	33	31
Patient/caregiver - female	9.4	39	21	30
3.3) After exposure of any faeces/vomits				
Other staff (Wardboy, aya)	12	30	11	47
Patients/caregivers	9.4	33	33	25
Patient/caregiver - male	15	43	24	17
Patient/caregiver - female	8.8	32	34	26
4. After touching patients' wounds				
Doctor	16	81	0.8	0.2
Nurse	15	80	1.1	4.0
Patient/caregiver	--	96	0.4	--
5. After touching patient surroundings (clothes, bed, or floors, brooms etc)				
Other staff (Wardboy, aya)	6.6	67	15	11
Patients/caregivers	2.6	80	10	7.4
6. Before preparing/serving food or water				
Nurse	0.3	88	9.4	--
Other staff (Wardboy, aya)	6.2	74	14	6.1
Patients/caregivers	1.2	73	22	4.1
Patient/caregiver - male	1.4	81	14	3.3
Patient/caregiver - female	1.2	71	23	4.3
7. Before giving/taking medicine to patients				
Nurse	11	81	4.6	3.0
Patients/caregivers	1.1	93	4.1	2.2
Patient/caregiver – male	1.2	94	2.7	1.7
Patient/caregiver - female	1.0	92	4.6	2.4
Other key handwashing moments				
8a. Before feeding to patients				
Caregivers	2.8	50	42	5.0
Caregivers - male	2.5	63	33	12
Caregivers - female	2.9	48	44	5.5

Indicator	Practiced recommended handwashing*	No handwashing	Washed with water only	Others**
	(%)	(%)	(%)	(%)
8b. Before eating				
Patients/caregivers	2.7	53	40	5.0
Patient/caregiver - male	1.3	63	31	4.6
Patient/caregiver - female	3.4	48	43	5.2
9. After sneezing/coughing (self & others)				
Patients/caregivers	1.6	88	9.4	1.5
Patient/caregiver - male	0.9	91	6.8	1.0
Patient/caregiver - female	1.9	86	11	1.7
10. After general cleaning (drums, pots, bins)				
Wardboy, aya, cleaner, etc.	12	56	25	6.1
Patients/caregivers (mostly female)	6.3	32	55	6.8

**Recommended handwashing is defined as 1) washing both hands with soap and air drying or 2) washing both hands with soap and drying with clean cloth or 3) using alcohol hand sanitizer or 4) used hand gloves; ** Others: Washed any hand with water and soap or, washed any hand with water and other materials, did not do air dry or did not dry with clean cloth, etc.*

4.6 Environmental hygiene in facility buildings & compounds (spot-checks)

Table 4.7 shows data on environmental cleanliness of health facility compounds i.e. the health facility compounds having no visible dirt, no human or animal faeces, no dead bodies of animals or birds, and no visible insects. Locations included hospital compounds, patients' wards/rooms, toilet/latrine compounds, and handwashing locations.

Hospital compounds: Overall 44% health facility compounds were found clean. The majority of health facility compounds were found to contain paper or food waste, over quarter had sputum/cough/betel-nut waste in the compound and 9% of compounds had human or animal faeces.

Patient ward rooms: 31% of the ward rooms were found to have paper or food waste, 15% of ward rooms had sputum/cough/betel-nut waste, and 5% ward rooms had animals or insects, live or dead.

Latrine /toilet compounds: 27% of health facilities had toilets/latrines with paper or food waste and 20% of health facilities had toilets / latrines contaminated with sputum/cough/ betel-nut waste. 9% of facilities had human and or animal faeces visible in open places inside the toilet/latrine compound.

Handwashing locations: 21% of facilities were found to have paper or food waste at the handwashing location. 18% of facilities were found to have contamination with sputum/cough/ betel-nut waste.

