# Baseline study on diploma midwives in Bangladesh


**Final report**

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**Country**

Bangladesh

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# Preface

The Department for International Development (DFID) has commissioned Oxford Policy Management (OPM) to carry out a baseline study to understand the long-term impacts of diploma midwives on health outcomes in Bangladesh. OPM has collaborated with Mitra and Associates to conduct this research project. This report includes the findings of the baseline study of this research.

This research has been commissioned by South Asia Research Hub, Research and Evidence Division, Department for International Development, Government of UK. However, the views expressed do not necessarily reflect the UK Government's official policies.

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Professor Sophie Witter and Della Sherratt have peer reviewed the study design and the reports. Josh Chipman and Tamanna Khair from OPM Bangladesh, Laura Shelton from OPM Oxford, and S N Mitra and Fuad Pasha from Mitra and Associates provided operational guidance, and logistical support to implement this study.

Finally, we would like to thank the enumerators, quality control officers, researchers, and analysts from Mitra and Associates and all the respondents of this study.

# Executive summary

## Background

There are significant global evidences that midwife led care can be effective for achieving maternal and neonatal health outcomes. Historically, Bangladesh did not have a dedicated midwifery workforce. After taking various initiatives to create dedicated workforces for midwifery care over last couple of decades, the Government of Bangladesh with the support from development partners have initiated producing diploma midwives. Developed in line with international standards, this three-year diploma education in midwifery was launched nationwide in December 2012. First two batches of the midwives, who have completed their diploma has recently been recruited by the public service commission and deployed in the public sector health facilities. Therefore, this is the ideal time to conduct a comprehensive study involving both the demand and the supply side to understand the baseline status and also to identify the key challenges that the programme is facing at this early stage.

The overall objectives of this study are to set the baseline to understand the long-term impact, or value added, by the new midwifery cadre to maternal and new-born health in Bangladesh, and to suggest suitable strategies to effectively develop, deploy and utilise them in achieving better maternal and newborn health outcomes. The study has also aimed to document the historical context and processes followed to scale up this programme. The results of this study needs to be compared with follow-up studies, to be conducted a few years after the midwives have been fully integrated into the health institutions. The findings of this study will help policy makers and development partners in Bangladesh to better understand the baseline status of the deployment of the midwives in the public services, identify potential challenges in the integration of the midwives into the broader health system, and adopt appropriate policy reforms to address those challenges.

## Methods

The study design encompasses a mixed methods approach with three key components, namely the policy landscaping through desk review and key informant interviews, user surveys which included mothers and children through a survey and providers which are the midwives via survey, focus group discussions and case studies. Each of the components either solely or jointly facilitated in reaching the research objectives. The objective of the user (household) survey is to set the baseline status of the key maternal and neonatal health indicators in the areas where the midwives are deployed in order to compare the results with a follow-up survey. This will help understanding the value added or effectiveness of having diploma midwives, by comparing the results of the key indicators of this user survey with future surveys.

Data at the field were collected and partially analysed by the survey partner, Mitra and Associates. The field teams were deployed after a week of rigorous training and piloting. A dedicated and independent quality assurance team was also engaged for quality assurance. We have used SPSS and Stata to generate descriptive statistics of the quantitative survey results and have done thematic analysis for the qualitative data. Limitations include the lack of control that would have allowed a quasi-experimental design to fully understand the counterfactual of the programme. Another limitation was use of self-assessed questionnaire instead of systematic and rigorous skills test to measure the midwives' competencies. Ethical clearance to conduct this study was taken from Ethical Review Committee (ERC) of OPM and Institutional Review Board (IRB) of the Institute of Health Economics (IHE) of the University of Dhaka.

## Findings

The policy landscaping analysis of our study found that efforts to create a distinct identity for this group of midwives such as by providing a pink uniform, from other midwives and health workers who perform deliveries, but more emphasis is needed in this area to create a distinct identity for this health workforce. Confusion by health professionals about the responsibilities of a nurse and midwife is common, especially in the facilities where nurses are few in number and midwives are making up for their duties. The qualitative interviews have suggested that there are lack of supervisions. To empower these young midwives to lead maternal care independently as per there training and job role, it is important to educate and seek cooperation from both physicians and nurses to relieve their current authoritative status. In addition, it is equally important to promote midwifery services in the community to create awareness about this cadre who are looked upon as possibly too young in comparison to the older women who have been providing prenatal and child birth, particularly in rural areas.

In terms of facility preparedness, the Upazila Health Complexes are better equipped and have better capabilities to facilitate midwives in carrying out deliveries and other midwifery services. With regards to career progression, scope for further education for midwives and the ability to reach senior positions in the public services that are currently taken up by nurses, need to be ensured and encouraged. Additionally, at public sector nursing institutes, nurses are currently conducting the midwifery courses, which needs to be adapted so that midwives can take up the role of tutors to midwifery students and separate midwifery institutes are established to ensure sufficient capacity development.

The key results from the household surveys are listed below. Most of the indicators, except the skin-to-skin contact after birth have high level of coverage or prevalence. It would be important to observe how these indicators and trends are changed when the midwives are fully deployed in the health facilities and have offered their services for at least 2-3 years. It is also expected that the institutional deliveries would further increase and so as the deliveries skill birth attendants, and the prevalence of caesarean section would reduce.

**Key findings: Household survey**

| Indicators | Results |
|---|---|
| Percentage of women who received any ANC | 86.3 % |
| Percentage of women who received any ANC from skilled provider | 78.9 % |
| Percentage of women receiving Antenatal care visit 4+ | 38.4 % |
| Number of ANC visits (mean ± SD) | 3.7 ± 2.3 |
| Percentage delivered at health facility | 53.9 % |
| Percentage delivered by a Skilled Birth Attendant (SBA) | 55.8 % |
| Percentage delivered by C-section | 35.2 % |
| Percentage of instruments boiled before the cord was cut | 85.9 % |
| Percentage of mothers who applied nothing to the cord | 69.6 % |
| Percentage of birth that have skin-to-skin contact | 11.2 % |
| Percentage who received colostrum | 98.1 % |
| Percentage of mothers receiving postnatal care from skilled provider | 54.3 % |
| Percentage of new born receiving postnatal care from skilled provider | 54.6 % |
| Percentage of children receiving all basic vaccinations | 80.1 % |
| Percentage of mothers using any contraception method | 79.0 % |
| Percentage of mothers using any modern method | 74.0 % |

The key findings of the midwifery survey are presented in the table below. We have carried out a knowledge test using various scenarios and the average score is quite satisfactory.

Most of the midwives are highly motivated and wish to work in public sector in the long run, which is encouraging. However, many of them have also expressed their interest to work in urban areas and also wanted to get migrated abroad in the long term. A significant proportion of the midwives have reported working on tasks that are unrelated to midwifery, which is a major concern.

**Key findings: Midwifery survey**

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While the quantitative survey revealed high level of satisfaction of the midwives with their training and workplace, on further probing in the qualitative study some of them have raised some concerns about some particular aspects of the training and the facility preparedness. Some of them has also highlighted the challenges they are facing in integrating into the existing health systems.

## Conclusion

Survey findings and evidence from previous nationally represented surveys revealed there is a positive trend in most of the maternal, neonatal, and reproductive health indicators. Further efforts are required to create a distinct identity of the new cadre of midwives and for better integration into the existing health system. With adequate training and knowledge, many midwives are unable to perform midwifery tasks due to lack of authorisation from supervisors, lack of equipment and supplies and due to filling in the roles of nurses.

In the presence of a range of health care providers operating at the field, an awareness among the community is essential in order for mothers to be informed, seek out and learn to trust these relatively younger midwives in comparison to the traditionally elder health care providers for midwifery services. It is essential to provide the midwives an enabling working environment by clarifying, communicating and educating the senior health workers and physicians the exact job description of a midwife, equipping facilities with appropriate functioning equipment and supplies and properly managing and supervising midwives at the facility. To ensure growth of this profession, there needs to be a clear career trajectory for midwives. To capture the progress of these midwives, additional research including a follow-up survey, if possible with the same cohort of midwives for which the consent has already been taken, would be beneficial to this programme.

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# List of tables and figures

# List of abbreviations

| | |
|---|---|
| **ANC** | Antenatal Check-ups |
| **BDHS** | Bangladesh Demographic and Health Survey |
| **BNC** | Bangladesh Nursing Council |
| **BNMC** | Bangladesh Nursing and Midwifery Council |
| **CBHC OP** | Community Based Health Care Operational Plan |
| **CC** | Community Clinic |
| **CHCP** | Community Health Care Provider |
| **CSBAs** | Community Skilled Birth Attendants |
| **DFID** | Department for International Development |
| **DGHS** | Directorate General of Health Services |
| **DGNM** | Directorate General of Nursing and Midwifery |
| **DNS** | Directorate of Nursing Services |
| **DPHN** | District Public Health Nurse |
| **EPI** | Extended Programme on Immunization |
| **ERC** | Ethical Review Committee |
| **FGD** | Focus Group Discussions |
| **FWA** | Family Welfare Assistants |
| **FWV** | Family Welfare Visitors |
| **GoB** | Government of Bangladesh |
| **HA** | Health Assistants |
| **HPNSP** | Health, Population and Nutrition Sector Programme |
| **ICM** | International Confederation of Midwives |
| **IHE** | Institute of Health Economics |
| **IRB** | Institutional Review Board |
| **JNM** | Junior Nurse-Midwives |
| **KII** | Key Informants' Interviews |
| **MDGs** | Millennium Development Goals |
| **MNCAH OP** | Maternal, Neonatal, Child and Adolescent Health Operational Plan |
| **MoHFW** | Ministry of Health and Family Welfare |
| **NGOs** | Non-Governmental Organisations |
| **NM** | Nurse-Midwives |
| **NMES OP** | Training, Research Development |
| **OPM** | Oxford Policy Management |
| **PPES** | Probability Proportional to Estimated Size |
| **PSU** | Primary Sampling Units |
| **SACMO** | Sub-Assistance Community Medical Officer |
| **SARH** | South Asia Research Hub |

| | |
|---|---|
| **SBA** | Skilled Birth Attendance |
| **SRHR** | Sexual and Reproductive Health and Rights |
| **TBA** | Traditional Birth Attendants |
| **ToT** | Training of Trainers |
| **TRD OP** | Training, Research and Development Operational Plan |
| **UN** | United Nations |
| **UNDP** | United Nations Development Programme |
| **UNFPA** | United Nations Population Fund |
| **WHO** | World Health Organization |

# 1 Introduction

## 1.1 Background

There is significant global evidence on the impact of skilled midwives on saving maternal and newborn lives. A Cochrane systematic review, with 15 trials involving 17,674 women of potentially low-risk and high-risk pregnancy complications, revealed that those low-risk women, who received the midwife model of care, had better maternal outcomes, a reduced number of procedures in labour, and increased satisfaction with care compared to physician led care. (Sutcliffe, et al., 2012). Midwives, and out-of-hospital birth settings, allows women to avoid unnecessary caesarean sections in comparison to alternate care models (Sakala, 1993).

Political commitment, in maternal and neonatal health, is evident in Bangladesh, which is articulated in several policy and strategic documents, and has created a foundation for the considerable progress in this area. Bangladesh's midwifery education has been developed with technical and financial assistance from the World Health Organization (WHO) and United Nations Population Fund (UNFPA) to ensure it is targeted, effective, and in line with international standards. The approach to this education was composed of; a six-month advanced midwifery certificate to expand the skills of existing nurses and midwives, running since 2010; and, a three-year direct entry diploma in midwifery, launched nationwide, in December 2012.

Currently, 54 institutions (38 government and 16 private) have a total of 1,535 places (975 government and 560 private) for the three year diploma in midwifery. As of 31 January 2018, the Bangladesh Nursing and Midwifery Council (BNMC) registered 1,187 diplomas (three years) in midwifery, and 1,592 completed the six month advanced midwifery certificate. Another 696 completed, on 16 February 2018, the three year diploma in midwifery course's comprehensive (licensing/pre-registration) examination, conducted by the BNMC (BNMC, 2018).

Whilst the midwifery programme is currently being implemented, it is necessary to have a preliminary understanding on the baseline status of this programme, and to engage in future follow-ups to see what impact the midwives have had on maternal and newborn health. This study will provide important and timely insights on the long-term impact, or value added, by the midwifery programme and will allow policy makers, and development partners, to better understand the context, aiding in the development of strategies to ensure maximum benefit in maternal health.

## 1.2 Maternal and newborn health in Bangladesh

Maternal health services have improved steadily through antenatal check-ups (ANC) uptake (26% with four or more ANC visits in 2011 to 31% in 2014) and access to skilled delivery (Skilled Birth Attendance - SBA delivery: 32% to 42%, facility delivery: 29% to 37%) (NIPORT, 2015). The 2014 Bangladesh Demographic and Health Survey (BDHS) indicated progress in postnatal care, with 36% of mothers and 32% of children receiving check-ups from a medically trained provider within two days of delivery, compared to 27% and 30% in 2011 respectively.

Despite the tremendous effort in the reduction of maternal deaths nationwide, with maternal mortality rate reducing by 12.5% between 2010 and 2016 (BMMS, 2016), the country still loses 14 mothers a day due to: delivery complications; complications in the post-partum period; delivery by unskilled home birth attendants; and, lack of appropriate care by a skliied provider, for obstetric complications. Progress on neonatal mortality has been slow. More than 80% of the neonatal deaths occur within seven days, 50% within the first 24 hours of life, with most occurring in the home, in the absence of care by skilled birth attendants, and are often unregistered. These are largely due to preventable and treatable conditions –

complications due to prematurity, intrapartum-related deaths (including birth asphyxia) and neonatal infections (sepsis, meningitis, and pneumonia).

Care during labour, during birth, in the first week of life, and care for the small and sick newborn - have great impact on ending neonatal deaths and stillbirths (McClure, et al., 2007). The availability of qualified providers is important to reduce maternal and neonatal complications and deaths, and the availability of dedicated trained midwives can further have a significant impact in saving lives in countries such as Bangladesh, where the ratio of trained health workers is less than desired (WHO, 2006).

Taking this evidences into consideration, the Government of Bangladesh (GoB), with the support from development partners, have started training midwifes as a dedicated health workforce. They are being trained at government, and non-governmental, training institutes throughout the country, with a majority of the non-governmental training institutes under the supervision of BRAC University. The first two cohorts of the qualified midwives have been recently deployed in the public sector health facilities, allowing for an ideal time to conduct comprehensive research to understand the current conditions and identify challenges and their policy implications.

## 1.3 Objectives of the study

The overall objectives of this study are to understand the long-term impact, or value added, by the new midwifery cadre to maternal and new-born health in Bangladesh, and to suggest suitable strategies to effectively develop, deploy and utilise them in achieving better maternal and newborn health outcomes. The specific objectives are to explore whether:

- licensed midwives have necessary knowledge and skills;
- the system is utilising them optimally and efficiently;
- the midwives can make any difference to the health and well-being of women of reproductive age, especially pregnant women and newborns, and
- if not, then what are the barriers and what needs to be done to remove these?

The study has also aimed to document the historical context and processes followed to scale up this programme. The results of this study needs to be compared with follow-up studies, to be conducted a few years after the midwives have been fully integrated into the health institutions.

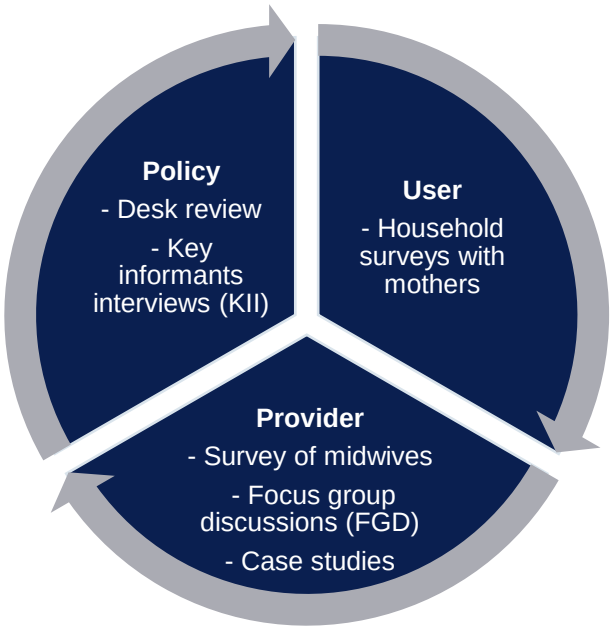
The findings of this study will help policy makers and development partners in Bangladesh to better understand the baseline status of the deployment of the midwives in the public services, identify potential challenges in the integration of the midwives into the broader health system, and adopt appropriate policy reforms to address those challenges.

# 2 Methodology

## 2.1 Overall design

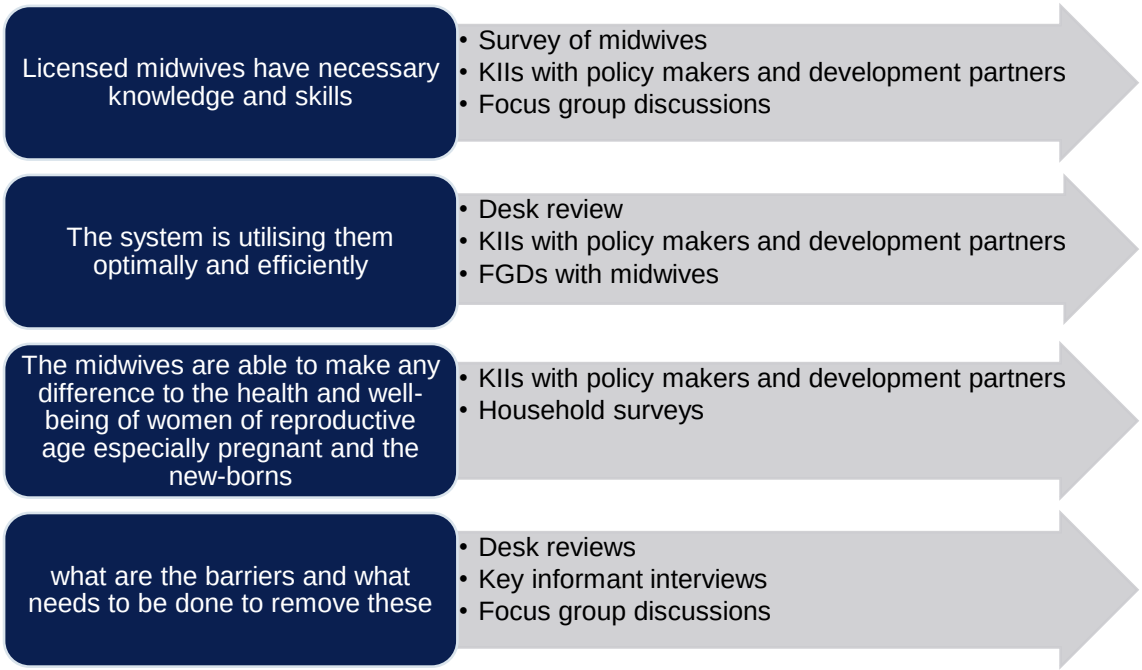
We have applied a mixed methods approach, with three different components, yet have ensured an overall cross-cutting theme and analysis. The three key areas of this research; policy, user (mothers and children) and provider (midwives), were explored using various tools as shown in Figure 1.

**Figure 1: Research areas and tools**




Each of the components either solely or jointly facilitated in reaching the research objectives as shown in Figure 2. The details of the individual components are explained in the subsequent sections.

**Figure 2: Research objectives and corresponding tools**



## 2.2 Methodology

### 2.2.1 Component A: Policy landscaping

The methods included a desk review and key informants' interviews (KII). A rapid horizon scanning was also conducted as a part of the KII.

The themes explored in the KIIs include:

- Historical background and introduction of the midwifery programme;
- Preparedness of the midwife's education institutes;
- Integration with health systems;
- Utilisation; and,
- Potential impact.

We used the information collected from the KIIs to conduct a horizon scanning to foresee the key challenges, which are likely to emerge in the short and medium term. We have applied a synthesis (scenario creation) method for the horizon scanning, to explore the research question 'What are the key challenges in the integration of the midwives in the health system?' The data collected through the KIIs is presented under the policy landscaping section of this document (Section 3.4)

The KII participants included 23 officials from various organisations who were actively engaged in scaling up the midwifery programme. A semi-structured questionnaire was used for the KIIs, and data was collected during August and November 2018.

### 2.2.2 Component B: The user survey

We conducted a cross-sectional baseline survey involving women with recent experience of receiving maternal health services in the areas where the midwives have been recently deployed. Hence, the survey population are mothers who have children that are less than two years of age, from the selected upazilas (subdistricts), which were identified by the Government for the first and second phase of midwife deployment. The objective of this survey was to set the baseline status of the key maternal and neonatal health indicators in the areas where the midwives are deployed in order to compare the results with an endline survey, likely to be conducted in three-four years.

The calculated sample size was 1,200 mothers, with the statistical assumptions of infinite population, 95% confidence, 5% margin of error, a prevalence of 0.5, design effect of 3, cluster size of 24 and number of clusters 50. To accommodate a 15% non-response rate, the total sample size was increased to 1380. This sample size is large enough to be a representative sample of the target population and to detect statistically significant changes across the groups (e.g. between urban-rural and between wealth quintiles). It is also a sufficient size to detect relatively rare events, such as complications. The final sample which was used in the analysis was 1,320.

The sample was selected using a multistage random selection procedure. Fifty villages/mohollas were selected from the sampling frame of selected 342 upazilas (subdistricts) where the midwives were deployed. The following procedures were utilised in selecting the 50 villages.

The first stage of sampling involved: preparing a list of 342 Upazilas according to divisions and districts; with the size of the household listed in alphabetical order of, divisions, district and upazila names; and, development of a column with corresponding cumulative household size as a sampling frame for selecting the upazilas (see Annex G). Thus, 50 Upazilas were selected from the list of 342, with probability proportional to estimated size (PPES), the size being measured in terms of estimated number of households.

During the second stage, a list of the villages was prepared by the selected upazila. The 2011 census list of villages was used as the sample frame for the selections of villages. One village was randomly selected from an upazila. Thus, altogether, 50 villages were selected from the 50 upazilas for the household survey.

Households in every selected village were then identified during a census, whereby the listing team recorded whether the household included a mother with a child less than two years of age, and sought the required information to identify the household (such as identifying the head of the household, the location, members of the household, etc.). In this way, it could be ascertained which mothers were eligible to take part in the survey.

On the completion of each cluster listing, the teams identified those households with mothers of children less than two-years of age then prepared a sampling framework with those selected households, for the final stage of sampling. The final stage selection involved a selection of the ultimate sample of up to 30 households in a cluster, with mothers of an under two-year-old. The households were drawn by using a systematic sampling technique from each village sampling frame.

The sampling frame of this survey comprised of the sub-districts (upazilas) where the newly trained midwives are deployed and the primary sampling units (PSUs) and the households within the PSUs were drawn using Probability Proportionate to Size (PPS). The survey results are therefore representative to the general population of these upazilas and is not nationally representative. However, since these upazilas are distributed across all eight divisions of Bangladesh and are roughly proportionate to the population size of each divisions, we do not anticipate much difference between this survey population with that of the general population of Bangladesh.

### 2.2.3 Component C: Survey on midwives

This component involved both quantitative and qualitative methods. A total of 1143 midwives, including 158 BRAC trained midwives and 985 government trained midwives were deployed in 342 upazilas in Bangladesh. Amongst the 1143 midwives, 593 midwives were deployed from the first cohort (127 BRAC and 466 Government trained midwives) and 550 from the second (31 BRAC and 519 Government trained midwives).

For the quantitative survey, the calculated sample size of midwives was 288. The statistical assumptions were population size of 1143, 95% confidence level, 5% margin of error and a conservative prevalence of 50%. Simple random sampling was used without any cluster, and therefore the design effect was 1. Considering the 15% non-response rates and attrition in the follow-up survey, the total sample size was increased to 331. BRAC trained midwives were oversampled in order to have an adequate sample of this cohort so the results between government-trained and BRAC affiliated institutes could be compared. We have used sampling weights to generate representative data for the overall sampling population. The final 329 interviewed included 190 midwives trained in government institutes and 139 midwives trained in institutes affiliated to BRAC University.

For the qualitative element, six focus group discussion (FGD) sessions were conducted; three FGDs were held in Dhaka and the remaining three will be held outside Dhaka. Between four and six midwives were chosen as FGD participants from amongst the listed midwives in a district, or the nearby upazilas, who expressed willingness to attend the FGD session.

In addition, midwives provided 10 case studies to capture a comprehensive understanding surrounding their training and work, and was used to reflect the findings of the FGD.

## 2.3 Data collection

Data were collected between September and December 2018. The desk review and KIIs at the central level were conducted by the core team members of the team, particularly the HRH expert. Mitra and Associates recruited the enumerators for collecting data from the health facilities and households. They were received one week training from the OPM and Mitra and Associates researchers. Five enumerator teams were deployed in the field and each team included six members. A dedicated and independent quality assurance team was also engaged for quality assurance. We used Computer Assistant Personal Interviewing (CAPI) for quantitative data collection and paper-pen method for the qualitative data collection.

## 2.4 Data analysis

We used thematic analysis using the data collected through KIIs and FGDs from the policy makers, development partners and the midwives. We have also used horizon scanning using scenario creation method to foresee the key challenges likely to arise while integrating the midwives in the broader health system.

The quantitative data were analysed using SPSS and Stata. As the midwives trained from BRAC University were oversampled to get a reasonable sample from that cohort, we used sampling weights while analysing midwifery survey data to get the representative data from the entire sampling frame. Since the households were sampled using PPES, we considered the household survey data to be self-weighted and therefore have not used separate weights during the analysis. We used assets to divide the households into socio-economic quintiles. We mostly reported descriptive statistics and compared the results with the previous national surveys to show a trend in the key indicators.

## 2.5 Limitations

One of the significant limitations of this study was the lack of control that would have allowed a quasi-experimental design to fully understand the counterfactual of the programme, i.e. what would have happened in absence of the programme. The main reason this control could not be included was due to the Government of Bangladesh's plan to deploy midwives in all upazilas in Bangladesh, thus rendering it unlikely that there would be an upazila without a midwife in the upazila and union level facilities in four to five years' time.

Due to budgetary constraints, we could not do a systematic and rigorous skills test to measure the midwives' competencies. To address this gap, self-assessment questions, in the questionnaires, were used, asking the midwives to report on their competency level and how confident they felt they were in performing their assigned tasks. This approach, of course, has its limitations in that some of the responses may not be accurate due to self, rather than independent assessment.

## 2.6 Ethical considerations

We have obtained ethical clearance from the Ethical Review Committee (ERC) of OPM and Institutional Review Board (IRB) of the Institute of Health Economics (IHE) of the University of Dhaka.

All the enumerators were briefed, during the training, about research ethics and its importance and informed consent was obtained from all respondents prior to data collection. Participation in the survey was voluntary, and the participants were able to refuse to participate or withdraw themselves at any stage of the interviews. Data was presented at an aggregate level, and the datasets were fully anonymised prior to analysis.

One of the key ethical challenges while conducting this study was to ensuring privacy and confidentiality of the midwives while they were interviewed. This is because most of the

health facilities from which they were sampled were quite busy and often it was difficult to find a place with proper privacy to conduct the interviews maintaining privacy. We have identified this challenge at the pretesting stage and have considered various options to mitigate this risk, including home visits, interviewing outside the health facility premise etc. However, most of the alternatives also had other challenges and we have finally decided to carry out the interviews at the health facilities. We have instructed the enumerators specifically on this issue and have asked them to choose an isolated place for the interviews.

# 3 Policy landscaping

## 3.1 Historical context

Midwifery services were previously provided by the Traditional Birth Attendants (TBAs) in the majority of cases, and others were provided by obstetricians, physicians, nurses, junior midwives, and Family Welfare Visitors (FWV). In Bangladesh, training of TBAs began in 1978 and after 20 years, ended in 1998, during which 52,000 women were trained by the Government (Jahangir 1997) in addition to a few thousand being trained by non-governmental organisations (NGOs). The objective of TBA training was primarily to change the practices surrounding deliveries, such as teaching cleanliness, so that maternal and neonatal mortality could be established. The programme ended as it did not significantly lower the rate of maternal mortality as evidenced through national demographic surveys.

United Nations (UN) agencies, including WHO (WHO 1999), quickly developed a new programme to train Skilled Birth Attendants (SBAs), with the same goal of reducing the rate of maternal mortality. This programme aimed to train SBAs to a higher professional level than TBAs. The Government of Bangladesh welcomed the new SBA programme and undertook a study to identify training needs and support of SBAs (OGSB et al 2002). The results showed that ideal trainees were all female community-based Family Welfare Assistants (FWAs) and female Health Assistants (HA). After the study, a six-month training pilot for the SBAs began in 2003, and 90 FWAs and female HAs were trained in six districts. The selection criteria for becoming an SBA were: appropriate level of education, aged between 21 and 45 years, a positive attitude, and a willingness to provide support. However, before making a full assessment of the pilot training, seven more districts were selected for SBA training. The plan was to provide midwifery services for most women who deliver their babies at home, with the aim in training all the FWAs and HAs as Community Skilled Birth Attendants (CSBAs). This would provide about one CSBA per 6,000 of the population or 1,000 families, to manage about 50 to 60 normal deliveries and at least one third referrals every year (MOHFW 2011). The SBAs, in the Bangladesh context, was defined as health workers (such as FWAs, female HAs) working at the community level with proficient education, training, and abilities in midwifery skills, as defined by the International Confederation of Midwives (ICM). They were required to manage normal (uncomplicated) pregnancies, childbirth, and the immediate postnatal period, and identify and refer complications, providing them with first-line management of the women and newborns. They are certified and registered by the Bangladesh Nursing Council (BNC).

A 2011 evaluation of the CSBA programme showed that a poor utilisation of CSBAs for home deliveries (DGHS 2011). Several issues were identified for this, including the busy schedules of the service providers trained as CSBA, inadequate monitoring and supervision, and lack of community awareness. Other studies also indicated lack of awareness amongst the community about CSBA. Many national/international NGOs and UN agencies such as the United Nations Development Programme (UNDP) also trained CSBA (locally known as private CSBA) by selecting young women from the community and/or providing their community health workers with an additional six months of training. The Government also started CSBA training for the female Community Health Care Provider (CHCP) of the Community Clinic (CC). Interestingly to note, although CSBAs were supposed to work in the community and make home delivery a safe option, they were also used by the Government in facilities, such as in the community clinics, and many NGOs also deployed them in union level government facilities (Union Health and Family Welfare Centers and Union Sub Centers). Under the 4th Health, Population and Nutrition Sector Programme (4th HPNSP) 2017 – 2022, the Maternal, Neonatal, Child and Adolescent Health Operational Plan (MNCAH OP) has the provision to train to 1,098 CSBAs (DGHS 2017a), the Community Based Health Care Operational Plan (CBHC OP) aims to train female CHCP as CSBA, with the plan to establish one CC in each union conducting normal delivery (DGHS 2017b) and

the Training, Research and Development Operational Plan (TRD OP) has provisions of CSBA training for FWAs and female HAs (NIPORT 2017).

Bangladesh did not have dedicated diploma educated midwives, and the service was mainly dominated by nurses, who had supplementary midwifery training. Since there are existing shortages of nurses in the country (WHO, 2006), the majority are deployed in other clinical areas, and a small proportion of them are engaged in midwifery services. To accommodate this new midwifery programme, the Directorate of Nursing Services (DNS) has been upgraded and renamed as the Directorate General of Nursing and Midwifery (DGNM); Bangladesh Nursing Council (BNC) has been renamed to the Bangladesh Nursing and Midwifery Council (BNMC) through adaptation of new law in 2016; and, the Bangladesh Midwifery Society was formed in 2010.

## 3.2 Training

The Prime Minister of Bangladesh, whilst addressing the 65th General Assembly of the United Nations in 2010 stated that the progress in attaining the Millennium Development Goals (MDGs) was seen in 'doubling the percentage of births attended by a skilled health worker by 2015 (from the current level of 24.4%) through training an additional 3,000 midwives, staffing all 427 sub-district health centres to provide round-the-clock midwifery services, and upgrading all 59 district hospitals and 70 Mother and Child Welfare Centres as centres of excellence for emergency obstetric care services,' (MOHFW 2011). At that time CSBAs, FWVs, junior midwives and nurse-midwives were available as SBAs and in providing midwifery services.

To meet the need for SBAs to be able to conduct safe deliveries, the key options for consideration were: (1) Revise implementation of the training of CSBAs and review the numbers needed, (2) Revise the whole career structure of nurse/midwife training where the current registered nurse-midwives (RNM) will complete a six month certificated course in advanced midwifery, whilst a new two-year course would begin for registering junior nurse-midwives (JNM) with the possibility to continue towards a two year course, and obtain a degree as RNM; and, (3) Restart the training of FWVs for 18 months, with an additional six months specifically geared towards midwifery (MOHFW 2011). Budgets were allocated for training 8,200 CSBAs and 3,172 midwives through the MNCAH OP (DGHS 2011) and 74 batches of FWVs were to be trained for six months in midwifery through Training, Research Development (TRD) OP (NIPORT 2011), and 3,000 midwives by Nursing Education and Services (NES) OP (DNS 2011) during 2011-2016 under the Health, Population and Nutrition Sector Development Programme (HPNSDP). Under the 4th HPNSP 2017-2022, the Maternal, Child, Reproductive and Adolescent Health Operational Plan (MCRAH OP) had provision to train 900 FWVs for six months in midwifery skills (DGFP 2017), the Training, Research and Development Operational Plan (TRD OP) had provisions for Midwifery Skill Practice Training for FWVs (NIPORT 2017), and Nursing and Midwifery Education and Services Operational Plan (NMES OP) aimed to increase production of registered midwives to 975 per year (from 38 institutions) totalling 4875. NMES OP also expected to initiate a B.Sc. in Midwifery, with the help of UNFPA (DGNM 2017).

Bangladesh's midwifery education strategy constituted a six-month advanced midwifery certificate to expand the skills of existing nurse-midwives, which started in 2010, and a three-year direct entry diploma in midwifery, launched nationwide in December 2012, with 525 students in 20 educational sites and another batch in December 2013 in an extended number of 27 educational facilities. It was then expanded in 2015, with a third intake of 800 students into 31 institutes/colleges. As of 26 September 2018, there were 55 institutes (38 government and 17 private) with a total of 1,565 available placements (975 government and 590 private) for the three year diploma in midwifery (details in annexure). As of 31 October 2018, the BNMC have registered 2,131 diplomas (three year) in midwifery, and 1,592 six-month midwifery training completed diploma nurse-midwives (BNMC 2018).

The BNC, in collaboration with the DNS, developed the midwifery curriculum, with technical assistance from WHO and UNFPA, by engaging international consultants. The curriculum was informed by the ICM Standards for Education and prepares midwives to meet the ICM competencies for practice (Malin et al 2017). This three-year diploma course began as a government add-on within the existing nursing institutes/colleges, having a limited ability to provide only 25 placements per institutions in most cases. These nursing institutes were already suffering from problems of faculty, classrooms, library facilities, practical classes, and clinical training in the hospitals (Md. Humayun et al 2010, Berlan 2011, Oulton 2009). Naturally, add-on diploma's in midwifery courses aggravated the limitations. One study found that the midwifery students perceived that they were not given opportunities to practice their theoretical or clinical knowledge and skills. They described that these possibilities were restricted due to several factors. Partly they linked it to weak coordination with health care facilities, where there was competition between nurses, nursing students, intern doctors, and midwifery students when supporting a woman giving birth. Furthermore, there was a gap between their theoretical knowledge and practical experience, and there were no clinical teachers (Malin et al 2018). Sharing institutions with nursing students was also found to be problematic by the midwifery students, with one stating:

'*Nursing students have their own ego, and they don't usually mix with us. They have separate floors for living and they do not allow us to go to their rooms. The new candidates for the midwifery courses are forced to live with 13 to 14 girls together in a room' (Malin et al 2018).*

The practical courses at the Barisal Medical College Hospital for midwives do not offer enough exposure to duties in the labour ward, or with newborns, and they may be deferred to regular nursing duties to service overcrowding. The living conditions at the college are unsuitable, with seven girls living in a room meant for two, lack of sanitary facilities and a security risk as they have to go outside their rooms to study (Evaluation Office 2016).

*The teachers in all the institutions were nurse-midwives.* A number of development partners came together to support the Training of Trainers (ToT) Midwifery Programme to improve the knowledge and skills of those given the task of teaching the six-month post-basic midwifery programme. This 28-day course focused on ensuring that teachers had the knowledge to implement the curriculum, and to conduct the required learning assessments. As of December 2016, 113 teachers have been trained (Malin et al 2017).

For the development of the midwifery faculty, the DGNM introduced, in 2016, a blended web-based master's program on Sexual and Reproductive Health and Rights (SRHR) with the technical support from Dalarna University, Sweden. Thirty students from the first batch graduated in December 2017, with 30 more completing the second batch in December 2018, and 30 more to be enrolled in March 2018. However, teaching staff at Dhaka Nursing College were reported to be overstretched to service both nursing and midwifery educational needs (Evaluation Office 2016).

To overcome the limitations in knowledge and skills base in the basic course, DGNM with technical assistance from UNFPA, arranged a three-month long internship programme for 474 licensed midwives, by placing them in different upazila health complexes in groups comprising of between four and six students, from 1 July to 30 September 2018 (DGNM 2018a). Also, DGNM has identified 27 upazila health complexes for 29 nursing institutes (out of 38 currently offering courses) for the practical exposure of midwifery students in batches through rotations (DGNM 2018b).

## 3.3 Deployment

The Government has created 2,996 midwifery posts of under the DGNM in five successive financial years staring from 2014-2015. These posts are created as four per upazila health complexes and one per union sub-centre. In total, 421 upazila health complexes and 1312

union sub-centres have midwife posts. Details of the midwife posts in government health facilities are provided in Table 1.

**Table 1: Distribution of the midwives' posts in government health facilities**

| Financial Years | Upazila Health Complex (UHC) | | Union Sub-centres (USC) | | Total Midwives |
|---|---|---|---|---|---|
| | # of UHC | # of Midwife | # of USC | # of Midwife | |
| **2014 – 2015** | 104 | 416 | 184 | 184 | 600 |
| **2015 – 2016** | 122 | 488 | 112 | 112 | 600 |
| **2016 – 2017** | 105 | 420 | 180 | 180 | 600 |
| **2017 – 2018** | 56 | 224 | 376 | 376 | 600 |
| **2018 – 2019** | 34 | 136 | 460 | 460 | 596 |
| **Total** | **421** | **1,684** | **1,312** | **1,312** | **2,996** |

In December 2015, and July 2016, DNS posted senior staff nurses/staff nurses, who held a diploma in nursing services and midwifery, with a further six months training in midwifery in the newly created posts of midwives at upazila health complexes and union sub-centres. 1200 such certified midwives were posted as the diploma midwives were not available.

The MOHFW appointed and deployed 593 diploma midwives on 28 June 2018, and 550 on 19 August 2018, in the different upazila health complexes and union sub-centres. Thus, 1143 diploma midwives now in the midwives' posts in upazila health complexes and union sub-centres.

## 3.4 Challenges in integration into the health systems

### Creating a distinct identity

The role of a midwife is the latest addition in the Bangladesh health workforce, and they are facing problems with their identity due to the overlap of certified and diploma educated midwives, and those health workers who perform deliveries. The Government has trained, and deployed, two types of midwives those certified, (trained as nurse-midwives and then provided with additional six months midwifery training) and those who hold a diploma (trained as midwives) at upazila health complexes and union sub-centres in the newly created posts. The Government also trained CSBAs, many of whom are conducting normal deliveries at the community clinics. NGOs also deployed CSBAs in the Government union facilities, including in union sub-centres. FWVs posted at union health and family welfare centres also conduct deliveries, and efforts are on-going to increase their performance. Thirteen private institutions run an 18-month junior midwifery course consisting of 360 placements and are accredited by the BNMC. To offer a distinct identity for those diploma educated midwives, they are given just a pink uniform, which might help. However, most of the KII respondents and the midwives participated in the FGDs suggested that further effort is needed in order for them to carve out a distinct and valued identity.

*"Since so many providers are performing midwifery service, it's difficult to distinct diploma midwife. Unless dedicated efforts are undertaken as quickly as possible to inform all concerned about the diploma midwife, return from this specialized health workforce may be delayed and not optimum"*

- A key informant from an UN agency

## Working as nurse

Since nurses and midwives are taught in the same institutes (nursing institutes/colleges, and both are controlled by the same authority of DGNM), a newly qualified midwife is often confused with a nurse by many health professionals. With the vacant positions of nurses, midwives are often seen by the local authorities as an additional role to support nursing. In July 2017, out of the 32,874 nurses (positions under DGNM), 26,761 were filled, leaving 7,113 (21.64 %) positions vacant (DGHS 2017). Compared to district and above level hospitals, the most prevalent vacant nursing positions are located in upazila health complexes, where midwives are usually posted. Unless local authorities, such as upazila health and family planning officers (UH&FPO) are well oriented about the midwife's role and ensure midwives are allowed to function within their post, many midwives may end up functioning as nurses.

*"Since I have so much shortage of nurses, I am not in a position to allow the midwives for midwifery functions only. After all I am to manage the full operation of my hospital optimally. So I need to use all human resources available to me as much as possible"*

- An UH&FPO as a key informant

## Supervision

Some of the KII respondents highlighted that the DGNM lacks the capacity and the authority to follow-up with the midwives posted in the upazila health complexes and union sub-centres. A District Public Health Nurse (DPHN), embedded within the district civil surgeon's office, is expected to play this role, yet the DPHN is not supported with any form of transport to accomplish this duty. A DPHN is a diploma nurse-midwife with a post-basic nursing education in public health, thus technically may not be able to provide supervisory support to midwives. Moreover, DPHN may not be able to negotiate with UH&FPO due to several reasons, such as administrative - having lower position, social - women to men etc., to make sure midwives are able to function with their specific role as midwives.

*"Provision of adequate supervision is a pre-requisite to get the optimum return from the deployed midwives, as they are new in the health workforce, comparatively junior to other similar workers and moreover struggling to establish their positions. They desperately need supportive supervision in intense manner. Unfortunately this is well planned and executes properly and left as business as usual"*

- A development partner key informant

## Empowerment and cooperation from the doctors

In Bangladesh, nurses are only posted where physicians are available. Nurses assist physicians and follow their instruction as they are not empowered to independently undertake tasks. In such an environment, midwives are expected to lead maternal care independently and are placed under the supervision of physicians, both at UHC and USC. How the existing medical establishment, particularly in regard to physicians, will react to this, is yet to be observed.