Table 4.7 - Environmental cleanliness at health facilities (spot-checks), 2018

Indicator	National (%)
All facilities	
Found/noticed at **hospital compound:**	
Paper or food waste	53
Sputum/cough/ betel-nut waste	26
Human or animal faeces	8.7
Animals or insects, live or dead	4.1
Nothing	44
Found/noticed inside **patient wards & rooms:**	
Paper or food waste	31
Sputum/cough/ betel-nut waste	15
Human or animal faeces	0.5
Animals or insects, live or dead	4.8
Nothing	63
Found/noticed at **latrine /toilet compound:**	
Paper or food waste	27
Sputum/cough/ betel-nut waste	20
Human or animal faeces	8.7
Animals or insects, live or dead	5.6
Nothing	61

Indicator	National (%)
All facilities	
Found/noticed at **handwashing locations:**	
Paper or food waste	21
Sputum/cough/ betel-nut waste	18
Human or animal faeces	0.1
Animals or insects, live or dead	1.3
Nothing	71

4.7 Clinical and general waste disposal practices

Table 4.8 shows spot-check data describing clinical and general waste disposal practices in health facilities. The presence of a site for disposing of general waste such as food items, paper, clothes and general waste in health facility compounds was recorded. In the health facilities, general waste disposal location was practices at drum/dustbin (95%), and pit (10%) more likely equal to the clinical waste disposal location. Only 2% of health facilities did not have a general garbage disposal system and 1% of clinical areas were not general garbage disposal system. The clinical waste disposal method were more likely to burn (39%) followed by the bury (27%), incinerate (7.3%). There were no disposal method (5.7%) observed in the clinical facilities.

Table 4.8 – Clinical and general waste disposal practices in health facilities, 2018

Indicator	National (%)
All Sampled Hospitals	
1. Waste disposal (general and clinical) spot-checks at health facilities	
General waste disposal location	
No designated area	1.8 (15)
Drum/dustbin	95 (840)
Pit	10 (88)
Other (river, lake, drain, jungle)‡	0.6 (5)
Clinical waste disposal location§	
No designated area	1.0 (9)
Drum/dustbin	96 (844)
Pit	13 (109)
Other (river, lake, drain, jungle)‡	0.3 (3)
Clinical waste disposal method	
Nothing	5.7 (50)
Bury	27 (236)
Burn	39 (341)
Incinerate	7.3 (65)
Dismantle or provide/sell to reuse	5.0 (43)

‡Full list for "Other" disposal location includes: river, dam, lake, pond, stream, canal, roadside, drain, bushes, or jungle; § Clinical waste includes: cotton, cloth, bandages, gloves, sanitary pads, syringes, bottles, medicine foils, plastic saline packets, blood/urine/stool/collection tubes, and placentas.

4.8 Training received by facility staff on sanitation & hygiene

Training sessions attended by health facility staff were; general waste disposal, clinical waste disposal, sterilization of clinical equipment, and hospital cleanliness management. In a multiple response, overall, 68% doctors or officials did not receive any training for waste disposal. Other doctors/facility management staff had received training in hospital cleanliness management (26%), general waste disposal (18%), clinical waste disposal (16%), sterilization of clinical equipment (13%). 45% facilities nurses had received training and 27% of facilities ward boys/ayas received training. Detail data shown in the Table 4.9.

Table 4.9-Sanitation and hygiene awareness/management training, 2018

Indicator	National (%)
All Sampled Hospitals	
1. Sanitation and hygiene awareness/ management training received by	
Doctors/officials:	
None	68
General waste disposal	18
Clinical waste disposal	16
Sterilization of clinical equipment	13
Hospital cleanliness management	26
Nurses:	
None	55
General waste disposal	20
Clinical waste disposal	19
Sterilization of clinical equipment	27
Hospital cleanliness management	30
Ward boys/Ayas:	
None	73
General waste disposal	16
Clinical waste disposal	9.9
Sterilization of clinical equipment	5.5
Hospital cleanliness management	18

Chapter 5

SDG 6 WASH ladders

Households, Schools and Health Facilities

Table 1 presents the SDG indicator (6.2.1) "Proportion of Population using safely managed sanitation services, including a hand-washing facility with soap and water".

Table 2 presents WASH data based on JMP defined ladders such as handwashing ladders at households; access level ladders at school students in regards to water, sanitation and hygiene; and access level ladders for patients and caregivers at health facilities in regards to water, sanitation and hygiene.

Households

61% households had access to basic handwashing facilities such as availability of handwashing locations those had presence of water and soap. 23% households had limited access to handwashing facilities (availability of a handwashing facility on premises without soap and water), and the remaining 16% households had no handwashing facilities in the households premises.

Schools

92% schools had basic level of drinking water access from an improved source where water was available at the school at the time of the survey and the remaining 8% schools had no drinking water from an unimproved source or no water source at the school.

Access to sanitation facilities were assessed based on co-education schools (573 schools out of 880). 65% schools had improved sanitation facilities at the school that are single-sex and usable (available, functional and private), 22% schools had limited access to sanitation facilities, and remaining 13% schools had no sanitation facilities for students.

39% schools had basic facilities of handwashing such as handwashing facilities with water and soap available at the school, 48% schools had limited access to handwashing facilities and the remaining 13% schools hand no handwashing facilities for students.

Health facilities

82% health facilities had basic access to water such as water was available from an improved source on premise for patients and caregivers, 17% had limited access and rest 1% facilities had no access.

Although this survey data does not qualify measuring for the indicator of basic sanitation facilities and hygiene at facilities for patients and caregivers; all health facilities qualified to have limited level of sanitation access for patients and caregivers. 97% of facilities had limited level of functional hand hygiene facilities available either at points of care or toilets but not both (Table 2).

Table 1 -Indicators for SDG 6

No. of SDG Indicator	Indicator Details	%	Comments
6.2.1	Proportion of Population using safely managed sanitation services, including a hand-washing facility with soap and water	61	--

Table 2 - JMP indicators for SDG 6

01	Module: HOUSEHOLD			
1.1	Handwashing ladder			
	Service level	JMP Indicator	%	Comments
	Basic	Availability of a handwashing facility on premises with soap and water	61	--
	Limited	Availability of a handwashing facility on premises without soap and water	23	--
	No facility	No handwashing facility on premises	16	--

02	Module: SCHOOLS			
2.1	**Water**			
	Service level	**JMP Indicator**	**%**	**Comments**
	Basic	Drinking water from an improved source and water is available at the school at the time of the survey	92	--
	Limited	Drinking water from an improved source but water is unavailable at the school at the time of the survey	00	--
	No facility	Drinking water from an unimproved source or no water source at the school	08	--
2.2	**Sanitation (for students at schools)**			
	Service level	**JMP Indicator**	**%**	**Comments**
	Basic	Improved sanitation facilities at the school that are single-sex and usable (available, functional and private) at the time of the survey	65	Among 573 co-education schools
	Limited	Improved sanitation facilities at the school that are either not single-sex or not usable at the time of the survey	22	Among 573 co-education schools
	No facility	Unimproved sanitation facilities or no sanitation facilities at the school	13	Among 573 co-education schools
2.3	**Hygiene (for students only)**			
	Service level	**JMP Indicator**	**%**	**Comments**
	Basic	Handwashing facilities with water and soap available at the school at the time of the survey	39	Among 573 co-education schools
	Limited	Handwashing facilities with water but no soap available at the school at the time of the survey	48	Among 573 co-education schools
	No facility	No handwashing facilities available or no water available at the school	13	Among 573 co-education schools
03	Module: HEALTH FACILITIES			
3.1	**Water (for patients and caregivers)**			
	Service level	**JMP Indicator**	**%**	**Comments**
	Basic	Water is available from an improved source on premise	82	--
	Limited	An improved water source is within 500 metres of the premises, but not all requirements for basic services are met	17	--
	No facility	Water is taken from unprotected dug wells or springs, or surface water sources; or an improved water source that is more than 500 metres from the premises; or there is no water source	01	--

3.2	Sanitation (for patients /caregivers)			
	Service level	JMP Indicator	%	Comments
	Basic	Improved sanitation facilities are usable, with at least one toilet dedicated for staff, at least one sex-separated toilet with menstrual hygiene facilities, and at least one toilet accessible for people with limited mobility	NA	
	Limited	At least one improved sanitation facility is available, but not all requirements for basic service are met.	100%	
	No facility	Toilet facilities are unimproved (e.g. pit latrines without a slab or platform, hanging latrines, bucket latrines) or there are no toilets.	--	
3.3	Hygiene			
	Service level	JMP Indicator	%	Comments
	Basic	Functional hand hygiene facilities (with water and soap and/or alcohol-based hand rub) are available at points of care, and within five metres of toilets.	NA	
	Limited	Functional hand hygiene facilities are available either at points of care or toilets but not both.	97%	
	No facility	No functional hand hygiene facilities are available either at points of care or toilets	03%	