Midwives are posted in the UHCs and expected to run midwifery care in in-patient and out-patient maternity units. Currently, the maternity care is provided by physicians at the out-patient department, and by nurses in the in-patient department, under supervision of physicians. To allow midwives to operate midwifery care in both inpatient and outpatient departments, physicians and nurses need to endorse the approach and co-operate. Physicians sit above midwives in the administrative and medical hierarchy and although nurses and midwives are technically at the same hierarchical level, nurses are usually senior to a midwife in terms of age and service length. Without the appropriate education surrounding the need for inclusion, physicians and nurses will be reluctant to relinquish their current authoritative status. The DGNM has arranged 27 UHCs as practical sites for midwifery students to learn from midwifery led care, however, these 27 UHCs can be considered as isolated islands amongst the 421 sites where midwives will be posted.

## Age

At present, the entire cohort of midwives are young professionals, who have recently graduated and entered into government jobs, with many of them unmarried and without children of their own. Historically and culturally most women in Bangladesh, particularly those in rural areas, receive prenatal and childbirth care from an older female, who they believe has authority through their own experience of giving birth. This puts young, newly graduated and childless midwives at a disadvantage and they may suffer from lack of credibility. In many cases, expectant mothers may refuse their care, instead looking toward older females, such as nurses to assist them during delivery. To ease this issue, it requires the promotion of midwifery services amongst the entire community; an important activity but not one that has been undertaken.

## Facility preparedness

Midwifery posts are created at UHCs and USC and at the union level, there are also union health and family welfare centres (UH&FWC), and a facility belonging to the Directorate General of Family Planning (DGFP). USC provides out-patient services but, in most cases, the USC cannot facilitate deliveries as they lack proper space such as labour rooms and recovery rooms, and do not have ward space for pre and postdelivery care. Whereas the UH&FWC provides out-patient services, and has in most cases, a labour room and recovery space with two residential quarters. The UH&FWC also has an FWV, who is accredited by the BNMC for midwifery tasks, thus midwives will be better utilised at UH&HWC than at USC.

## Policy

Since midwifery as profession has been supported by the prime minister, all relevant stakeholders wish to also endorse the role. This was reflected by the budgetary provisions in the HPNSDP 2011-2016 aiming to train 8,200 CSBAs, 6172 (3172+3000) midwives and 74 batches of FWVs with six months midwifery skills. Current 4$^{th}$ HPNSP 2017-2022 also has budgetary provisions to train CSBAs (1098 by MNCAH OP, 4500 CHCP by CBHC OP and also by TRD OP), midwives (4875 diploma and introduction of B.Sc. in midwifery by NMES OP) and FWVs (900 by MCRAH OP and more by TRD OP). Currently the country's deliveries are roughly equal between facility and home delivery (50%: 50%) (BDHS 2017). Thus, to make delivery safe, both fronts need to be covered.

Introduction of diploma educated midwives and deploying them initially at UHC and USC, with the provision to later cover other facilities (district and medical college hospitals) has the aim to make all facilities safe for child delivery. Two departments under the Ministry of Health and Family Welfare (MoHFW) are involved in service delivery, namely The Director General of Health Services (DGHS) and Directorate General of Family Planning (DGFP). In current arrangement, only DGHS facilities (UHC and USC) are utilising midwives. Therefore the DGFP wanted to upgrade their FWVs to ICM standard midwives. Thus, investments were made under HPNSDP, and again under the 4$^{th}$ HPNSP, to provide FWVs with the additional six months midwifery (to produce certified midwives by providing six months training to the diploma nurse-midwives). The DGFP supposed that by three lots of successive six months midwifery training to FWVs would make their training equivalent to a diploma educated midwife with 36 months overall training (18 months basic and 18 months additional). However, it seems not to have been considered that the entry requirement of the diploma led midwife course is a Higher Secondary Certificate – 12 grades (HSC), whereas entry requirement of FWVs is a Secondary School Certificate – 10 grades, (SSC).

Since the Government opted for diploma educated midwives, it must decide whether other existing midwifery courses (such as junior midwifery and FWVs) should continue. If the Government opts for solely diploma educated midwives, then it can ask the private junior midwifery training institutes to convert into diploma midwife institutions. It may also make the decision to: (1) convert the existing Family Welfare Training Institutes into midwifery

institutes by providing additional physical infrastructure, and other support, including faculty development, and put those under the DGNM from existing NIPORT (National Institute of Population Research and Training) administrative control; and (2) upgrade all the existing FWV positions (in UH&FWC and MCWC – maternal and child welfare centres etc.) to midwife positions, and allow existing FWVs to continue, but recruit only midwives when FWVs are separated from the posts.

## Working with CSBAs

CSBAs are not contributing enough in increasing skill birth attendance in home deliveries, (BDHS 2017 unpublished data reveals their contribution as less than 1% within the deliveries attended by medically trained providers). However, to make 50% of home deliveries safe, in order to deter negative maternal and neonatal health outcomes, there is no option but to make them effective. The Government has budgeted for more CSBA training under the 4th HPNSP, yet, CSBA's roles need to be redefined. Currently CSBA (FWAs and female HAs) are expected to complete domiciliary visits, attend community clinics, satellite clinics/EPI sessions in addition to their CSBA tasks. They are not supervised and mentored for CSBA tasks, as their supervisors (AHI – assistant health inspector for HA and FPI – family planning inspector for FWA) have no knowledge regarding CSBA tasks. Pilot programmes have shown to improve CSBA performance when FWVs were placed as their mentors. The mid-term review of the HPNSDP in 2014, recommended scaling up of CSBA mentoring (IRT 2014), with the demand for both the DGHS and DGFP to work together; a relationship yet to materialise.

## Career progression

In total 2,996 midwives' posts have been created, but the career progression of midwives and subsequent issues are yet to be thought through. If these issues are not addressed within the next seven to 10 years, a large proportion of the midwifery positions will be a cause of frustration, agitation and low performance. As posts in the DGNM now belong to nurses, positions need to be created for midwives to enable equal opportunities for both cadre of health workers to move to top level positions, of which there are few. Instead of placing effort on introducing B.Sc. degrees in midwifery (as planned), efforts need to focus on career progression and promoting the existing midwifery roles and the benefits to maternal and newborn health.

## Teaching quality and curriculum

Currently, nursing teachers also teach midwifery courses, and as they are primarily nursing staff, when there is room for promotion, they immediately move into nursing posts. Therefore, posts for midwifery tutors need to be created where midwives are deployed, and the investment into their capacity development firmly secured. Similarly, in the future, dedicated midwifery institutes need to be established for the benefit of both nursing and midwifery. Existing add on midwifery with nursing is an obstruction for both roles for optimum growth.

It is also important to mention here that the curriculum used by the government and BRAC University were initially different. The entry requirements were also different. As a result many BRAC University trained midwives from the first batch could not join the public service. Later, both government and BRAC University accredited training institutes started using the same curriculum. However, there are some differences in the training modality, which might affect the training outcome and competence of the midwives.

# 4 Findings from user survey

## 4.1 Description of survey population

The household surveys interviewed, a total of 1320 mothers with children less than 2 years of age, a response rate of 96%. The mean age of the mothers was 24.5 years with standard deviation (SD) of 5.3. Most of the mothers interviewed had only one child. Seventy eight percent of the mothers have completed primary or higher education (Table 2). Wealth quintile was computed as an indicator of household economic status using information on household assets. There is an equal distribution of mothers across the five levels of wealth quintile, lowest to highest.

**Table 2: Characteristics of the mother**

| Background characteristics of mothers | Percent |
|---|---|
| **Current marital status** | |
| **Married** | 99.6 |
| **Separated** | 0.2 |
| **Widowed** | 0.2 |
| **Education attainment** | |
| **No Education** | 6.3 |
| **Primary incomplete** | 16.0 |
| **Primate complete** | 13.1 |
| **Secondary incomplete** | 44.3 |
| **Secondary complete or higher** | 20.3 |
| **Religion** | |
| **Islam** | 92.7 |
| **Hinduism** | 7.2 |
| **Christianity** | 0.1 |
| **Division** | |
| **Barishal** | 5.8 |
| **Chittagong** | 18.6 |
| **Dhaka** | 20.5 |
| **Khulna** | 12.1 |
| **Mymensingh** | 7.9 |
| **Rajshahi** | 16.9 |
| **Rangpur** | 14.3 |
| **Sylhet** | 3.9 |
| **Wealth Quintile** | |
| **Lowest** | 20.0 |
| **Second** | 20.0 |
| **Middle** | 20.2 |
| **Fourth** | 19.8 |
| **Highest** | 20.1 |

| Background characteristics of mothers | Percent |
|---|---|
| | Mean ± SD |
| | Median |
| **Mother's age in years** | 24.5 ± 5.3 |
| | 24.0 |
| **Total number of births** | 1.0 ± 0.1 |
| | 1.0 |
| | |
| ***Total*** | *100* |
| ***Number*** | *N=1,320* |

The primary sampling units (PSU) from which the households were sampled is shown in Figure 3. These PSUs were sampled from the subdistricts where midwives are deployed.

**Figure 3: Map of Bangladesh showing the sampled PSUs**


The mean (SD) age of the last child was 12.4 (6.3) months. The sex ratios in the sample were 51.8% male and 48.2% female.

**Table 3: Characteristics of youngest child**

| | Percent |
|---|---|
| **Sex of last child born** | |
| **Male** | 51.8 |
| **Female** | 48.2 |
| | **Mean ± SD** |
| | **Median** |
| **Age of last child born in months** | 12.4 ± 6.3 |
| | 12.0 |
| | |
| ***Total*** | *100* |
| ***Number*** | *1,320* |

More than 99% of the husbands of the sampled mothers work in both formal and informal sectors. The primary education completion rate was lower amongst husbands than that of the mothers, with 62.4% having completed primary or higher education.

**Table 4: Characteristics of husband**

| | Percent |
|---|---|
| **Educational attainment** | |
| **No Education** | 13.5 |
| **Primary incomplete** | 23.3 |
| **Primate complete** | 15.7 |
| **Secondary incomplete** | 26.5 |
| **Secondary complete or higher** | 20.2 |
| **Do not know** | 0.8 |
| **Husband's occupation** | |
| **Business/Traders** | 22.5 |
| **Non-Agricultural day labour** | 20.9 |
| **Service/Salaried worker** | 20.6 |
| **Agricultural day labour** | 15.6 |
| **Farmer (Crops)** | 10.1 |
| **Other Self-employment** | 4.8 |
| **Rickshaw/van pulling** | 4.6 |
| **Unemployed** | 0.5 |
| **Student** | 0.2 |
| **Small/cottage industry** | 0.2 |
| **Physically challenged** | 0.2 |
| | |
| ***Total*** | *100* |
| ***Number*** | *1,320* |

## 4.2 Antenatal care

### 4.2.1 Antenatal care coverage

Table 5 shows the percent distribution antenatal care (ANC) received by the sampled mothers during their last pregnancy including the types of providers. Women interviewed were asked to report on all persons they had consulted for ANC purpose.

## Table 5: Coverage of Antenatal Care

| Background characteristics | Skilled birth attendant* | | | | | | | Unskilled birth attendant* | | | | | | | | Number of women who received ANC | Any ANC | ANC from skilled birth attendant | Number of women, N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Doctor | Nurse | Midwife (diploma) | Midwife (others) | FWV | CSBA | SACMO | CHCP | HA | FWA | NGO Worker | TTBA | UTBA | Unqualified doctor | Others | | | | |
| **Mother's age at birth** | | | | | | | | | | | | | | | | | | | |
| **<20** | 88.0 | 3.7 | 0.5 | 0.0 | 8.3 | 0.5 | 0.5 | 7.4 | 0.9 | 3.2 | 29.2 | 0.0 | 0.0 | 2.3 | 2.8 | 216 | 90.0 | 81.7 | 240 |
| **20-34** | 86.6 | 3.6 | 0.0 | 0.3 | 9.5 | 0.5 | 0.6 | 4.2 | 0.1 | 2.9 | 26.8 | 0.0 | 0.6 | 2.2 | 3.8 | 861 | 85.7 | 78.7 | 1005 |
| **35-49** | 77.4 | 6.5 | 0.0 | 0.0 | 12.9 | 0.0 | 0.0 | 6.5 | 0.0 | 6.5 | 32.3 | 0.0 | 1.6 | 4.8 | 1.6 | 62 | 82.7 | 72.0 | 75 |
| | | | | | | | | | | | | | | | | | | | |
| **Educational attainment** | | | | | | | | | | | | | | | | | | | |
| **No education** | 59.6 | 8.5 | 0.0 | 0.0 | 29.8 | 2.1 | 0.0 | 2.1 | 0.0 | 4.3 | 21.3 | 0.0 | 4.3 | 6.4 | 4.3 | 47 | 71.1 | 56.7 | 67 |
| **Primary incomplete** | 79.4 | 5.9 | 0.0 | 0.0 | 12.4 | 1.2 | 0.6 | 8.8 | 1.2 | 2.4 | 32.4 | 0.0 | 0.6 | 2.4 | 4.1 | 170 | 74.9 | 65.2 | 227 |
| **Primary complete** | 76.8 | 6.3 | 0.0 | 1.4 | 13.4 | 0.7 | 0.7 | 5.6 | 0.0 | 4.2 | 29.6 | 0.0 | 0.7 | 3.5 | 6.3 | 142 | 82.1 | 70.5 | 173 |
| **Secondary incomplete** | 89.4 | 1.3 | 0.0 | 0.2 | 7.2 | 0.2 | 0.8 | 4.5 | 0.0 | 3.4 | 26.6 | 0.0 | 0.2 | 2.5 | 2.6 | 530 | 90.6 | 84.0 | 585 |
| **Secondary complete or higher** | 95.2 | 5.2 | 0.4 | 0.0 | 6.4 | 0.0 | 0.0 | 3.2 | 0.4 | 2.4 | 26.4 | 0.0 | 0.4 | 0.8 | 3.2 | 250 | 93.3 | 89.9 | 268 |
| | | | | | | | | | | | | | | | | | | | |
| **Wealth Quintile** | | | | | | | | | | | | | | | | | | | |
| **Lowest** | 76.0 | 3.9 | 0.0 | 1.0 | 13.2 | 1.0 | 0.5 | 9.3 | 0.0 | 2.9 | 29.9 | 0.0 | 2.0 | 3.9 | 5.4 | 204 | 77.3 | 66.3 | 264 |
| **Second** | 82.9 | 4.8 | 0.0 | 0.5 | 11.4 | 1.0 | 1.0 | 5.2 | 0.0 | 2.4 | 35.7 | 0.0 | 0.0 | 4.3 | 2.4 | 210 | 79.5 | 71.6 | 264 |
| **Middle** | 82.6 | 4.7 | 0.4 | 0.0 | 13.1 | 0.4 | 1.3 | 5.5 | 0.0 | 4.7 | 34.3 | 0.4 | 0.4 | 2.5 | 5.5 | 236 | 88.7 | 79.3 | 266 |
| **Fourth** | 91.7 | 2.2 | 0.0 | 0.0 | 5.2 | 0.0 | 0.0 | 3.5 | 1.3 | 3.9 | 21.7 | 0.0 | 0.4 | 1.3 | 2.2 | 230 | 88.1 | 82.4 | 261 |
| **Highest** | 96.1 | 3.5 | 0.0 | 0.0 | 5.4 | 0.0 | 0.0 | 1.9 | 0.0 | 1.9 | 18.1 | 0.0 | 0.0 | 0.4 | 2.3 | 259 | 97.7 | 94.7 | 265 |
| **Total** | 86.4 | 1.3 | 0.0 | 0.1 | 3.2 | 0.1 | 0.3 | 1.0 | 0.0 | 0.8 | 5.5 | 0.0 | 0.2 | 0.8 | 0.4 | 1139 | 86.3 | 78.9 | 1320 |

Footnote: Multiple responses possible

Eighty six percent of the mothers in the sample had received ANC at least once from a provider. About 80% of women received ANC from a skilled birth attendant, including a qualified doctor, nurse, a three year diploma certified midwife, other midwives, family welfare visitor (FWV), community skilled birth attendant (CSBA), or sub-assistance community medical officer (SACMO) – doctors being the most sought after. The likelihood of receiving ANC from a skilled birth attendant increased with women's education level and wealth status. This positive trend is shown in Figure 4 and Figure 5, with the data compared with past surveys, namely the Bangladesh Demographic Health Survey (BDHS) 2014 and Bangladesh Maternal Mortality Survey (2016).

**Figure 4: Trends ANC coverage by education level of mothers**

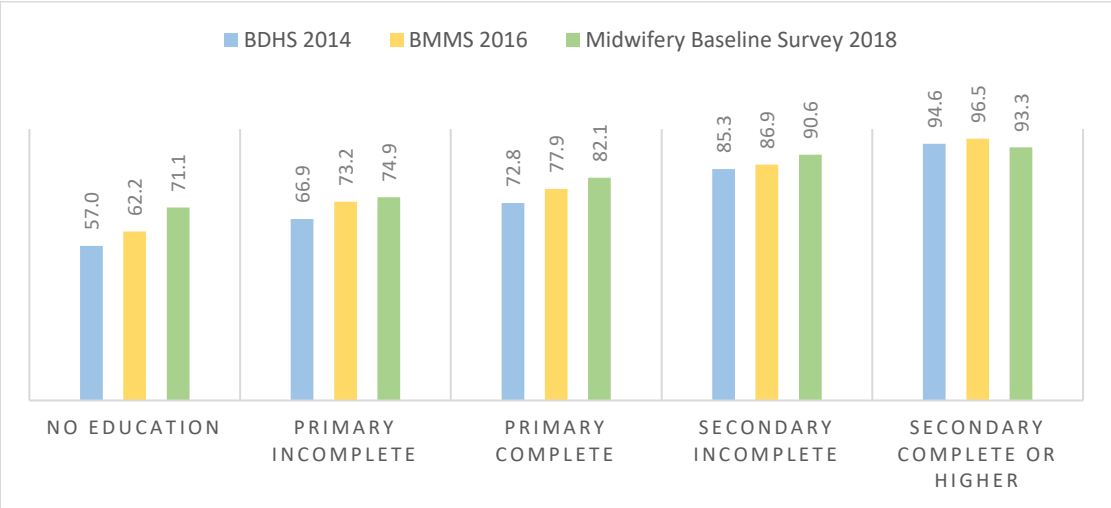
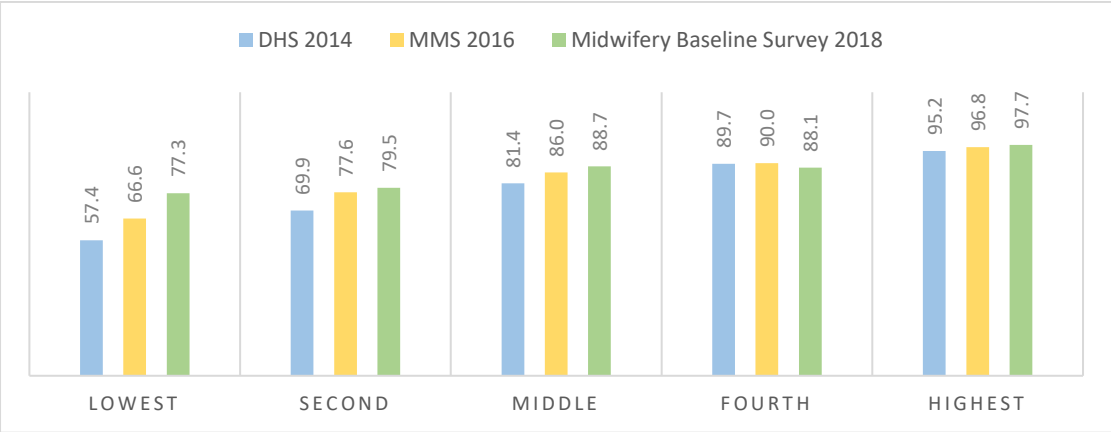



**Figure 5: Trends in ANC coverage by wealth quintile**

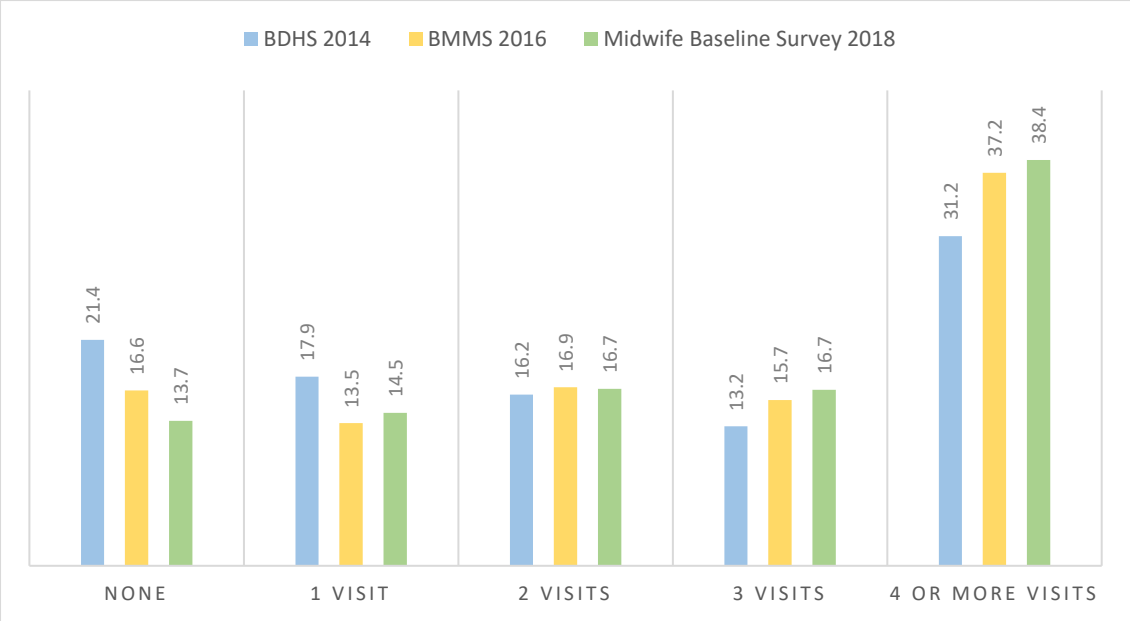



As shown in Table 6, 38.4% of the women in the study received the WHO recommended four or more ANC visits during pregnancy. In comparison to previous surveys, namely BDHS 2014, and BMMS 2016, over time there has been a decline in the number of women having no ANC visit at all followed by an upward trend of more women seeking four or more ANC visits.