Appendices

Appendix A: Definitions

Appropriate waste disposal	All waste is within the specified waste container and containment of waste to dispose in the containers.
Clean hands or hand cleanliness (on inspection)	No visible dirt over palms, finger pads and over/ under finger nails
Clinical waste	Cotton, cloth, bandages, gloves, sanitary pads, syringes, bottles, medicine foils, plastic saline packets, blood/ urine/ stool/collection tubes used in clinical settings, and placentas
Good menstrual hygiene practice	JMP* definition: women and adolescent girls using clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing the hands and body as required, and having access to facilities to dispose of used menstrual management materials
Handwashing agent	Soap, detergent, hand sanitizer, ash
Handwashing location	A tube-well, basin, tap, drum with tap, bucket/ piped/tank/container and mug together.
Handwashing location for use after defecation	Location within 30 feet of a latrine
Improved toilet	JMP categories: Flush or pour-flush to - piped sewer system, septic tank, pit toilet, Ventilated improved pit (VIP) toilet, pit toilet with slab, composting toilet; and not shared with other households. Shared latrines were defined as those use by >1 household in a single building or plot/ compound.
Improved water source	JMP* categories: piped water into dwelling or yard/plot, public tap or standpipe, tube well or borehole, protected dug well, protected spring, rainwater
Restaurant	A fixed structure where people can buy and eat a meal
Shallow tube-well	Tubewell less than 250 feet deep

Street food vendor	Those who prepare or cook and subsequently sell food in a street or other public location for immediate consumption, no permanently built structure but a temporary static structure or mobile stall. They could be stationary and occupy space on the pavement or other public or private areas, or mobile, and move from place to place carrying their wares on push carts or baskets on their heads.
Water logging	Water (remains) present on the platform
Government health facilities	The health facilities under the direct supervision and supported by the Ministry of Health and Family Welfare. Upazila (Sub District) Health Complex, Union Health & Family Welfare Centers, Community Clinics (Lowest-level healthcare facilities) are the government level Primary Level healthcare providers. Other government health facilities are - District hospitals and Medical college hospitals.
Non-government health facilities	Health facilities those are supported by the NGOs and other commercial health facilities owned by individuals or group of people or public companies.
Ward boy/aya	The persons employed at impatient wards to assist nurses and physicians. These are mainly paramedics but also other staff at hospital engaged for cleaning and assisting patients for their toileting, cleaning, and feeding.

*WHO/UNICEF Joint Monitoring Program for Water Supply and Sanitation

Appendix B : Steering Committee

SL No.	Name, Designation and Work Place (Not in order to seniority)	Designation in the Committee
1.	Secretary, Statistics and Informatics Division, Ministry of Planning, Dhaka	Chairperson
2.	Director General, Bangladesh Bureau of Statistics, Dhaka	Member
3.	Additional Secretary (World Health and Public Health), Health Services Division, Ministry of Health and Family Welfare, Bangladesh Secretariat, Dhaka	Member
4.	Additional Secretary (Admin), Statistics and Informatics Division, Ministry of Planning, Dhaka	Member
5.	Representative (Joint Secretary Status), Ministry of Social Welfare, Bangladesh Secretariat, Dhaka	Member
6.	Representative (Joint Secretary Status), Ministry of Local Government, Rural Development and Co-operatives, Bangladesh Secretariat, Dhaka	Member
7.	Representative, Public Health Engineering Division, Dhaka	Member
8.	Country Director, WaterAid Bangladesh, Dhaka	Member
9.	Representative (Joint Secretary Status), Ministry of Education, Bangladesh Secretariat, Dhaka	Member
10.	Representative (Joint Secretary Status), Ministry of Commerce, Bangladesh Secretariat, Dhaka	Member
11.	Representative (Joint Secretary Status), Ministry of Women and Children Affairs, Bangladesh Secretariat, Dhaka	Member
12.	Representative (Joint Secretary Status), Ministry of Food, Bangladesh Secretariat, Dhaka	Member
13.	Representative (Joint Secretary Status), Ministry of Primary and Mass Education, Bangladesh Secretariat, Dhaka	Member
14.	Mr. Md. Mashud Alam, Director and Focal Point Officer, Demography and Health Wing, BBS, Dhaka	Member
15.	Deputy Secretary (Budget, Financial Management Branch), Statistics and Informatics Division, Ministry of Planning, Dhaka	Member Secretary

Appendix C : Technical Committee

SL No.	Name, Designation and Work Place (Not in order to seniority)	Designation in the Committee
1.	Director General, Bangladesh Bureau of Statistics, Dhaka	Chairperson
2.	Deputy Director General, Bangladesh Bureau of Statistics, Dhaka	Member
3.	Professor Muhammad Shuaib, ISRT, Dhaka University	Member
4.	Director, National Accounting Wing, BBS, Dhaka	Member
5.	Deputy Secretary (Budget), Statistics and Informatics Division, Dhaka	Member
6.	Representative, Director General of Health Services, Dhaka.	Member
7.	Representative, Directorate of Secondary and Higher Education, Dhaka	Member
8.	Representative, Directorate of Primary Education, Dhaka	Member
9.	Representative, Department of Public Health Engineering, Dhaka	Member
10.	Representative, WaterAid Bangladesh, Dhaka	Member
11.	Dr. M Mostafa Zaman, Advisor (Research and Publication), World Health Organization, Bangladesh Office, Dhaka	Member
12.	Representative, National Institute of Preventive and Social Medicine (NIPSOM), Mohakhali, Dhaka	Member
13.	Representative, National Institute of Population Research and Training (NIPORT), Azimpur, Dhaka	Member
14.	Dr. Dipankar Roy, Project Director, HIES Project, BBS, Dhaka	Member
15.	Director (Admin), FA & MIS, BBS, Dhaka	Member
16.	Director, Industry and Labour Wing, BBS, Dhaka	Member
17.	Representative, UNICEF Bangladesh, Dhaka	Member
18.	Mr. Mahbub-Ul Alam, Research Investigator, ICDDR,B, Mohakhali, Dhaka	Member
19.	Mr. S M Kamrul Islam, Joint Director, Demography and Health Wing, BBS, Dhaka	Member
20.	Mr. Md. Mashud Alam, Director and Focal Point Officer, Demography and Health Wing, BBS, Dhaka	Member Secretary

Appendix D : Working Committee

SL No.	Name, Designation and Work Place (Not in order to seniority)	Designation in the Committee
1.	Mr. Md. Mashud Alam, Director, Demography and Health Wing, BBS, Dhaka	Chairperson
2.	Mr. Mollah Mizanur Rahman, Deputy Secretary, Statistics and Informatics Division, Dhaka	Member
3.	Mr. Aftab Opel, Head of Program, WaterAid Bangladesh, Dhaka	Member
4.	Mr. Iftekhairul Karim, Deputy Director, Demography and Health Wing, BBS, Dhaka	Member
5.	Mr. A K M Tahidul Islam, Joint Director, Demography and Health Wing, BBS, Dhaka	Member
6.	Ms. Reshma Jesmin, Deputy Director, Demography and Health Wing, BBS, Dhaka	Member
7.	Mr. Mahbub-Ul Alam, Research Investigator, ICDDR,B, Mohakhali, Dhaka	Member
8.	Ms. Ferdous Ara Begum, Statistical Officer, Demography and Health Wing, BBS, Dhaka	Member
9.	Mr. Md. Monirul Islam, Statistical Officer, Demography and Health Wing, BBS, Dhaka	Member
10.	Mr. Md. Hafizur Rahman, Statistical Officer, FA & MIS, BBS, Dhaka	Member
11.	Ms. Qumrun Naher Islam, Assistant Statistical Officer, Demography and Health Wing, BBS, Dhaka	Member
12.	Ms. Nilufa Khondker, Assistant Statistical Officer, Demography and Health Wing, BBS, Dhaka	Member
13.	Mr. Md. Mahmud Hossain, Administrative Officer, FA & MIS, BBS, Dhaka	Member
14.	Mr. Md. Lutfor Rahman, Statistical Officer, Demography and Health Wing, BBS, Dhaka	Member Secretary