## Table 6: Number of antenatal care visits and timing of first visit

| | Percent |
|---|---|
| **Number of ANC visits** | |
| **None** | 13.7 |
| **1** | 14.5 |
| **2** | 16.7 |
| **3** | 16.7 |
| **4+** | 38.4 |
| **Number of months pregnant at time of first ANC visit** | |
| **No antenatal care** | 13.7 |
| **<4 months** | 26.1 |
| **4-5 months** | 29.6 |
| **5-6 months** | 21.4 |
| **8+ months** | 9.2 |
| **Total** | 100.0 |
| ***Number of women*** | *1,320* |
| | **Mean ± SD** |
| | **Median** |
| **Number of visits** | 3.7 ± 2.3 |
| | 3.0 |
| **Number of months pregnant during first visit** | 4.9 ± 1.9 |
| | 5.0 |
| | |
| ***Number*** | *1,139* |

## Figure 6: Trends in number of ANC visits



### 4.2.2 Place of Antenatal Care

Table 7 shows the percentage distribution of the women by location where they had received ANC. During the same pregnancy women may visit multiple places for ANC so the categories are not mutually exclusive and hence do not sum to 100%. Of the various sources, the private sector is the most prominent for ANC (74.5%) followed by the public sector (36.2%), then home (29.4%) and non-governmental organisations (NGO) (5.8%).

This trend is visible in Figure 7 when comparing figures with previous BDHS studies (2010 and 2014). In addition, there is sharp increase of women going to private sectors for ANC, smaller relative increases in receiving ANC at home, whilst other trends remain constant.

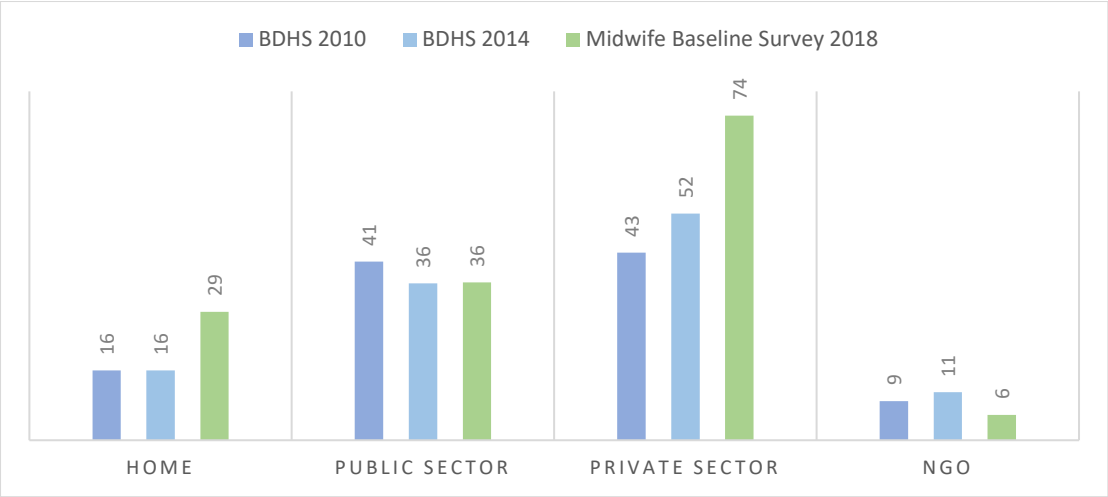
Women who are younger, started or completed secondary school, or belong to the top wealth quintiles are more likely to seek ANC care from the private sector. In comparison, women with less education and with lower social status are more likely to receive ANC from the public sector.

**Table 7: Place of Antenatal Care**

| | Home | Public Sector | Private Sector | NGO Sector | Other | Number of women who received ANC, N |
|---|---|---|---|---|---|---|
| | Percent | | | | | |
| **Mother's age at birth** | | | | | | |
| **<20** | 30.6 | 38.0 | 75.5 | 5.6 | 0.5 | 216 |
| **20-34** | 28.6 | 35.3 | 74.8 | 5.8 | 0.5 | 861 |
| **35-49** | 37.1 | 41.9 | 66.1 | 6.5 | 0.0 | 62 |
| **Educational attainment** | | | | | | |
| **No education** | 31.9 | 46.8 | 55.3 | 8.5 | 0.0 | 47 |
| **Primary incomplete** | 30.0 | 47.7 | 64.1 | 7.1 | 0.0 | 170 |
| **Primary complete** | 32.4 | 44.4 | 67.6 | 5.6 | 0.0 | 142 |
| **Secondary incomplete** | 28.1 | 32.1 | 77.9 | 5.7 | 0.2 | 530 |
| **Secondary complete or higher** | 29.6 | 30.4 | 81.6 | 4.8 | 1.6 | 250 |
| **Wealth Quintile** | | | | | | |
| **Lowest** | 34.3 | 49.0 | 63.7 | 6.4 | 0.0 | 204 |
| **Second** | 33.8 | 38.6 | 70.0 | 8.6 | 1.0 | 210 |
| **Middle** | 36.9 | 48.7 | 68.6 | 5.1 | 0.0 | 236 |
| **Fourth** | 23.0 | 25.7 | 83.0 | 3.5 | 0.4 | 230 |
| **Highest** | 20.9 | 22.0 | 84.2 | 5.8 | 0.8 | 259 |
| **Total** | 29.4 | 36.2 | 78.0 | 5.8 | 0.4 | 1139 |
| ***Number*** | 61 | 187 | 846 | 40 | 5 | 1139 |

Note: Multiple responses possible

**Figure 7: Trends in the place of ANC**




### 4.2.3 Components of Antenatal Care

Women interviewed were asked about the care they received during ANC visits to assess the quality received. In particular they were asked whether a measurement of weight, blood pressure, collection of urine and blood samples were taken, whether an ultrasound was conducted and whether they were informed about complications of pregnancy and family planning methods. Of the women who received ANC (i.e. a majority of the women) received most of the components of care – 86% and 91% had their weight and blood pressure measured, respectively, 74% and 72% provided urine and blood samples, and 87% had ultrasonography (Table 8). The likelihood of each component of care has a positive association with education level and social status.

Fifty three percent of the mothers reported receiving tetanus infectious during the ANC visits with the last pregnancy. The proportion is less than what is expected, but this does not necessarily inform the coverage as it is possible that some of the mothers have completed fourth or the fifth dose of the tetanus toxoid immunization in their previous pregnancy which would give them protection of at least 10 years or for the entire duration of the childbearing age respectively (WHO 2006).

Smaller proportions of women who received ANC were informed about pregnancy complications, and family planning was relatively lower – 29% and 15%, respectively. Though the likelihood of knowing the complication signs increases with education, it does not vary much with social status.

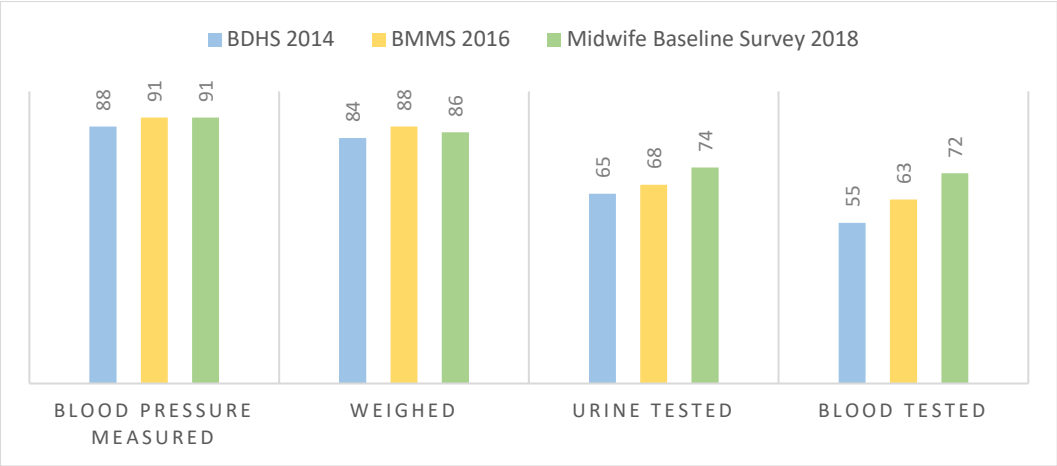
In comparison to previous surveys (Figure 8), percentages of women receiving ANC and having their blood pressure and weight measured has been constant at around 88% in the last four years, whilst the rates of testing urine and blood have gradually increased.

## Table 8: ANC services received during last pregnancy

| | Procedure performed during antenatal care[1] | | | | | | | | Other antenatal care services | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Weighed | Blood pressure measured | Urine sample taken | Blood sample taken | Ultra-sonogram | Informed signs of pregnancy complication | Informed of family planning methods | Number of women received ANC | Received tetanus injection | Taken iron tablets/ syrup | Number of women | Number of times received tetanus injection | Number of women who received TI |
| | Percent | | | | | | | N | Percent | | N | Mean | N |
| **Mother's age at birth** | | | | | | | | | | | | | |
| **<20** | 88.9 | 90.7 | 68.5 | 65.3 | 88.9 | 25.5 | 10.6 | 216 | 75.8 | 81.2 | 240 | 1.68 | 182 |
| **20-34** | 86.9 | 90.7 | 76.3 | 74.2 | 87.3 | 29.6 | 15.4 | 861 | 48.3 | 76.2 | 1005 | 1.42 | 483 |
| **35-49** | 80.6 | 91.9 | 67.7 | 67.7 | 79.0 | 29.0 | 25.8 | 62 | 49.3 | 69.3 | 75 | 1.35 | 37 |
| **Educational attainment** | | | | | | | | | | | | | |
| **No education** | 68.1 | 80.9 | 53.2 | 51.1 | 68.1 | 12.8 | 14.9 | 47 | 53.7 | 64.2 | 67 | 1.51 | 35 |
| **Primary incomplete** | 82.9 | 89.4 | 68.2 | 65.9 | 82.9 | 27.6 | 16.5 | 170 | 52.4 | 66.5 | 227 | 1.49 | 119 |
| **Primary complete** | 81.0 | 88.7 | 65.5 | 65.5 | 79.6 | 28.9 | 19.0 | 142 | 53.2 | 75.1 | 173 | 1.50 | 92 |
| **Secondary incomplete** | 88.7 | 90.6 | 75.8 | 72.6 | 89.1 | 28.7 | 14.3 | 530 | 55.6 | 77.8 | 585 | 1.47 | 324 |
| **Secondary complete or higher** | 92.8 | 95.2 | 84.4 | 83.2 | 94.0 | 32.8 | 13.6 | 250 | 49.3 | 87.3 | 268 | 1.49 | 132 |
| **Wealth Quintile** | | | | | | | | | | | | | |
| **Lowest** | 82.4 | 86.8 | 67.2 | 61.3 | 75.5 | 30.4 | 18.6 | 204 | 53.4 | 67.4 | 264 | 1.56 | 140 |
| **Second** | 81.4 | 89.0 | 68.1 | 68.1 | 85.2 | 28.6 | 16.2 | 210 | 57.2 | 72.7 | 264 | 1.47 | 151 |
| **Middle** | 90.3 | 89.8 | 71.2 | 67.8 | 84.3 | 30.5 | 16.5 | 236 | 50.0 | 79.7 | 266 | 1.41 | 133 |
| **Fourth** | 89.1 | 93.0 | 79.1 | 77.8 | 92.2 | 31.7 | 14.8 | 230 | 54.8 | 76.6 | 261 | 1.49 | 142 |
| **Highest** | 90.0 | 94.2 | 83.8 | 83.0 | 96.1 | 23.6 | 10.4 | 259 | 51.3 | 87.2 | 265 | 1.49 | 136 |
| **Total** | 86.9 | 90.8 | 74.4 | 72.2 | 87.2 | 28.8 | 15.1 | *1,139* | 53.3 | 87.2 | *1,320* | 1.48 | *702* |

Note: Multiple responses possible

**Figure 8: Trends in ANC services received**




### 4.2.4 Cost of Antenatal Care

Most of the mothers had incurred expenses for seeking antenatal care. Out of 1,139 mothers 1,126 (98.9%) had some form of expense, 1,126 (98.9) reported paying for the service or treatment while 1,013 (88.9%) incurred cost for the transportation. Sixteen (1.4%) reported accommodation expense. The median total cost for seeking ANC was BDT 1,126 (GBP 10.20)[1]. The cost of ANC were higher in mothers from high income households than that or the low income households with the mean total expense of BDT 5511 (GBP 50.10 in richest quintile compared to BDT 2379 (GBP 21.62) in poorest quintile.

**Table 9: Mean (SD) and median cost of seeking ANC in Bangladeshi Taka**

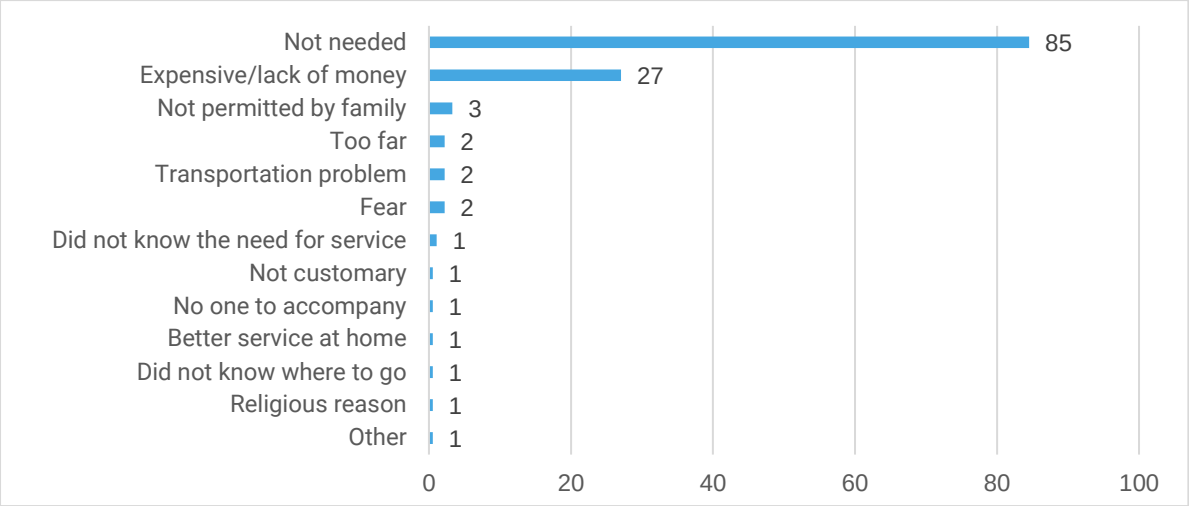
| | Total costs | Treatment Costs | Transportation costs | Accommodation costs |
|---|---|---|---|---|
| | Mean ± SD | | | |
| | Median | | | |
| **Mother's age at birth** | | | | |
| **<20** | 2874 ± 3302 | 2462 ± 2658 | 344 ± 517 | 1886 ± 2068 |
| | 1,770 | 1,500 | 200 | 1,000 |
| **20-34** | 3632 ± 4882 | 3213 ± 4388 | 448 ± 693 | 3900 ± 4941 |
| | 2,100 | 2,000 | 200 | 2500 |
| **35-49** | 4011 ± 4793 | 3603 ± 4375 | 480 ± 551 | 0 |
| | 2,100 | 2,000 | 200 | 0 |
| **Educational attainment** | | | | |
| **No education** | 2596 ± 3841 | 2052 ± 2495 | 255 ± 344 | 15000 ± 0 |
| | 1,650 | 1,300 | 200 | 15,000 |
| **Primary incomplete** | 2403 ± 2764 | 2186 ± 2504 | 302 ± 428 | 500 ± 0 |
| | 1,475 | 1,300 | 200 | 500 |
| **Primary complete** | 2780 ± 3363 | 2444 ± 2976 | 411 ± 607 | 900 ± 141 |
| | 1,720 | 1,650 | 200 | 900 |
| **Secondary incomplete** | 3578 ± 4991 | 3146 ± 4460 | 391 ± 646 | 2773 ± 2666 |
| | 2,100 | 2,000 | 200 | 2,500 |
| **Secondary complete or higher** | 4671 ± 5277 | 4104 ± 4741 | 639 ± 809 | 500 ± 0 |
| | 3,100 | 3,000 | 300 | 500 |

[1] 1 GBP = 110 BDT as published in xe.com on 15th of April 2019

| | Total costs | Treatment Costs | Transportation costs | Accommodation costs |
|---|---|---|---|---|
| **Wealth Quintile** | | | | |
| **Lowest** | 2379 ± 3240 | 2053 ± 2666 | 310 ± 454 | 15000 ± 0 |
| | 1,340 | 1,150 | 200 | 15,000 |
| **Second** | 2820 ± 3474 | 2522 ± 3068 | 354 ± 637 | 500 ± 0 |
| | 1,640 | 1,500 | 170 | 500 |
| **Middle** | 2834 ± 3630 | 2551 ± 3277 | 321 ± 489 | 1450 ± 1281 |
| | 1,800 | 1,520 | 200 | 1,250 |
| **Fourth** | 3541 ± 3685 | 3072 ± 3145 | 457 ± 586 | 3140 ± 3463 |
| | 2,220 | 2,000 | 200 | 2,500 |
| **Highest** | 5511 ± 6803 | 4830 ± 6183 | 651 ± 893 | 2260 ± 2310 |
| | 3,500 | 3,000 | 300 | 1,000 |
| ***Number*** | *1,126* | *1,118* | *1,013* | *16* |

While 86.3% mothers surveyed sought ANC during their last childbirth, a 181 (13.7%) did not seek any ANC from any provider. While the proportion of not seeking ANC has declined compared to the other recent national surveys that reported 13.7% (BMMS 2016) and 16.6% (BDHS 2014) non-coverage, it is important to understand the reasons why some mothers and/or their households are still reluctant to seek ANC. As shown in Figure 9, the most frequently reported reasons for not seeking antenatal care was lack of understanding on the usefulness of ANC (85%) and cost (27%).

**Figure 9: Reasons for not seeking antenatal care**

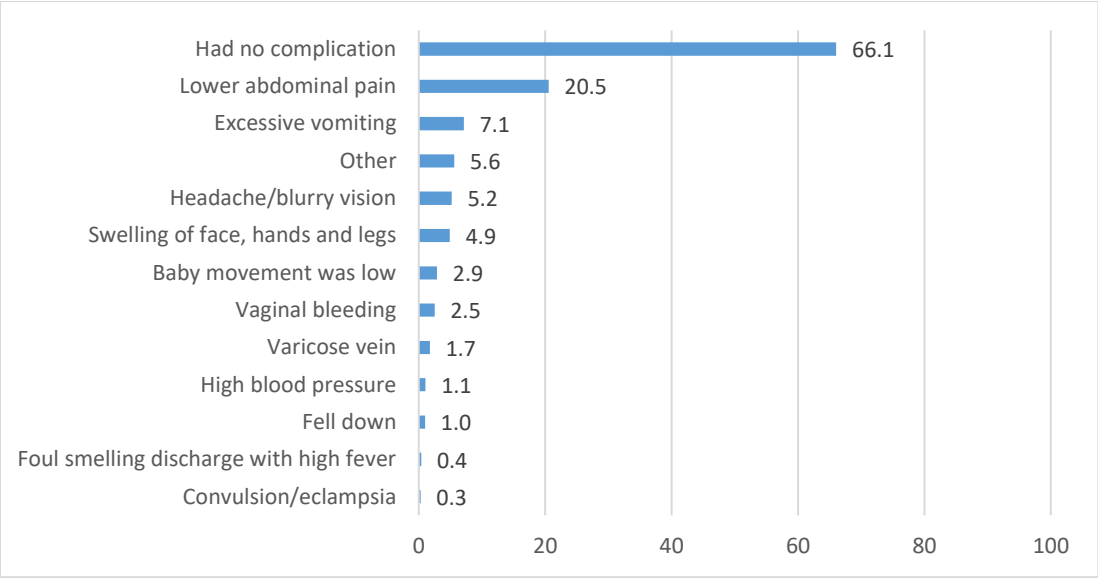



Note: Multiple response possible

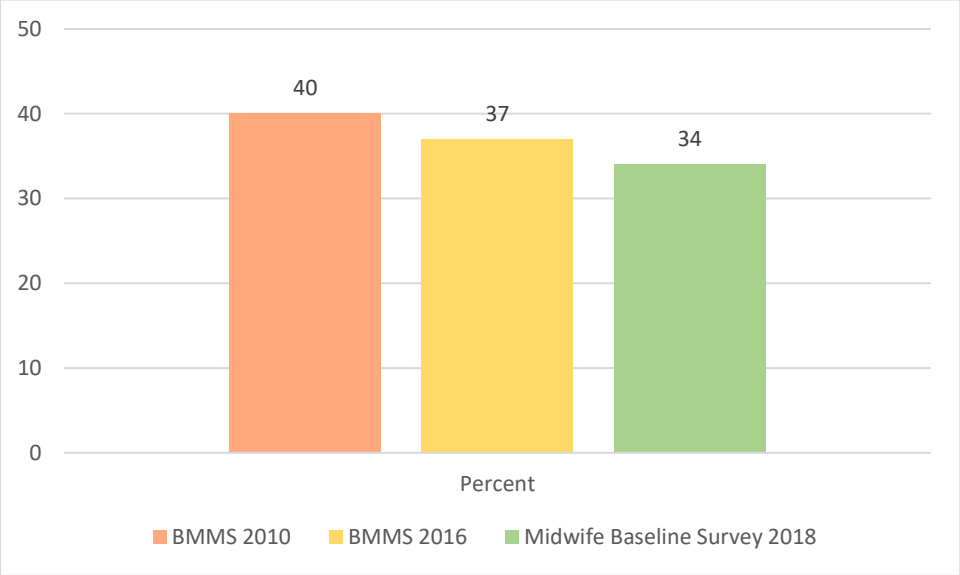
### 4.2.5 Pregnancy Complications diagnosed during Antenatal Care

Figure 10 reveals that 66% of women did not face any pregnancy complication during their last pregnancy. Of the 34% of women that did show single or multiple signs of complications, the most common was lower abdominal pain (20%). Trends from previous BMMS surveys (2010 and 2016) reveal that women reporting pregnancy complications has reduced over time (Figure 11).