Appendix E : Editor's Forum, Bangladesh Bureau of Statistics

SL No.	Name, Designation and Work Place (Not in order to seniority)	Designation in the Committee
1.	Mr. Ghose Subobrata, Deputy Director General, Bangladesh Bureau of Statistics, Dhaka	Chairperson
2.	Dr. Md. Shahadat Hossain, Director, Census Wing, Bangladesh Bureau of Statistics, Dhaka	Member
3.	Mr. Md. Emdadul Haque, Director, FA & MIS Wing, Bangladesh Bureau of Statistics, Dhaka	Member
4.	Mr. Ziauddin Ahmed, Director, National Accounting (GDP & Foreign Trade) Wing, Bangladesh Bureau of Statistics, Dhaka	Member
5.	Mr. Mohammad Abdul Kadir Miah, Director, National Accounting (CPI) Wing, Bangladesh Bureau of Statistics, Dhaka	Member
6.	Mr. Mahfuzul Islam, Director, Computer Wing, Bangladesh Bureau of Statistics, Dhaka	Member
7.	Mr. Alauddin Al Azad, Director, Agriculture Wing, Bangladesh Bureau of Statistics, Dhaka	Member
8.	Mr. Md. Mashud Alam, Director, Demography and Health Wing, Bangladesh Bureau of Statistics, Dhaka	Member
9.	Mr. Kabir Uddin Ahmed, Director, Industry and Labour Wing, Bangladesh Bureau of Statistics, Dhaka	Member
10.	Dr. Md. Shahadat Hossain, Director, Planning and Development Cell, Bangladesh Bureau of Statistics, Dhaka	Member
11.	Dr. Dipankar Roy, Project Director, HIES Project, Bangladesh Bureau of Statistics, Dhaka	Member
12.	Mr. Md. Dilder Hossain, Project Director, NSDSIS Project, Bangladesh Bureau of Statistics, Dhaka	Member
13.	Mr. AKM Ashraful Haque, Project Director, MSVSB Project, Bangladesh Bureau of Statistics, Dhaka	Member
14.	Mr. Md. Mashud Alam, Focal Point Officer, National Hygiene Survey 2018, Bangladesh Bureau of Statistics, Dhaka	Member
15.	Mr. Abul Kalam Azad, Director, SSTI, Bangladesh Bureau of Statistics, Dhaka	Member Secretary

Appendix F: References

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Appendix G : Personnel engaged in preparing this report

1.	Md. Mashud Alam	Director, Demography and Health Wing, BBS
2.	Dr. Dipankar Roy	Deputy Secretary, SID
3.	Dr. Adam Biran	Lecturer, London School of Hygiene and Tropical Medicine
4.	Professor Muhammad Shuaib	ISRT, Dhaka University
5.	Md. Shamsul Alam	Ex-Director, BBS
6.	Dr. Abdullah Al-Muyeed	Head of Policy and Advocacy, WaterAid
7.	Aftab Opel	Head of Programmes, WaterAid
8.	Amal Halder	Consultant, National Hygiene Survey 2018
9.	A K M Tahidul Islam	Deputy Director, Demography and Health Wing
10.	Iftekhairul Karim	Deputy Director, Demography and Health Wing
11.	Faysal Abbas	Manager, Advocacy and Communication, WaterAid
12.	Shahrukh Mirza	Regional Programme Officer, WaterAid
13.	Reshma Jesmin	Deputy Director, Demography and Health Wing
14.	Md. Lutfor Rahman	Statistical Officer, Demography and Health Wing
15.	Md. Monirul Islam	Statistical Officer, Demography and Health Wing
16.	Md. Mahabub Alam	Statistical Officer, Demography and Health Wing
17.	Qumrun Naher Islam	Assistant Statistical Officer, Demography and Health Wing
18.	Nilufa Khondker	Assistant Statistical Officer, Demography and Health Wing
19.	Md. Sirajul Islam	Assistant Statistical Officer, Demography and Health Wing
20.	Md. Ibrahim Khalil Ullah	Assistant Statistical Officer, Demography and Health Wing
21.	Monirul Alam	UNICEF Bangladesh