### Figure 10: Complications experienced during last pregnancy




### Figure 11: Trends in maternal complications




Of the mothers with complications, 18% did not to seek treatment, the rate which decreased with higher education and social status. Of the mothers that did seek treatment for health care providers, the most prominent source was doctors for younger, more educated, and socially well-off women.

### Table 10: Health care seeking for maternal complications

| | Health care seeking providers | | | | | | Number of women who had complications |
|---|---|---|---|---|---|---|---|
| | Doctor | Other Skilled birth attendants | Unskilled birth attendants | Others | Did not seek treatment | Total | |
| | Percent | | | | | | N |
| **Mother's age at birth** | | | | | | | |
| **<20** | 80.3 | 5.6 | 2.8 | 1.4 | 9.9 | 100.0 | 71 |
| **20-34** | 70.4 | 2.0 | 6.7 | 0.6 | 20.3 | 100.0 | 345 |
| **35-49** | 65.6 | 3.1 | 15.6 | 0.0 | 15.6 | 100.0 | 32 |

| | Health care seeking providers | | | | | | Number of women who had complications |
|---|---|---|---|---|---|---|---|
| | Doctor | Other Skilled birth attendants | Unskilled birth attendants | Others | Did not seek treatment | Total | |
| **Educational attainment** | | | | | | | |
| **No education** | 47.1 | 0.0 | 29.4 | 0.0 | 23.5 | 100.0 | 17 |
| **Primary incomplete** | 52.5 | 3.8 | 15.0 | 1.3 | 27.5 | 100.0 | 80 |
| **Primary complete** | 81.0 | 1.7 | 3.5 | 0.0 | 13.8 | 100.0 | 58 |
| **Secondary incomplete** | 71.3 | 3.6 | 5.6 | 0.5 | 19.0 | 100.0 | 195 |
| **Secondary complete or higher** | 86.7 | 1.0 | 0.0 | 1.0 | 11.2 | 100.0 | 98 |
| **Wealth Quintile** | | | | | | | |
| **Lowest** | 52.8 | 3.4 | 14.6 | 1.1 | 28.1 | 100.0 | 89 |
| **Second** | 63.9 | 3.6 | 7.2 | 1.2 | 24.1 | 100.0 | 83 |
| **Middle** | 75.9 | 5.8 | 5.8 | 0.0 | 12.6 | 100.0 | 87 |
| **Fourth** | 77.1 | 0.0 | 4.8 | 1.2 | 16.9 | 100.0 | 83 |
| **Highest** | 85.9 | 0.9 | 1.9 | 0.0 | 11.3 | 100.0 | 106 |
| **Total** | 71.7 | 2.7 | 6.7 | 0.7 | 18.3 | 0 | 448 |

## 4.3 Delivery care

### 4.3.1 Place of delivery

Table 11 presents the distribution of live births by place of delivery, according to background characteristics. About half of the births, 54% were delivered in a health facility. With further breakdown, 38% of deliveries took place in private health facilities, 14% in public health facilities and 2% in NGO operated health facilities, and 46% of births were delivered at home. In addition, the number of antenatal visits during the pregnancy has a positive association with the probability of delivering at a health facility.

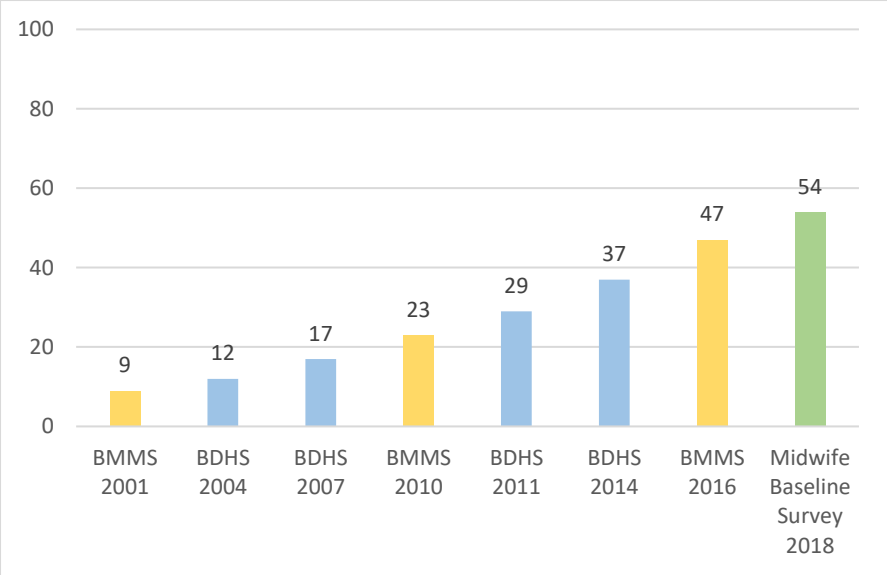
**Table 11: Place of delivery**

| | Place of delivery | | | | | | Delivered in a health facility | Number of births |
|---|---|---|---|---|---|---|---|---|
| | Health facility | | | Home | Other/ missing | Total | | |
| | Public sector | Private sector | NGO | | | | | |
| | Percent | | | | | | | N |
| **Mother's age at birth** | | | | | | | | |
| **<20** | 15.8 | 40.4 | 2.1 | 40.8 | 0.8 | 100.0 | 58.3 | 240 |
| **20-34** | 14.0 | 37.8 | 1.5 | 46.4 | 0.3 | 100.0 | 53.3 | 1,005 |
| **35-49** | 8.0 | 32.0 | 1.3 | 58.7 | 0.0 | 100.0 | 41.3 | 75 |
| **Antenatal care visits** | | | | | | | | |
| **None** | 7.2 | 10.5 | 1.1 | 80.7 | 0.6 | 100.0 | 18.8 | 181 |
| **1-3** | 13.1 | 35.6 | 1.1 | 49.8 | 0.3 | 100.0 | 49.8 | 632 |
| **4 +** | 17.6 | 50.7 | 2.4 | 29.0 | 0.4 | 100.0 | 70.6 | 507 |
| **Educational attainment** | | | | | | | | |
| **No education** | 6.0 | 14.9 | 3.0 | 76.1 | 0.0 | 100.0 | 23.9 | 67 |
| **Primary incomplete** | 14.1 | 25.6 | 0.9 | 59.5 | 0.0 | 100.0 | 40.5 | 227 |

| | Place of delivery | | | | | | Delivered in a health facility | Number of births |
|---|---|---|---|---|---|---|---|---|
| | Health facility | | | Home | Other/ missing | Total | | |
| | Public sector | Private sector | NGO | | | | | |
| **Primary complete** | 14.5 | 27.7 | 1.2 | 56.1 | 0.6 | 100.0 | 43.4 | 173 |
| **Secondary incomplete** | 14.2 | 39.8 | 2.1 | 43.9 | 0.0 | 100.0 | 56.1 | 585 |
| **Secondary complete or higher** | 15.3 | 56.7 | 1.1 | 25.4 | 1.5 | 100.0 | 73.1 | 268 |
| **Wealth Quintile** | | | | | | | | |
| **Lowest** | 16.3 | 21.6 | 1.1 | 60.6 | 0.4 | 100.0 | 39.0 | 264 |
| **Second** | 10.2 | 28.4 | 1.5 | 59.8 | 0.0 | 100.0 | 40.2 | 264 |
| **Middle** | 17.7 | 35.0 | 1.1 | 45.9 | 0.4 | 100.0 | 53.8 | 266 |
| **Fourth** | 10.3 | 45.2 | 1.5 | 42.5 | 0.4 | 100.0 | 57.1 | 261 |
| **Highest** | 15.5 | 59.6 | 2.6 | 21.5 | 0.8 | 100.0 | 77.7 | 265 |
| **Total** | 14.0 | 38.0 | 1.6 | 46.1 | 0.4 | 100.0 | 53.9 | 1,320 |

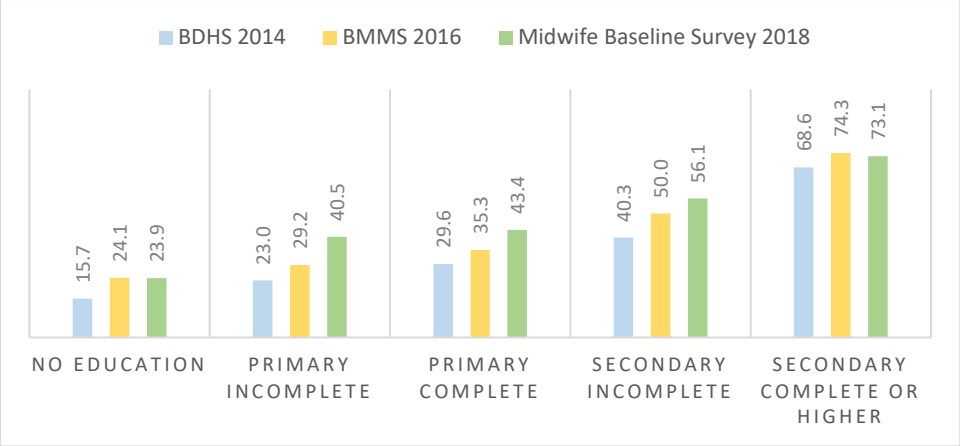
The trends of past years, 2001 to 2018 in Figure 12 shows an increase in percentage of mothers delivering at health facilities.

**Figure 12: Trends in births delivered at a health facility, 2001–2018**

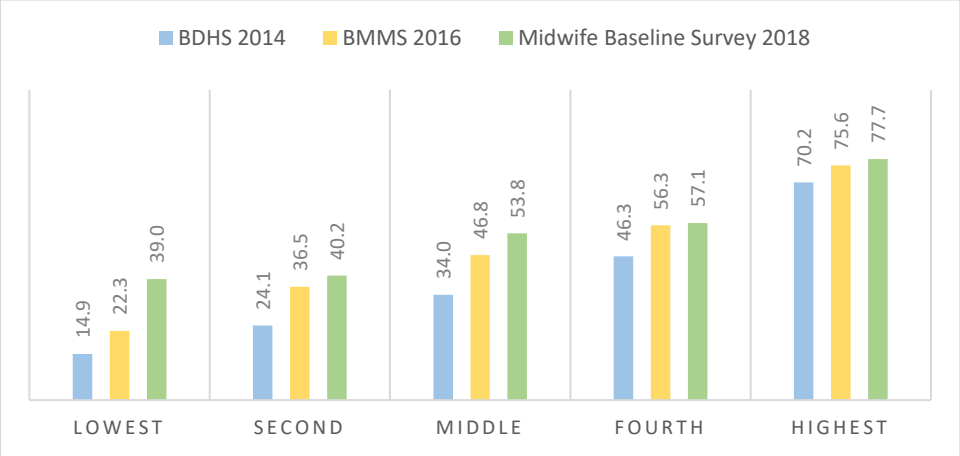



The facility delivery is also associated with mothers' educational status and household wealth quintiles as shown in Figure 13 and Figure 14.

### Figure 13: Trends in health facility delivery by education level




### Figure 14: Health facility delivery by wealth quintile




The likelihood of delivering in a private health facility increases steeply with education (Figure 15) and social status (Figure 16). There is a slight increase in delivery in the private sector health facilities with those who have had primary school education, but remains constant, thus there is no steady association with social status. Mothers with no education are more likely to deliver at home compared to mothers with secondary school completion or higher.

### Figure 15: Place of delivery by education level

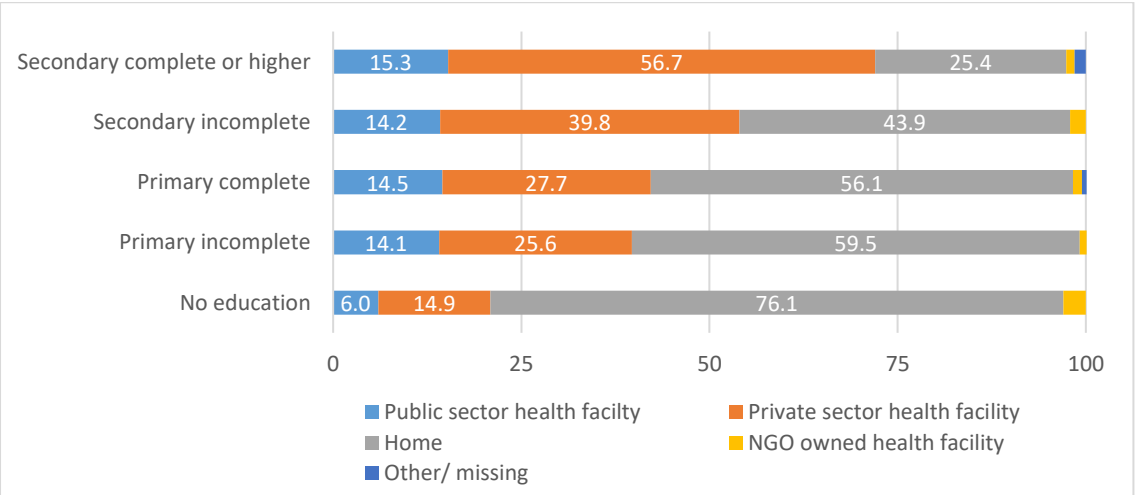
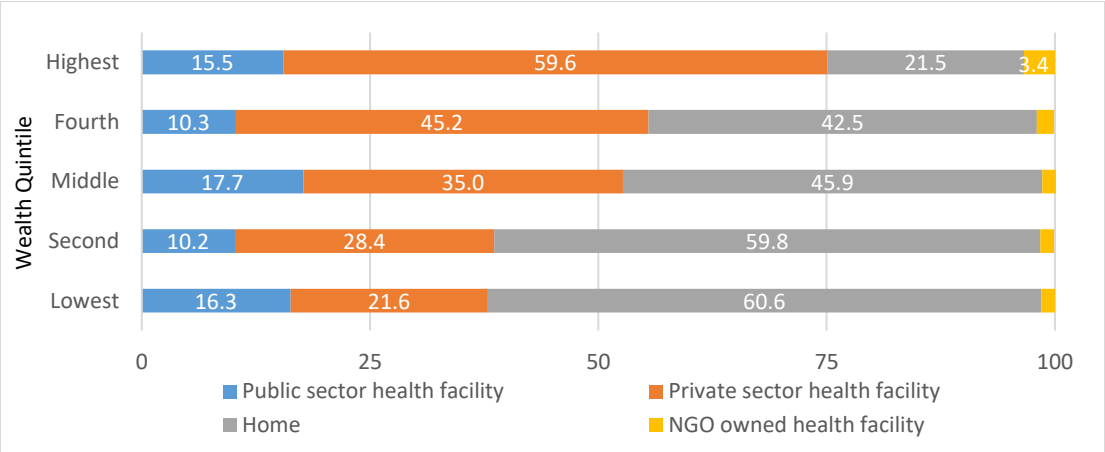


**Figure 16: Place of delivery by wealth quintile**




## 4.3.2 Mode of delivery

Table 12 shows the percentage distribution of women by various types of delivery. Overall, the percentage of deliveries by normal vaginal delivery is 63%, caesarean deliveries is 35% and assisted deliveries is 1%. There has been an increasing trend of births delivered by C-section over time, from 3% in 2001 to 35% in 2018 (Figure 17). The proportion of caesarean sections is significantly higher than the WHO recommended threshold of 10-15% (WHO, 2015).

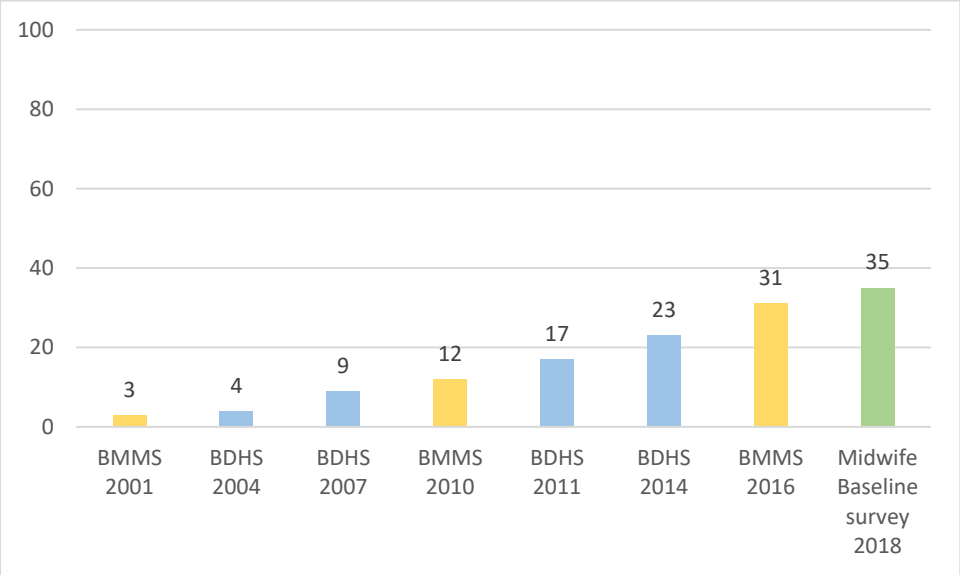
The likelihood of a caesarean delivery reduces with the age of a woman but increases sharply with mothers' education status (Figure 18) and household wealth status (Figure 19).

**Table 12: Mode of delivery**

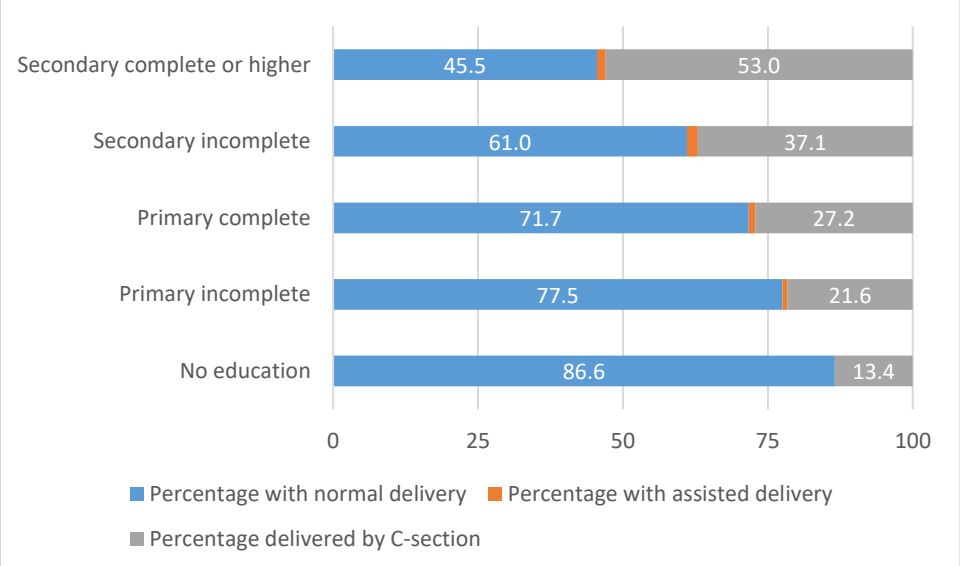
| | Type of delivery | | | | Percentage delivered by C-section | Number of births |
|---|---|---|---|---|---|---|
| | Normal delivery | Assisted delivery | C-section | Total | | |
| | Percent | | | | | N |
| **Mother's age at birth** | | | | | | |
| **<20** | 59.2 | 2.1 | 38.8 | 100.0 | 38.8 | 240 |
| **20-34** | 63.9 | 1.3 | 34.8 | 100.0 | 34.8 | 1,005 |
| **35-49** | 70.7 | 1.3 | 28.0 | 100.0 | 28.0 | 75 |
| **Antenatal care visits** | | | | | | |
| **None** | 89.5 | 0.6 | 9.9 | 100.0 | 9.9 | 181 |
| **1-3** | 65.2 | 1.9 | 32.9 | 100.0 | 32.9 | 632 |
| **4 +** | 51.9 | 1.2 | 46.9 | 100.0 | 46.9 | 507 |
| **Educational attainment** | | | | | | |
| **No education** | 86.6 | 0.0 | 13.4 | 100.0 | 13.4 | 67 |
| **Primary incomplete** | 77.5 | 0.9 | 21.6 | 100.0 | 21.6 | 227 |
| **Primary complete** | 71.7 | 1.2 | 27.2 | 100.0 | 27.2 | 173 |
| **Secondary incomplete** | 61.0 | 1.9 | 37.1 | 100.0 | 37.1 | 585 |
| **Secondary complete or higher** | 45.5 | 1.5 | 53.0 | 100.0 | 53.0 | 268 |
| **Wealth Quintile** | | | | | | |
| **Lowest** | 77.7 | 0.4 | 22.0 | 100.0 | 22.0 | 264 |
| **Second** | 76.9 | 0.8 | 22.4 | 100.0 | 22.4 | 264 |

| | Type of delivery | | | | Percentage delivered by C-section | Number of births |
|---|---|---|---|---|---|---|
| | Normal delivery | Assisted delivery | C-section | Total | | |
| **Middle** | 65.4 | 1.5 | 33.1 | 100.0 | 33.1 | 266 |
| **Fourth** | 54.8 | 2.7 | 42.5 | 100.0 | 42.5 | 261 |
| **Highest** | 42.3 | 1.9 | 55.9 | 100.0 | 55.9 | 265 |
| **Total** | 63.4 | 1.4 | 35.2 | 100.0 | 35.2 | 1,320 |

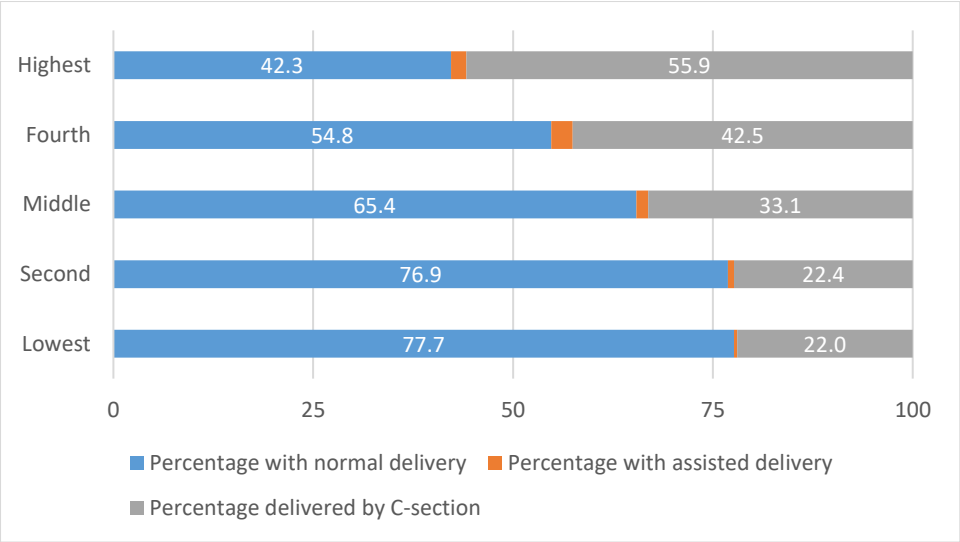
## Figure 17: Trends in Caesarean deliveries, 2001 - 2018




## Figure 18: Type of delivery by education level

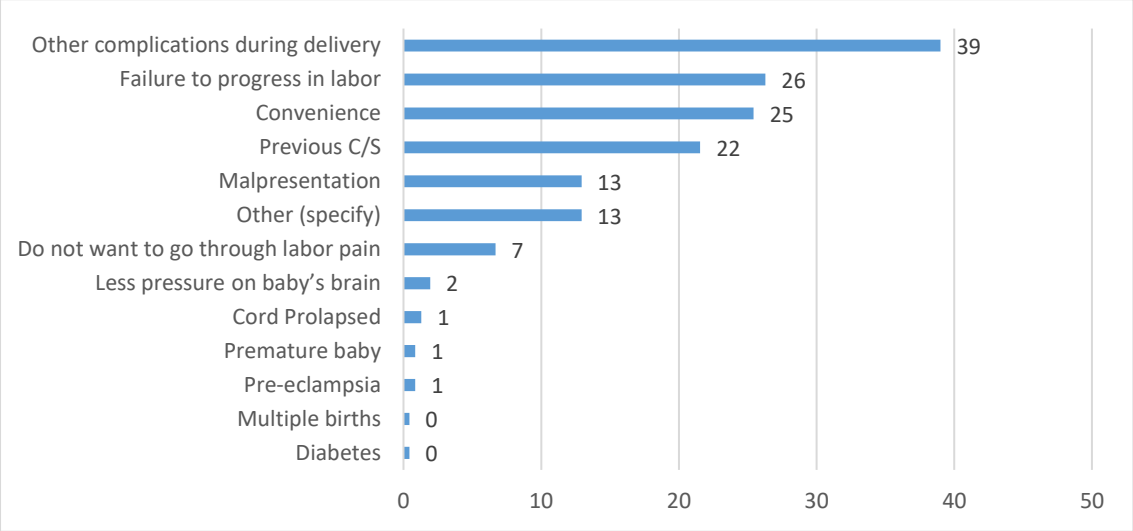


### Figure 19: Type of delivery by wealth quintile




Reasons for choosing caesarean deliveries vary including complications, medical conditions and preference (Figure 20). Of the women who had caesarean deliveries, the most common reason was due to complications during delivery (39%) followed by failure to progress in labour (26%), convenience (25%) and history of previous caesarean section (22%).

### Figure 20: Reasons for caesarean deliveries




As shown in Figure 19, the public sector health facilities are dominated with normal deliveries (70%) followed by caesarean deliveries (25%) and assisted deliveries (5%). In reverse, the majority of deliveries in the private sector facilities are caesarean (80%) in comparison to 18% for normal deliveries.

**Figure 21: Birthplace via type of delivery**

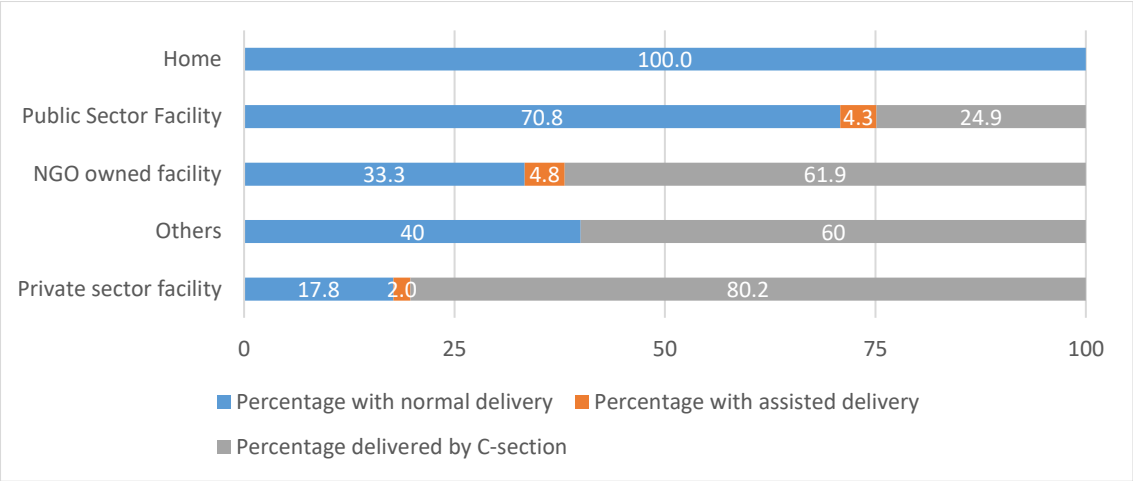



Table 13 shows the percentage distribution of type of delivery by duration of stay. Of those women that delivered by C-section and delivered in a facility, 97% stayed at the hospital for more than three days compared to 7% of women who had a vaginal birth. Amongst the women who had a vaginal birth in a health facility, 44% were discharged less than 11 hours after delivery whilst 47% were discharged one or two days after delivery. This data clearly shows that normal vaginal delivery requires significantly less hospital days and with the midwives deployed in the health facilities it is expected that the proportion of normal vaginal deliveries would increase in the health facilities which would eventually reduce the chance of complications and costs of both the providers and the users.

**Table 13 Length of stay in health facility after delivery**

| Type of delivery: | <11 hours | 12-23 hours | 1-2 days | 3+ days | Missing | Total | Number of women |
|---|---|---|---|---|---|---|---|
| | Percent | | | | | | N |
| **Vaginal birth** | 44.3 | 2.0 | 47.2 | 6.5 | 0.0 | 100.0 | 246 |
| **Caesarean section** | 2.4 | 0.0 | 0.6 | 97.0 | 0.0 | 100.0 | 464 |
| **Total** | 16.9 | 0.7 | 16.8 | 65.6 | 0 | 100.0 | 710 |

### 4.3.3 Assistance during delivery

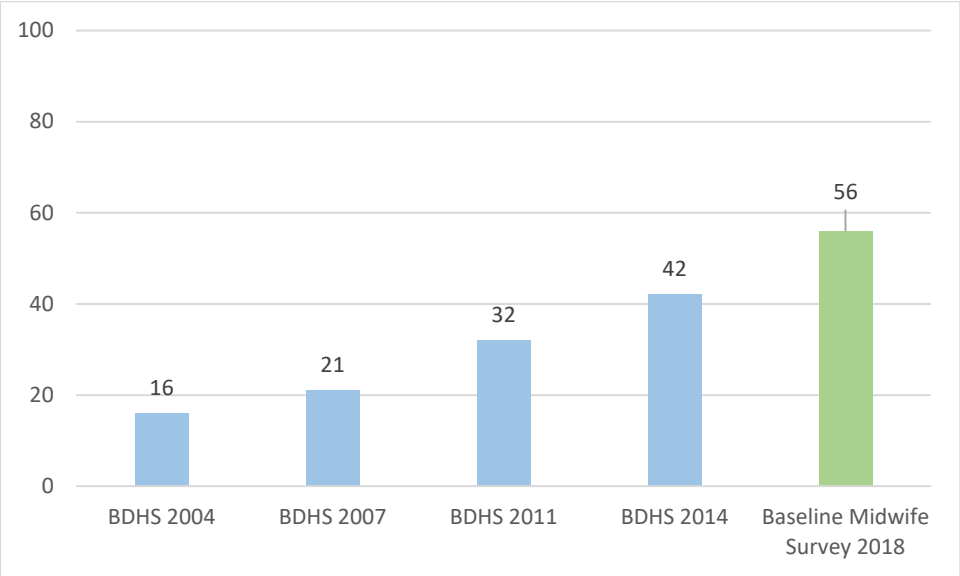
Table 14 shows the percentage distribution of all live births by type of assistance during delivery, according to background characteristics. Fifty five percent of mothers delivered with the assistance of a skilled birth attendant, which includes a qualified doctor, nurse, midwife, FWV, or a CSBA. The likelihood of a women's delivery being assisted by a skilled birth attendant reduced with a woman's age but increased sharply with an increase in ANC visits, education, and wealth. With regards to place of delivery, nearly 100% likelihood of SBA at a health facility. Of the unskilled birth attendants, the untrained and trained traditional birth attendants assisted in deliveries.

## Table 14: Assistance during delivery

| | Percentage of mothers who took assistance during delivery from: | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Skilled birth attendant | | | | | | Unskilled birth attendant | | | | | | | | Total | Percentage delivered by a skilled birth attendant | Number of births, N |
| | Doctor | Nurse | Midwife (3yr diploma) | Midwife (others) | FWV | CSBA | CHCP | FWA | NGO Worker | TTBA | UTBA | Unqualified doctor | Relatives/ Neighbours / Friends | Others | | | |
| | Percent | | | | | | Percent | | | | | | | | | | N |
| **Mother's age at birth** | | | | | | | | | | | | | | | | | |
| <20 | 49.6 | 10.8 | 0.0 | 0.0 | 0.8 | 0.0 | 0.4 | 0.8 | 1.2 | 7.9 | 26.7 | 0.4 | 1.2 | 0.0 | 100.0 | 61.2 | 240 |
| 20-34 | 44.0 | 10.9 | 0.0 | 0.0 | 0.4 | 0.2 | 0.0 | 0.4 | 1.8 | 7.3 | 32.4 | 0.4 | 2.0 | 0.2 | 100.0 | 55.5 | 1005 |
| 35-49 | 34.7 | 6.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 2.7 | 12.0 | 41.3 | 0.0 | 1.3 | 0.0 | 100.0 | 41.3 | 75 |
| **Antenatal care visits** | | | | | | | | | | | | | | | | | |
| None | 14.4 | 6.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 1.1 | 11.0 | 59.7 | 1.1 | 5.5 | 0.0 | 100.0 | 21.0 | 181 |
| 1-3 | 41.0 | 11.2 | 0.0 | 0.0 | 0.2 | 0.3 | 0.0 | 0.5 | 1.6 | 8.2 | 35.4 | 0.3 | 1.1 | 0.2 | 100.0 | 52.7 | 632 |
| 4+ | 59.6 | 11.4 | 0.0 | 0.0 | 1.0 | 0.0 | 0.2 | 0.6 | 2.2 | 5.7 | 17.6 | 0.2 | 1.4 | 0.2 | 100.0 | 72.0 | 507 |
| **Place of delivery** | | | | | | | | | | | | | | | | | |
| Public sector | 50.8 | 45.9 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 0.5 | 100.0 | 98.4 | 185 |
| Private sector | 93.8 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 100.0 | 21 |
| NGO | 85.7 | 9.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 | 95.2 | 501 |
| Home | 0.3 | 3.8 | 0.0 | 0.0 | 0.5 | 0.3 | 0.2 | 1.2 | 3.6 | 16.6 | 69.1 | 0.8 | 3.5 | 0.2 | 100.0 | 4.9 | 608 |
| Others | 60.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 0.0 | 20.0 | 0.0 | 100.0 | 60.0 | 5 |
| **Educational attainment** | | | | | | | | | | | | | | | | | |
| No education | 16.4 | 10.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.4 | 62.7 | 0.0 | 0.0 | 0.0 | 100.0 | 26.9 | 67 |
| Primary incomplete | 27.3 | 13.7 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.4 | 2.6 | 7.0 | 44.9 | 0.9 | 2.6 | 0.0 | 100.0 | 41.4 | 227 |
| Primary complete | 35.3 | 8.1 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 1.2 | 2.3 | 12.1 | 36.4 | 0.0 | 2.9 | 0.6 | 100.0 | 44.5 | 173 |
| Secondary incomplete | 47.0 | 10.8 | 0.0 | 0.0 | 0.3 | 0.0 | 0.2 | 0.5 | 1.9 | 7.7 | 29.4 | 0.3 | 1.7 | 0.2 | 100.0 | 58.1 | 585 |
| Secondary complete or higher | 66.4 | 9.7 | 0.0 | 0.0 | 0.7 | 0.4 | 0.0 | 0.4 | 0.7 | 4.5 | 15.7 | 0.4 | 1.1 | 0.0 | 100.0 | 77.2 | 268 |
| **Wealth Quintile** | | | | | | | | | | | | | | | | | |
| Lowest | 29.2 | 11.4 | 0.0 | 0.0 | 1.1 | 0.0 | 0.4 | 1.1 | 1.5 | 6.8 | 42.0 | 0.8 | 5.7 | 0.0 | 100.0 | 41.7 | 264 |
| Second | 30.7 | 11.4 | 0.0 | 0.0 | 0.4 | 0.4 | 0.0 | 0.8 | 3.4 | 9.1 | 43.2 | 0.0 | 0.8 | 0.0 | 100.0 | 42.8 | 264 |
| Middle | 39.8 | 14.3 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.4 | 1.5 | 10.2 | 30.8 | 0.4 | 1.9 | 0.4 | 100.0 | 54.5 | 266 |
| Fourth | 52.1 | 6.9 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.4 | 1.5 | 7.3 | 29.9 | 0.8 | 0.8 | 0.0 | 100.0 | 59.4 | 261 |
| Highest | 70.6 | 9.4 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.8 | 4.9 | 13.6 | 0.0 | 0.0 | 0.4 | 100.0 | 80.4 | 265 |
| **Total** | 44.5 | 10.7 | 0.0 | 0.0 | 0.5 | 0.2 | 0.1 | 0.5 | 1.7 | 7.7 | 31.9 | 0.4 | 1.8 | 0.2 | 100.0 | 55.8 | 1320 |

Over the period of 2004 to 2018, the proportion of deliveries by skilled birth attendants has increased from 16% to 56% (Figure 22).

**Figure 22: Trend in skilled attendance at deliveries**




The skill birth delivery has a positive correlation with mothers' education level and household wealth quintiles as shown in Figure 23 and Figure 24.

**Figure 23: Delivery assistance by mother's education level**

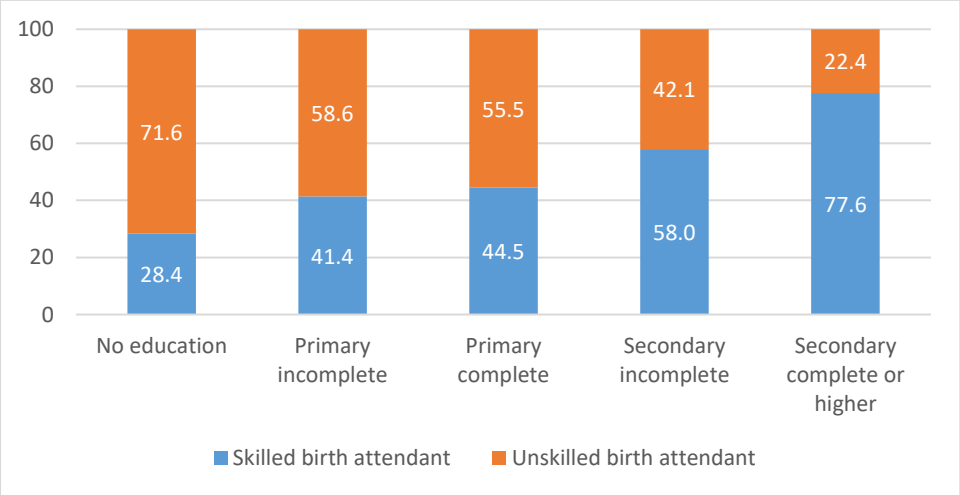
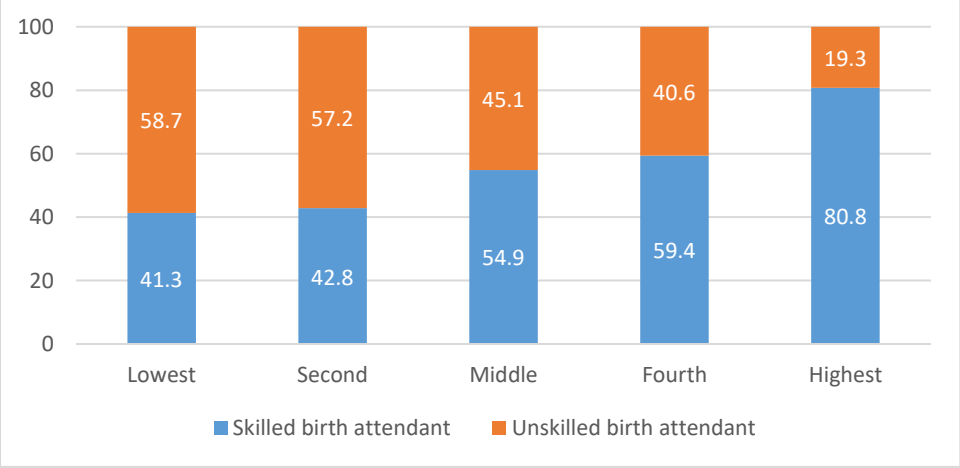



**Figure 24: Delivery assistance by mother's wealth quintile**



### 4.3.4 Cost of Delivery

All mothers in this survey reported some expenses during their last birth. The median total cost was BDT 3,200. The cost was comparatively lower in public sector facilities compared to NGO sector and private sector facilities. However, the delivery service was cheapest in the unspecified 'other' sector, which is likely to include informal sectors. The costs associated with caesarean sections and assisted deliveries were significantly higher than that of the normal delivery. The cost data is presented in Table 15.