Name of Field Supervisors

1.	Mr. Polash Chandra Das	Statistical Investigator, BBS
2.	Mr. Md. Jahirul Islam	Statistical Investigator, BBS
3.	Mr. Joydeb Kumar Kormokar	Statistical Investigator, BBS
4.	Mr. Ramen Kumar Biswas	Statistical Investigator, BBS
5.	Mr. Md. Al-Amin	Thana Statistician, BBS
6.	Mr. Md. Zahedul Hasan	Statistical Investigator, BBS
7.	Mr. Sanjoy Ram Mani	Statistical Investigator, BBS
8.	Mr. Md. Abdullah-Al-Mubin	Statistical Investigator, BBS

Name of Field Supervisors

9.	Mr. Md. Muksiduzzaman	Statistical Investigator, BBS
10.	Mr. Md. Nehal Uddin Mondal	Statistical Investigator, BBS
11.	Mr. Md. Abdul Basid Chowdhury	Statistical Investigator, BBS
12.	Mr. Palash Kumar Roy	Thana Statistician, BBS
13.	Mr. Md. Monir Hossain Tapdar	Assistant Statistical Officer, BBS
14.	Mr. Emarot Hossain	Statistical Investigator, BBS
15.	Mr. Md. Abul Hossain Mia	Statistical Investigator, BBS
16.	Mr. Md. Ibrahim Khalil Ullah	Statistical Investigator, BBS
17.	Ms. Amena Yeasmin	Statistical Investigator, BBS
18.	Mr. Md. Raju Mia	Statistical Assistant, BBS
19.	Mr. Md. Mohsin Bhuiyan	Statistical Investigator, BBS
20.	Ms. Rozina Afroze Hawya	Statistical Investigator, BBS
21.	Mr. Md. Harun or Rashid	Assistant Statistical Officer, BBS
22.	Mr. Md. Mohiuddin	Upazila Statistical Officer, BBS
23.	Mr. Shatendra Kumar Tripura	Supervisor
24.	Mr. Md. Mahbub Morshed	Statistical Investigator, BBS
25.	Mr. Md. Nurun Nobi	Statistical Investigator, BBS

Name of Field Enumerators (Female)

1.	Ms. Nipa Rani Halder	Enumerator
2.	Ms. Purna Lakhsmi Roy	Enumerator
3.	Ms. Sajeda Khatun	Enumerator
4.	Ms. Jinnat Akter	Enumerator
5.	Ms. Tanzima Azima Azam Rupa	Enumerator
6.	Ms. Momotaz Perven	Enumerator
7.	Ms. Shohaly Afroz	Enumerator
8.	Ms. Romena Akter	Enumerator
9.	Ms. Mosammat Kajal Rekha	Enumerator
10.	Ms. Rubina Akter	Enumerator
11.	Ms. Amena Khatun	Enumerator
12.	Ms. Nasima Khatun	Enumerator

Name of Field Enumerators (Female)

13.	Ms. Nazmin Nahar	Enumerator
14.	Ms. Shamima Akter	Enumerator
15.	Ms. Rahima Begum	Enumerator
16.	Ms. Farzana Akter	Enumerator
17.	Ms. Sakina Sultana	Enumerator
18.	Ms. Aisha Siddika	Enumerator
19.	Ms. Sheikh Sharmin	Enumerator
20.	Ms. Shirina Khatun	Enumerator
21.	Ms. Zohora Begum	Enumerator
22.	Ms. Farzana Afroz	Enumerator
23.	Ms. Nazma Khanam	Enumerator
24.	Ms. Amena Khatun	Enumerator
25.	Ms. Arfia Naz	Enumerator
26.	Ms. Kafura Alam	Enumerator
27.	Ms. Fatema khanam Baby	Enumerator
28.	Ms. Jannatul Bushra	Enumerator
29.	Ms. Shaila Alam Nipa	Enumerator
30.	Ms. Mahamuda Khatun	Enumerator
31.	Ms. Nasima Akter Sumi	Enumerator
32.	Ms. Delara Islam	Enumerator
33.	Ms. Sharifa Akter Laki	Enumerator
34.	Ms. Ferdous Ara	Enumerator
35.	Ms. Rowshan E Setara	Enumerator
36.	Ms. Shamim Ara	Enumerator
37.	Ms. Babli Khanam	Enumerator
38.	Ms. Rikta Jannat	Enumerator
39.	Ms. Shirin Akter	Enumerator
40.	Ms. Monalisha Nasrin Ruma	Enumerator
41.	Ms. Rowshan Ara Shimu	Enumerator
42.	Ms. Kulsum Khatun	Enumerator
43.	Ms. Firoza Ahmed Minu	Enumerator