**Table 15: Costs associated with delivery**

| | Total Delivery expense | | | |
|---|---|---|---|---|
| | Percent | | | |
| Cash | 89.5 | | | |
| Goods | 8.9 | | | |
| Cash and goods | 1.7 | | | |
| Total | 100.0 | | | |
| Number | 1,320 | | | |
| | Total costs | Treatment Costs | Transportation costs | Accommodation costs |
| | Mean ± SD | | | |
| | Median | | | |
| Mother's age at birth | | | | |
| <20 | 8772 ± 9115 | 7488 ± 7637 | 1138 ± 1311 | 2901 ± 1781 |
| | 5,200 | 5,000 | 600 | 2,500 |
| Number | 235 | 220 | 139 | 79 |
| 20-34 | 8508 ± 10085 | 7466 ± 8412 | 980 ± 1021 | 3312 ± 1996 |
| | 3,200 | 4,000 | 500 | 3000 |
| Number | 981 | 892 | 536 | 323 |
| 35-49 | 7592 ± 11029 | 7183 ± 9761 | 1131 ± 1471 | 2534 ± 2266 |
| | 2,000 | 2,000 | 500 | 2000 |
| Number | 74 | 67 | 30 | 17 |
| Delivery Place | | | | |
| Home | 1264 ± 1420 | 1293 ± 1413 | 486 ± 899 | 0.0 ± 0.0 |
| | 800 | 1,000 | 200 | 0 |
| Number | 580 | 471 | 22 | 0 |
| Public Sector | 6557 ± 7327 | 5453 ± 5948 | 904 ± 1264 | 2479 ± 2078 |
| | 4,000 | 3,000 | 500 | 1,400 |
| Number | 184 | 183 | 176 | 20 |
| NGO | 10857 ± 6446 | 8317 ± 5837 | 1043 ± 1070 | 3063 ± 2513 |
| | 10,000 | 7,000 | 500 | 2,500 |
| Number | 21 | 21 | 20 | 8 |
| Private Sector | 17557 ± 9372 | 13975 ± 8262 | 1083 ± 1048 | 3247 ± 1957 |
| | 16,000 | 12,000 | 800 | 3,000 |
| Number | 500 | 500 | 484 | 390 |
| Others | 4750 ± 6316 | 4875 ± 5360 | 783 ± 1056 | 1300 ± 0.0 |
| | 1,250 | 3,500 | 250 | 1,300 |
| Number | 5 | 4 | 3 | 1 |

| | Total Delivery expense | | | |
|---|---|---|---|---|
| **Type of Delivery** | | | | |
| **Normal vaginal delivery** | 2645 ± 4173 | 2548 ± 3778 | 709 ± 975 | 1307 ± 1084 |
| | 1,200 | 1,300 | 400 | 1,000 |
| **Number** | 808 | 697 | 235 | 56 |
| **Assisted delivery (forceps/vacuum)** | 9884 ± 8208 | 8426 ± 6354 | 958 ± 1310 | 1188 ± 1143 |
| | 8,100 | 7,000 | 600 | 650 |
| **Number** | 19 | 19 | 19 | 8 |
| **Caesarean sector** | 18671 ± 8972 | 14801 ± 8015 | 1181 ± 1129 | 3547 ± 1903 |
| | 17,000 | 13,000 | 900 | 3,000 |
| **Number** | 463 | 463 | 451 | 355 |
| **Educational attainment** | | | | |
| **No education** | 3840 ± 7250 | 3545 ± 6638 | 902 ± 1126 | 2257 ± 1341 |
| | 1,000 | 1,000 | 500 | 2,500 |
| **Number** | 63 | 57 | 18 | 9 |
| **Primary incomplete** | 5804 ± 8236 | 5578 ± 7157 | 993 ± 1167 | 2611 ± 1401 |
| | 1,500 | 2,000 | 500 | 2,500 |
| **Number** | 222 | 189 | 87 | 46 |
| **Primary complete** | 6967 ± 9344 | 6351 ± 7896 | 848 ± 940 | 3027 ± 1684 |
| | 2,000 | 2,000 | 500 | 3,000 |
| **Number** | 166 | 147 | 76 | 44 |
| **Secondary incomplete** | 8678 ± 9788 | 7506 ± 8194 | 920 ± 948 | 3117 ± 1924 |
| | 4,200 | 4,500 | 500 | 3,000 |
| **Number** | 573 | 533 | 327 | 200 |
| **Secondary complete or higher** | 12446 ± 11174 | 10270 ± 9263 | 1267 ± 1328 | 3708 ± 2268 |
| | 10,095 | 8,000 | 1,000 | 3,500 |
| **Number** | 266 | 153 | 197 | 120 |
| **Wealth Quintile** | | | | |
| **Lowest** | 5286 ± 7469 | 4640 ± 6245 | 987 ± 1121 | 2539 ± 1366 |
| | 1,550 | 1,980 | 500 | 2,300 |
| **Number** | 251 | 228 | 106 | 56 |
| **Second** | 5908 ± 8073 | 5305 ± 6629 | 893 ± 825 | 2929 ± 1783 |
| | 2,000 | 2,000 | 500 | 3,000 |
| **Number** | 261 | 234 | 102 | 64 |
| **Middle** | 7189 ± 8337 | 6244 ± 6931 | 869 ± 1025 | 3001 ± 1568 |
| | 3,000 | 3,000 | 500 | 3,000 |
| **Number** | 259 | 237 | 145 | 77 |
| **Fourth** | 10068 ± 10553 | 8977 ± 9035 | 992 ± 954 | 3241 ± 1894 |
| | 7,000 | 7,000 | 700 | 3,000 |
| **Number** | 256 | 234 | 151 | 93 |
| **Highest** | 13923 ± 11995 | 11825 ± 9939 | 1223 ± 1340 | 3718 ± 2412 |
| | 13,000 | 10,000 | 600 | 3,000 |
| **Number** | 263 | 246 | 201 | 129 |
| **Total** | 1,290 | 1,179 | 705 | 419 |

## 4.4 Postnatal Care

### 4.4.1 Postnatal check-up for mother

Table 16 shows the percentage distribution of women, by time after delivery of the mother's first postnatal check-up. Forty five percent of women received no postnatal check-up. Amongst the others, less than 50% of women received their first postnatal check-up within four hours of delivery, 2% within 4-23 hours of delivery, and less than 2% within 1-41 days of delivery. The percentage of women receiving no postnatal checkup increased with mother's age and decreased with higher levels of mother's education and wealth status.

**Table 16: Timing after delivery of mother's first postnatal check up**

| Background Characteristics | Timing after delivery of first PNC check up | | | | | Don't know | No postnatal check up[1] | Total | No of women |
|---|---|---|---|---|---|---|---|---|---|
| | Less than 4 hours | 4-23 hours | 1-2 days | 3-6 days | 7-41 days | | | | |
| | Percent | | | | | | | | N |
| **Mother's age at birth** | | | | | | | | | |
| **<20** | 54.6 | 3.8 | 1.2 | 0.0 | 0.4 | 0.4 | 39.6 | 100.0 | 240 |
| **20-34** | 50.1 | 2.3 | 1.2 | 0.6 | 0.1 | 0.0 | 45.7 | 100.0 | 1005 |
| **35-49** | 38.7 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 | 57.3 | 100.0 | 75 |
| **Educational attainment** | | | | | | | | | |
| **No education** | 22.4 | 1.5 | 0.0 | 1.5 | 0.0 | 0.0 | 74.6 | 100.0 | 67 |
| **Primary incomplete** | 37.4 | 1.3 | 1.3 | 0.9 | 0.0 | 0.0 | 59.0 | 100.0 | 227 |
| **Primary complete** | 41.0 | 2.9 | 1.7 | 0.0 | 0.3 | 0.2 | 54.3 | 100.0 | 173 |
| **Secondary incomplete** | 52.6 | 2.1 | 0.7 | 0.2 | 0.0 | 0.0 | 43.9 | 100.0 | 585 |
| **Secondary complete or higher** | 69.0 | 4.1 | 3.0 | 0.7 | 0.0 | 0.0 | 23.1 | 100.0 | 268 |
| **Wealth Quintile** | | | | | | | | | |
| **Lowest** | 35.6 | 2.3 | 1.1 | 0.4 | 0.0 | 0.0 | 60.6 | 100.0 | 264 |
| **Second** | 39.0 | 3.0 | 1.1 | 0.4 | 0.0 | 0.0 | 56.4 | 100.0 | 264 |
| **Middle** | 51.9 | 1.5 | 0.4 | 0.4 | 0.0 | 0.4 | 45.5 | 100.0 | 266 |
| **Fourth** | 53.6 | 1.5 | 1.9 | 0.4 | 0.0 | 0.0 | 42.1 | 100.0 | 261 |
| **Highest** | 71.3 | 3.8 | 2.3 | 0.8 | 0.4 | 0.0 | 21.5 | 100.0 | 265 |
| **Total** | 50.3 | 2.4 | 1.4 | 0.5 | 0.2 | 0.1 | 45.2 | 100.0 | 1320 |

[1] Includes women who received a check-up after 41 days and women who received check-up non-medically trained provider

Regarding the skill of the provider performing the first postnatal check-up, Table 17 shows that 41% of women received care from a qualified doctor, 19% from a nurse/midwife and other unskilled birth attendants and 40% from a non-medically trained provider. The likelihood of receiving postnatal care from a medically trained provider within two days of delivering at a health facility is 54% in general and decreases with mother's age but increases with mother's education level and social status.

**Table 17: Type of provider of first postnatal check-up for the mother**

| Background Characteristics | Type of provider | | | | | | | Received check-up within 2 days of delivery from a medically trained provider | No of women |
|---|---|---|---|---|---|---|---|---|---|
| | Qualified doctor | Nurse/ Midwife/ FWV | CSBA/ SACMO | Non-medically trained provider | No postnatal check-up in the first 2 days after birth[1] | Total | Number of women who received postnatal check-up | | |
| | Percent | | | | | | | | N |
| **Mother's age at birth** | | | | | | | | | |
| **<20** | 43.2 | 21.2 | 0.5 | 34.7 | 0.5 | 100.0 | 222 | 59.6 | 240 |
| **20-34** | 41.1 | 18.3 | 0.5 | 40.1 | 0.0 | 100.0 | 911 | 54.0 | 1005 |
| **35-49** | 38.1 | 12.7 | 0.0 | 49.2 | 0.0 | 100.0 | 63 | 41.3 | 75 |
| **Educational attainment** | | | | | | | | | |
| **No education** | 14.0 | 15.8 | 0.0 | 70.2 | 0.0 | 100.0 | 57 | 25.4 | 227 |
| **Primary incomplete** | 24.6 | 22.1 | 1.0 | 52.3 | 0.0 | 100.0 | 195 | 41.0 | 173 |
| **Primary complete** | 33.3 | 18.7 | 0.7 | 47.3 | 0.2 | 100.0 | 150 | 45.1 | 585 |
| **Secondary incomplete** | 43.9 | 16.6 | 0.4 | 38.9 | 0.0 | 100.0 | 537 | 55.6 | 268 |
| **Secondary complete or higher** | 59.1 | 20.6 | 0.4 | 19.8 | 0.0 | 100.0 | 257 | 76.1 | 67 |
| **Wealth Quintile** | | | | | | | | | |
| **Lowest** | 28.0 | 19.6 | 0.9 | 51.4 | 0.0 | 100.0 | 214 | 39.4 | 264 |
| **Second** | 28.2 | 18.4 | 0.4 | 53.1 | 0.0 | 100.0 | 245 | 43.6 | 264 |
| **Middle** | 39.7 | 19.0 | 0.8 | 40.1 | 0.4 | 100.0 | 242 | 53.6 | 266 |
| **Fourth** | 44.8 | 18.0 | 0.4 | 36.8 | 0.0 | 100.0 | 239 | 57.1 | 261 |
| **Highest** | 63.3 | 18.0 | 0.0 | 18.8 | 0.0 | 100.0 | 256 | 77.7 | 265 |
| **Total** | 41.3 | 18.6 | 0.5 | 39.5 | 0.1 | 100.0 | 1196 | 54.3 | 1320 |

[1]Includes women who received a check-up after 41 days

### 4.4.2 Postnatal Check-up for the Newborn

Table 18 shows the percentage distribution of the children by time after delivery of receiving the postnatal check-up. Of the newborns, 45% did not receive any postnatal care. While 33% received their first check up within the first hour of delivery and 18% less than 4 hours of delivery. The likelihood of a newborn not receiving a postnatal checkup increased with mother's age and decreased with mother's education level and social status.

### Table 18: Timing after delivery of a newborn's first postnatal check-up

| Background Characteristics | Timing after delivery of first PNC check up | | | | | | | No postnatal check up[1] | Total | Number of women |
|---|---|---|---|---|---|---|---|---|---|---|
| | Less than 1 hour | Less than 4 hours | 4-23 hours | 1-2 days | 3-6 days | 7-41 days | Do not know | | | |
| | Percent | | | | | | | | | N |
| **Mother's age at birth** | | | | | | | | | | |
| **<20** | 37.9 | 17.9 | 3.3 | 0.8 | 0.8 | 0.0 | 0.0 | 39.2 | 100.0 | 240 |
| **20-34** | 32.5 | 18.4 | 2.2 | 1.3 | 0.4 | 0.5 | 0.1 | 44.6 | 100.0 | 1005 |
| **35-49** | 24.0 | 13.3 | 0.0 | 2.7 | 0.0 | 0.0 | 0.0 | 60.0 | 100.0 | 75 |
| **Educational attainment** | | | | | | | | | | |
| **No education** | 13.4 | 9.0 | 1.5 | 0.0 | 0.0 | 0.0 | 0.0 | 76.1 | 100.0 | 67 |
| **Primary incomplete** | 26.4 | 11.5 | 1.3 | 1.3 | 0.4 | 0.0 | 0.0 | 59.0 | 100.0 | 227 |
| **Primary complete** | 20.2 | 19.7 | 2.9 | 1.2 | 0.0 | 0.6 | 0.6 | 54.9 | 100.0 | 173 |
| **Secondary incomplete** | 37.1 | 17.1 | 1.9 | 0.7 | 0.5 | 0.5 | 0.0 | 42.2 | 100.0 | 585 |
| **Secondary complete or higher** | 42.9 | 26.9 | 3.7 | 3.0 | 0.7 | 0.4 | 0.0 | 22.4 | 100.0 | 268 |
| **Wealth Quintile** | | | | | | | | | | |
| **Lowest** | 18.9 | 17.4 | 2.3 | 1.5 | 0.4 | 0.4 | 0.0 | 59.1 | 100.0 | 264 |
| **Second** | 26.1 | 15.2 | 1.9 | 0.4 | 0.0 | 0.4 | 0.0 | 56.1 | 100.0 | 264 |
| **Middle** | 36.8 | 14.7 | 1.5 | 0.4 | 1.1 | 0.4 | 0.0 | 45.1 | 100.0 | 266 |
| **Fourth** | 37.2 | 16.1 | 1.5 | 2.7 | 0.4 | 0.4 | 0.0 | 41.8 | 100.0 | 261 |
| **Highest** | 46.0 | 26.8 | 4.2 | 1.5 | 0.4 | 0.4 | 0.4 | 20.4 | 100.0 | 265 |
| **Total** | 33.0 | 18.0 | 2.3 | 1.3 | 0.5 | 0.4 | 0.1 | 44.5 | 100.0 | 1320 |

[1] Includes women who received a check-up after 41 days and women who received check-up non-medically trained provider

Table 19 presents the percentage distribution of a newborn by type of provider of postnatal care within two days of delivery. Amongst the newborns, 45% received care from a qualified doctor within 2 days of being delivered, 16% from a nurse/midwife/FWV and 36% from a non-medically trained provider whilst 3% did not receive any postnatal care. The likelihood of receiving a postnatal checkup within 2 days of delivery from a medically trained provider reduces with mother's age and increases with both mother's education level and social status.

### Table 19: Type of provider of first postnatal check-up for the newborn

| Background Characteristics | Type of provider | | | | | | | Received check-up within 2 days of delivery from a medically trained provider | Number of women |
|---|---|---|---|---|---|---|---|---|---|
| | Qualified doctor | Nurse/ Midwife/ FWV | CSBA/ SACMO | Non-medically trained provider | No postnatal check-up in the first 2 days after birth[1] | Total | Number of women who received PNC | | |
| | Percent | | | | | | | | N |
| **Mother's age at birth** | | | | | | | | | |
| **<20** | 47.9 | 17.8 | 0.0 | 29.2 | 5.0 | 100.0 | 219 | 60.0 | 240 |
| **20-34** | 45.1 | 15.5 | 0.4 | 36.7 | 2.2 | 100.0 | 898 | 54.4 | 1005 |
| **35-49** | 35.4 | 10.8 | 0.0 | 49.2 | 4.6 | 100.0 | 65 | 40.0 | 75 |

| Background Characteristics | Type of provider | | | | | | | Received check-up within 2 days of delivery from a medically trained provider | Number of women |
|---|---|---|---|---|---|---|---|---|---|
| | Qualified doctor | Nurse/ Midwife/ FWV | CSBA/ SACMO | Non-medically trained provider | No postnatal check-up in the first 2 days after birth[1] | Total | Number of women who received PNC | | |
| **Educational attainment** | | | | | | | | | |
| **No education** | 13.6 | 13.6 | 0.0 | 67.8 | 5.1 | 100.0 | 194 | 23.9 | 67 |
| **Primary incomplete** | 25.8 | 20.6 | 1.0 | 49.5 | 3.1 | 100.0 | 147 | 40.5 | 227 |
| **Primary complete** | 36.1 | 15.0 | 0.7 | 46.3 | 2.0 | 100.0 | 532 | 43.9 | 173 |
| **Secondary incomplete** | 48.7 | 13.9 | 0.0 | 34.2 | 3.2 | 100.0 | 250 | 56.8 | 585 |
| **Secondary complete or higher** | 65.2 | 16.4 | 0.4 | 16.0 | 2.0 | 100.0 | 59 | 76.5 | 268 |
| **Wealth Quintile** | | | | | | | | | |
| **Lowest** | 30.1 | 18.3 | 0.0 | 47.9 | 3.7 | 100.0 | 219 | 40.2 | 264 |
| **Second** | 30.8 | 16.7 | 0.4 | 49.2 | 2.9 | 100.0 | 240 | 43.6 | 264 |
| **Middle** | 41.0 | 17.6 | 0.8 | 35.6 | 5.0 | 100.0 | 239 | 53.4 | 266 |
| **Fourth** | 52.6 | 12.2 | 0.4 | 32.6 | 2.2 | 100.0 | 230 | 57.5 | 261 |
| **Highest** | 68.5 | 13.8 | 0.0 | 16.9 | 0.8 | 100.0 | 254 | 78.5 | 265 |
| **Total** | 45.1 | 15.7 | 0.3 | 36.0 | 2.9 | 100.0 | 1182 | 54.6 | 1320 |

[1] Includes women who received a check-up after 41 days

## 4.5 Neonatal care

A vast majority of the mothers reported hygienic practice whilst cutting the umbilical cord with less than 1% using bamboo strips and 85.9% using boiled water to sterilise the instruments (Table 20).

**Table 20: Use of delivery kit and other equipment during delivery**

| Background Characteristics | Percentage use of instruments during cutting cord | | | | | | Percentage of instruments boiled before the cord was cut | Number of births, N |
|---|---|---|---|---|---|---|---|---|
| | Delivery kit used | Blade from delivery kit | Blade from other source | Bamboo strips | Do not know | Total | | |
| **Mother's age at birth** | | | | | | | | |
| **<20** | 24.5 | 21.4 | 77.6 | 0.0 | 1.0 | 100.0 | 87.8 | 98 |
| **20-34** | 27.9 | 23.6 | 76.0 | 0.2 | 0.2 | 100.0 | 85.6 | 466 |
| **35-49** | 34.0 | 27.3 | 72.7 | 0.0 | 0.0 | 100.0 | 84.1 | 44 |
| **Educational attainment** | | | | | | | | |
| **No education** | 27.5 | 17.6 | 82.4 | 0.0 | 0.0 | 100.0 | 92.2 | 51 |
| **Primary incomplete** | 23.0 | 20.0 | 79.3 | 0.7 | 0.0 | 100.0 | 88.4 | 135 |
| **Primary complete** | 25.8 | 20.6 | 79.4 | 0.0 | 0.0 | 100.0 | 88.7 | 97 |
| **Secondary incomplete** | 27.6 | 24.1 | 75.1 | 0.0 | 0.8 | 100.0 | 84.4 | 257 |
| **Secondary complete or higher** | 41.2 | 36.8 | 63.2 | 0.0 | 0.0 | 100.0 | 85.3 | 68 |

| Background Characteristics | Percentage use of instruments during cutting cord | | | | | | Percentage of instruments boiled before the cord was cut | Number of births, N |
|---|---|---|---|---|---|---|---|---|
| | Delivery kit used | Blade from delivery kit | Blade from other source | Bamboo strips | Do not know | Total | | |
| **Wealth Quintile** | | | | | | | | |
| **Lowest** | 25.6 | 20.0 | 79.4 | 0.0 | 0.6 | 100.0 | 83.8 | 160 |
| **Second** | 29.1 | 26.6 | 72.8 | 0.6 | 0.0 | 100.0 | 86.1 | 158 |
| **Middle** | 26.2 | 22.1 | 77.9 | 0.0 | 0.0 | 100.0 | 86.1 | 122 |
| **Fourth** | 28.8 | 24.3 | 74.8 | 0.0 | 0.9 | 100.0 | 87.4 | 111 |
| **Highest** | 31.6 | 26.3 | 73.7 | 0.0 | 0.0 | 100.0 | 87.7 | 57 |
| **Total** | 27.8 | 23.5 | 76.0 | 0.2 | 0.3 | 100.0 | 85.9 | 608 |

Table 21 illustrates the proportion of mothers who reported applying materials to the cord after delivery. According to WHO Revised Recommendations on Cord Care (2018), application of chlorhexidine to the umbilical cord during the first week of birth is advised, but only for those born at home in high neonatal mortality (above 30 or more neonatal deaths per 1,000 live births) areas. As the neonatal mortality rate in Bangladesh is 28% (BDHS, 2014), low application of chlorhexidine (9%) is not surprising (Table 21). Instead, the recommended cord care practice for newborns in low neonatal mortality settings, both at home and health facilities, is to have a clean and a dry cord. In the sample, the majority of the new-borns (70%) did not have any materials applied to the cord. The most common substances applied to the cord, include antibiotics and antiseptic.