Name of Field Enumerators (Female)

44.	Ms. Bilkis Sultana	Enumerator
45.	Ms. Sabina Yeasmin	Enumerator
46.	Ms. Beauty Khatun	Enumerator
47.	Ms. Farhana Khan	Enumerator
48.	Ms. Rokeya Akter	Enumerator
49.	Ms. Mahmuda Siddika	Enumerator
50.	Ms. Halima Akter	Enumerator
51.	Ms. Tahmina Minu	Enumerator
52.	Ms. Samsun Nahar Sathi	Enumerator
53.	Ms. Umme Hani	Enumerator
54.	Ms. Afroza Akter	Enumerator
55.	Ms. Farzana Akter	Enumerator
56.	Ms. Rina Khanam	Enumerator
57.	Ms. Azma Shoma	Enumerator
58.	Ms. Afroza Khatun Sheuly	Enumerator
59.	Ms. Rehena Akter	Enumerator
60.	Ms. Shampa Rani Das	Enumerator
61.	Ms. Mst. Rozina Akter	Enumerator
62.	Ms. Ayesha Begum	Enumerator
63.	Ms. Khandaker Rabeya Akter	Enumerator
64.	Ms. Shobnom Mustary Nodi	Enumerator
65.	Ms. Nelima Akter Nela	Enumerator
66.	Ms. Samima Akter Rebeka	Enumerator
67.	Ms. Sabita Rani Halder	Enumerator
68.	Ms. Rabeya Akter	Enumerator
69.	Ms. Apaiching Marma	Enumerator
70.	Ms. Mst. Bilkis Nahar	Enumerator
71.	Ms. Tania Tazrin	Enumerator
72.	Ms. Sabina Yasmin	Enumerator
73.	Ms. Sakhina Akter Bithi	Enumerator
74.	Ms. Nasima Akter	Enumerator
75.	Ms. Zoly Parvin	Enumerator

Name of Field Enumerators (Female)

76.	Ms. Mst. Afroja Maher	Enumerator
77.	Ms. Kohinoor Hossain	Enumerator
78.	Ms. Mottakin Nahar	Enumerator

Name of Field Enumerators (Male)

1.	Mr. Ripon Chandro Das	Enumerator
2.	Mr. Md.Tarikul Islam	Enumerator
3.	Mr. S. M. Mohidul Islam	Enumerator
4.	Mr. Md. Ramjan Ali	Enumerator
5.	Mr. Md. Abdul Kuddus	Enumerator
6.	Mr. Syed Jafor Sadeq	Enumerator
7.	Mr. Shah Mohammad Mamun Hossain	Enumerator
8.	Mr. Md. Sagar Ali Khan	Enumerator
9.	Mr. Md. Shahidul Islam	Enumerator
10.	Mr. Md. Shahin Howlader	Enumerator
11.	Mr. Mohammad Arifuzzaman	Enumerator
12.	Mr. Md. Wali Ullah	Enumerator
13.	Mr. Md. Ariful Islam	Enumerator
14.	Mr. Md. Ismail Hossain Patwary	Enumerator
15.	Mr. Md. Rasel Rana	Enumerator
16.	Mr. Md. Saiful Islam Raju	Enumerator
17.	Mr. Md. Idris Ali Shawpan	Enumerator
18.	Mr. Ahsan Reza	Enumerator
19.	Mr. Md. Naimul Hoque	Enumerator
20.	Mr. Sonjoy Kumer	Enumerator
21.	Mr. Md. Ariful Islam	Enumerator
22.	Mr. Md. Sumon	Enumerator
23.	Mr. Shovan Roy	Enumerator
24.	Mr. Md. Jahangir Alam	Enumerator
25.	Mr. Md. Arif Hossain Shipon	Enumerator
26.	Mr. Khandakar Mohsin Habib	Enumerator
27.	Mr. Mohammad Rabiul Hossen	Enumerator
28.	Mr. Khandokar Fahim Rezwan	Enumerator