## Table 21: Substance applied to the cord after delivery

| Background Characteristics | Percentage of mothers who applied material to the cord* | | | | | | | | | | | | | Number of births |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Antibiotics | Antiseptic | Spirit/ alcohol | Mustard oil with garlic | Turmeric juice/ powder | Shidur | Boric powder | Gentain violet (blue ink) | Talcum powder | Nothing other than chlorhenxidine | Other | Do not know | Nothing applied to the cord | |
| | Percent | | | | | | | | | | | | | N |
| **Mother's age at birth** | | | | | | | | | | | | | | |
| **<20** | 21.2 | 24.2 | 1.7 | 14.2 | 0.0 | 0.8 | 2.5 | 2.5 | 0.0 | 8.3 | 1.2 | 4.6 | 70.8 | 240 |
| **20-34** | 21.4 | 21.9 | 0.6 | 11.0 | 0.1 | 0.5 | 2.3 | 2.9 | 0.3 | 9.4 | 1.2 | 4.9 | 69.2 | 1005 |
| **35-49** | 25.3 | 21.3 | 0.0 | 13.3 | 0.0 | 0.0 | 2.7 | 4.0 | 0.0 | 8.0 | 2.7 | 1.3 | 70.7 | 75 |
| **Educational attainment** | | | | | | | | | | | | | | |
| **No education** | 31.3 | 14.9 | 0.0 | 14.9 | 0.0 | 0.0 | 3.0 | 1.5 | 0.0 | 4.5 | 3.0 | 0.0 | 68.7 | 67 |
| **Primary incomplete** | 22.5 | 20.7 | 0.0 | 12.3 | 0.0 | 0.9 | 2.6 | 3.1 | 0.4 | 7.5 | 1.3 | 3.1 | 66.5 | 227 |
| **Primary complete** | 18.5 | 13.3 | 0.6 | 13.3 | 0.0 | 0.6 | 5.2 | 2.3 | 0.0 | 6.4 | 1.2 | 5.8 | 63.6 | 173 |
| **Secondary incomplete** | 21.4 | 23.2 | 0.5 | 12.3 | 0.2 | 0.7 | 1.5 | 3.1 | 0.0 | 10.1 | 1.4 | 5.8 | 71.6 | 585 |
| **Secondary complete or higher** | 20.9 | 29.1 | 2.2 | 8.2 | 0.0 | 0.0 | 1.9 | 3.0 | 0.7 | 11.2 | 0.7 | 3.7 | 71.6 | 268 |
| **Wealth Quintile** | | | | | | | | | | | | | | |
| **Lowest** | 20.8 | 21.2 | 0.8 | 12.1 | 0.0 | 0.4 | 2.3 | 1.5 | 0.0 | 4.9 | 1.1 | 4.5 | 64.4 | 264 |
| **Second** | 22.0 | 17.8 | 0.0 | 14.4 | 0.0 | 1.5 | 1.9 | 1.5 | 0.8 | 6.1 | 1.5 | 3.8 | 65.9 | 264 |
| **Middle** | 21.1 | 24.1 | 0.8 | 12.8 | 0.0 | 0.4 | 2.6 | 4.5 | 0.0 | 8.6 | 1.1 | 4.5 | 73.3 | 266 |
| **Fourth** | 20.3 | 24.9 | 0.4 | 13.4 | 0.0 | 0.4 | 2.3 | 3.4 | 0.0 | 10.3 | 1.5 | 3.8 | 71.3 | 261 |
| **Highest** | 23.8 | 23.4 | 1.9 | 6.0 | 0.4 | 0.0 | 2.6 | 3.4 | 0.4 | 15.5 | 1.1 | 6.4 | 72.8 | 265 |
| **Total** | 21.6 | 22.3 | 0.8 | 11.7 | 0.1 | 0.5 | 2.3 | 2.9 | 0.2 | 9.1 | 1.3 | 4.6 | 69.6 | 1320 |

* Multiple response possible

Table 22 and Table 23 shows the timing of drying after delivery and the timing of a newborn's first bath. As per the essential new born care intervention recommendations (Gage et al., 2005) a new born baby should be dried immediately, engaged with the mother for skin-to-skin contact and bathed after six hours (keeping in mind that in high HIV areas, early bathing can be a strategy to prevent MTCT/HIV) . In the study sample, nearly 80% of the babies were dried within first five minutes of birth. The proportion of skin-to-skin contact immediately after delivery was however quite low. The majority of babies were given bath after 24 hours.

### Table 22: Timing of drying

| Background Characteristics | Percentage of birth that have skin-to-skin contact | Timing of drying after delivery | | | | | | No of births |
|---|---|---|---|---|---|---|---|---|
| | | 0-4 mins | 5-9 mins | 10+ mins | Newborn not dried before washing | Do not know | Total | |
| | Percent | | | | | | | N |
| **Mother's age at birth** | | | | | | | | |
| **<20** | 11.3 | 82.5 | 7.5 | 5.4 | 1.7 | 2.9 | 100.0 | 240 |
| **20-34** | 14.1 | 81.6 | 9.5 | 4.9 | 1.5 | 2.6 | 100.0 | 1,005 |
| **35-49** | 10.7 | 68.0 | 18.7 | 8.0 | 1.3 | 4.0 | 100.0 | 75 |
| **Educational attainment** | | | | | | | | |
| **No education** | 13.4 | 82.1 | 6.0 | 9.0 | 1.5 | 1.5 | 100.0 | 67 |
| **Primary incomplete** | 14.1 | 74.0 | 15.4 | 4.9 | 2.2 | 3.5 | 100.0 | 227 |
| **Primary complete** | 17.9 | 76.3 | 8.7 | 8.7 | 2.3 | 4.1 | 100.0 | 173 |
| **Secondary incomplete** | 11.8 | 85.6 | 7.9 | 3.6 | 1.4 | 1.5 | 100.0 | 585 |
| **Secondary complete or higher** | 13.4 | 79.5 | 10.1 | 5.6 | 0.8 | 4.1 | 100.0 | 268 |
| **Wealth Quintile** | | | | | | | | |
| **Lowest** | 15.2 | 79.2 | 9.9 | 6.4 | 1.9 | 2.7 | 100.0 | 264 |
| **Second** | 13.3 | 81.8 | 12.1 | 3.4 | 1.5 | 1.1 | 100.0 | 264 |
| **Middle** | 13.2 | 82.3 | 7.9 | 6.0 | 2.3 | 1.5 | 100.0 | 266 |
| **Fourth** | 10.7 | 79.7 | 11.1 | 4.2 | 1.5 | 3.5 | 100.0 | 261 |
| **Highest** | 14.7 | 81.9 | 7.2 | 5.7 | 0.4 | 4.9 | 100.0 | 265 |
| **Total** | 11.2 | 81.5 | 9.6 | 5.2 | 1.5 | 2.7 | 100.0 | 1,320 |

### Table 23: Timing of first bath

| Background Characteristics | Timing of first bath after delivery | | | | | | | | No of births |
|---|---|---|---|---|---|---|---|---|---|
| | 0-5 hours | 6-11 hours | 12-23 hours | 24-71 hours | 72 + hours | Baby not bathed | Do not know | Total | |
| | Percent | | | | | | | | N |
| **Mother's age at birth** | | | | | | | | | |
| **<20** | 8.3 | 1.7 | 0.0 | 22.9 | 67.1 | 0.0 | 0.0 | 100.0 | 240 |
| **20-34** | 10.9 | 1.4 | 0.4 | 20.1 | 67.1 | 0.1 | 0.1 | 100.0 | 1,005 |
| **35-49** | 14.7 | 0.0 | 2.7 | 17.3 | 64.0 | 0.0 | 1.3 | 100.0 | 75 |
| **Educational attainment** | | | | | | | | | |
| **No education** | 25.4 | 1.4 | 1.5 | 17.9 | 52.2 | 0.0 | 1.5 | 100.0 | 67 |
| **Primary incomplete** | 13.2 | 0.9 | 1.3 | 26.9 | 57.7 | 0.0 | 0.0 | 100.0 | 227 |
| **Primary complete** | 10.4 | 0.6 | 0.0 | 24.9 | 64.2 | 0.0 | 0.0 | 100.0 | 173 |

| Background Characteristics | Timing of first bath after delivery | | | | | | | | No of births |
|---|---|---|---|---|---|---|---|---|---|
| | 0-5 hours | 6-11 hours | 12-23 hours | 24-71 hours | 72 + hours | Baby not bathed | Do not know | Total | |
| Secondary incomplete | 9.7 | 1.7 | 0.3 | 19.8 | 68.2 | 0.2 | 0.0 | 100.0 | 585 |
| Secondary complete or higher | 6.7 | 1.5 | 0.0 | 14.2 | 77.2 | 0.0 | 0.4 | 100.0 | 268 |
| **Wealth Quintile** | | | | | | | | | |
| Lowest | 20.5 | 1.1 | 0.8 | 19.3 | 58.0 | 0.0 | 0.4 | 100.0 | 264 |
| Second | 10.2 | 2.7 | 0.8 | 26.5 | 59.9 | 0.0 | 0.0 | 100.0 | 264 |
| Middle | 9.4 | 1.1 | 0.4 | 22.9 | 65.8 | 0.4 | 0.0 | 100.0 | 266 |
| Fourth | 8.4 | 0.8 | 0.0 | 18.4 | 72.4 | 0.0 | 0.0 | 100.0 | 261 |
| Highest | 4.5 | 1.1 | 0.4 | 15.1 | 78.5 | 0.0 | 0.4 | 100.0 | 265 |
| **Total** | 10.6 | 1.4 | 0.5 | 20.5 | 66.9 | 0.1 | 0.2 | 100.0 | 1,320 |

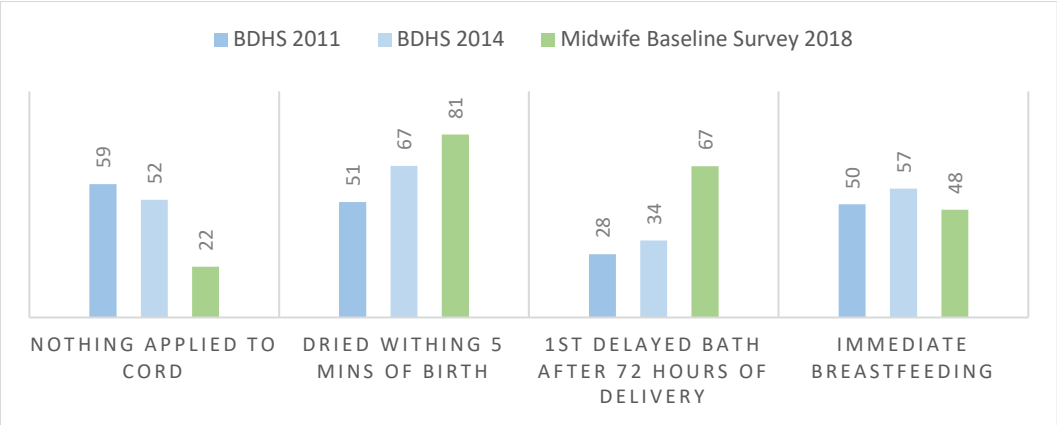
Almost all mothers reported breastfeeding their children (Table 24). Nearly half of the newborns were breastfed within one hour of birth and 95% were breastfed within a day. A vast majority of the newborns also received colostrum.

**Table 24: Initial breastfeeding practices**

| Background Characteristics | Among last-born children born in the past two years | | | | |
|---|---|---|---|---|---|
| | Percentage ever breastfed | Percentage who started breastfeeding within one hour of birth | Percentage who started breastfeeding within one day of birth | Percentage who received colostrum | No of last-born children ever breastfed |
| **Mother's age at birth** | | | | | |
| <20 | 99.6 | 47.1 | 95.4 | 97.5 | 240 |
| 20-34 | 99.9 | 48.1 | 95.7 | 98.3 | 1,005 |
| 35-49 | 100.0 | 44.0 | 93.3 | 97.3 | 75 |
| **Educational attainment** | | | | | |
| No education | 100.0 | 50.8 | 97.0 | 98.5 | 67 |
| Primary incomplete | 100.0 | 46.7 | 95.2 | 98.2 | 227 |
| Primary complete | 100.0 | 44.5 | 94.8 | 97.7 | 173 |
| Secondary incomplete | 99.7 | 51.0 | 96.9 | 98.3 | 585 |
| Secondary complete or higher | 100.0 | 42.5 | 92.9 | 97.8 | 268 |
| **Wealth Quintile** | | | | | |
| Lowest | 100.0 | 50.0 | 96.2 | 97.7 | 264 |
| Second | 99.6 | 51.1 | 95.5 | 98.1 | 264 |
| Middle | 100.0 | 51.1 | 95.1 | 98.1 | 266 |
| Fourth | 100.0 | 41.4 | 96.2 | 99.2 | 261 |
| Highest | 99.6 | 44.5 | 94.7 | 97.4 | 265 |
| **Total** | 99.9 | 47.7 | 95.5 | 98.1 | 1,320 |

Figure 25 shows the trend of essential newborn care practices, comparing the results with BDHS 2011 and 2014. Whilst the indicators related to applying materials on cord and giving bath after delivery has improved, immediate breastfeeding or early initiation seems to have dropped.

**Figure 25: Trend in use of essential newborn care practices**




## 4.6 Immunisation

Table 25 outlines the immunisation coverage data in relation to the Extended Programme on Immunization (EPI) schedule of Government of Bangladesh. More than 80% children were fully vaccinated. There is a positive association between mothers' education and socio-economic condition.

**Table 25: Immunisation coverage**

| | Percentage of children receiving vaccinations | | | | | | | | All basic vaccinations | No vaccinations | Percentage with a vaccination card seen | No of children |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BCG | Penta-valent 1 | Penta-valent 2 | Penta-valent 3 | Polio 1 | Polio 2 | Polio 3 | Measles | | | | |
| **Mother's age at birth** | | | | | | | | | | | | |
| **<20** | 94.1 | 97.1 | 98.0 | 97.1 | 96.1 | 95.1 | 92.2 | 87.3 | 79.4 | 2.1 | 73.3 | 102 |
| **20-34** | 96.2 | 96.9 | 96.0 | 94.3 | 97.6 | 96.0 | 91.7 | 84.7 | 79.9 | 1.6 | 78.2 | 576 |
| **35-49** | 100.0 | 94.9 | 94.9 | 94.9 | 100.0 | 100.0 | 92.3 | 87.2 | 84.6 | 0.0 | 70.7 | 39 |
| **Educational attainment** | | | | | | | | | | | | |
| **No education** | 88.4 | 94.1 | 91.2 | 88.2 | 94.1 | 88.2 | 85.3 | 73.5 | 64.7 | 7.5 | 75.3 | 34 |
| **Primary incomplete** | 95.9 | 97.6 | 96.8 | 94.3 | 98.4 | 95.1 | 90.2 | 78.9 | 74.8 | 1.8 | 75.7 | 123 |
| **Primary complete** | 98.0 | 96.0 | 96.0 | 93.9 | 97.0 | 96.0 | 90.9 | 87.9 | 82.8 | 0.0 | 78.1 | 99 |
| **Secondary incomplete** | 98.1 | 97.0 | 95.9 | 95.0 | 97.8 | 96.5 | 91.8 | 85.9 | 81.8 | 1.2 | 77.6 | 318 |
| **Secondary complete or higher** | 92.3 | 97.9 | 97.9 | 96.5 | 97.2 | 97.9 | 95.1 | 90.2 | 82.5 | 1.9 | 71.6 | 143 |
| **Wealth Quintile** | | | | | | | | | | | | |
| **Lowest** | 95.7 | 97.9 | 96.4 | 94.3 | 97.9 | 94.3 | 90.0 | 77.9 | 72.9 | 2.3 | 73.1 | 140 |
| **Second** | 92.4 | 94.5 | 93.8 | 92.4 | 95.9 | 93.8 | 89.0 | 82.8 | 75.2 | 2.7 | 76.1 | 145 |
| **Middle** | 96.4 | 98.6 | 97.1 | 96.4 | 98.6 | 97.1 | 95.0 | 87.7 | 85.5 | 1.1 | 82.7 | 138 |
| **Fourth** | 97.9 | 95.0 | 95.7 | 94.3 | 97.1 | 97.1 | 90.7 | 82.9 | 77.1 | 0.4 | 73.6 | 140 |
| **Highest** | 98.1 | 98.1 | 98.1 | 96.1 | 98.1 | 98.1 | 94.2 | 94.2 | 89.0 | 1.5 | 78.9 | 154 |
| **Total** | 96.1 | 96.8 | 96.2 | 94.7 | 97.5 | 96.1 | 91.8 | 85.2 | 80.1 | 1.6 | 76.9 | 717 |

## 4.7 Family planning

Nearly 80% of the survey participants were using contraceptives and a vast majority of them were using modern contraceptives (Table 26). There is no association between respondents' education and socioeconomic condition with the contraceptive use, indicating widespread acceptance of contraceptive across all socio-economic groups in Bangladesh.

## Table 26: Current use of contraception

| Background Characteristics | Any method | Any modern method | Modern method | | | | | | | Any traditional method | Traditional method | | | Not currently using | Total | Number of women |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Pill | Injectables | Condom | Female sterilization | Male sterilization | IUD | Implants | | Periodic abstinence | Withdrawal | Other | | | |
| | Percent | | | | | | | | | | | | | | | N |
| **Mother's age at birth** | | | | | | | | | | | | | | | | |
| **<20** | 80.8 | 76.2 | 45.6 | 18.4 | 9.6 | 0.0 | 0.0 | 0.0 | 2.5 | 4.6 | 2.1 | 2.1 | 0.4 | 0.0 | 100.0 | 239 |
| **20-34** | 78.7 | 73.7 | 42.2 | 15.7 | 8.9 | 2.2 | 0.0 | 0.5 | 4.2 | 5.0 | 3.1 | 1.6 | 0.3 | 0.0 | 100.0 | 1000 |
| **35-49** | 77.3 | 70.7 | 37.3 | 12.0 | 9.3 | 4.0 | 0.0 | 0.0 | 8.0 | 6.7 | 5.3 | 1.3 | 0.0 | 0.0 | 100.0 | 75 |
| **Educational attainment** | | | | | | | | | | | | | | | | |
| **No education** | 73.4 | 65.6 | 26.6 | 25.0 | 0.0 | 1.6 | 0.0 | 1.6 | 10.9 | 7.8 | 6.2 | 0.0 | 1.6 | 0.0 | 100.0 | 64 |
| **Primary incomplete** | 84.6 | 81.9 | 42.7 | 22.5 | 5.7 | 3.5 | 0.0 | 0.9 | 6.6 | 2.6 | 0.9 | 1.3 | 0.4 | 0.0 | 100.0 | 227 |
| **Primary complete** | 83.2 | 79.2 | 52.0 | 13.9 | 7.5 | 2.3 | 0.0 | 0.0 | 3.5 | 4.1 | 2.3 | 1.7 | 0.0 | 0.0 | 100.0 | 173 |
| **Secondary incomplete** | 77.5 | 72.3 | 41.6 | 16.3 | 8.2 | 1.7 | 0.0 | 0.3 | 4.1 | 5.2 | 3.6 | 1.4 | 0.2 | 0.0 | 100.0 | 582 |
| **Secondary complete or higher** | 76.0 | 69.4 | 42.2 | 9.0 | 16.8 | 0.7 | 0.0 | 0.0 | 0.7 | 6.7 | 3.4 | 3.0 | 0.4 | 0.0 | 100.0 | 268 |
| **Wealth Quintile** | | | | | | | | | | | | | | | | |
| **Lowest** | 77.4 | 72.4 | 41.8 | 18.8 | 2.7 | 2.7 | 0.0 | 0.4 | 6.1 | 5.0 | 4.2 | 0.8 | 0.0 | 0.0 | 100.0 | 261 |
| **Second** | 82.1 | 78.0 | 49.0 | 17.9 | 4.2 | 0.8 | 0.0 | 0.8 | 5.3 | 4.2 | 2.7 | 0.8 | 0.8 | 0.0 | 100.0 | 263 |
| **Middle** | 85.6 | 79.6 | 45.1 | 18.2 | 10.2 | 1.1 | 0.0 | 0.4 | 4.5 | 6.1 | 3.0 | 3.0 | 0.0 | 0.0 | 100.0 | 264 |
| **Fourth** | 77.0 | 73.6 | 42.9 | 16.5 | 8.4 | 2.7 | 0.0 | 0.4 | 2.7 | 3.5 | 1.9 | 1.1 | 0.4 | 0.0 | 100.0 | 261 |
| **Highest** | 72.8 | 66.4 | 34.0 | 8.7 | 19.6 | 2.3 | 0.0 | 0.0 | 1.9 | 6.4 | 3.4 | 2.6 | 0.4 | 0.0 | 100.0 | 265 |
| **Total** | 79.0 | 74.0 | 42.5 | 16.0 | 9.1 | 1.9 | 0.0 | 0.4 | 4.1 | 5.0 | 3.0 | 1.7 | 0.3 | 0.0 | 100.0 | 1,314 |

# 5 Findings from survey on midwives

## 5.1 Description of study population

Out of 336 sampled diploma midwives, we have interviewed 329 with a response rate of 98%. Of them, 284 (86%) midwives obtained their midwifery education at government institutes and 45 (14%) were trained in the institutes affiliated with BRAC University.[2] The midwives posted at the Upazila Health Complex (UHC) had higher probabilities of being sampled and is reflected in the sampling distribution. The mean (SD) age of the midwives was 24.0 (1.4) years. The other d characteristics of the sampled midwives are presented in Table 27.

**Table 27: Description of study population**

| | Percent | N |
|---|---|---|
| **Division** | | |
| **Barishal** | 7.0 | 23 |
| **Chittagong** | 22.5 | 74 |
| **Dhaka** | 20.4 | 67 |
| **Khulna** | 10.9 | 36 |
| **Mymensingh** | 6.4 | 21 |
| **Rajshahi** | 10.9 | 36 |
| **Rangpur** | 14.3 | 47 |
| **Sylhet** | 7.6 | 25 |
| **Marital status** | | |
| **Single** | 48.0 | 158 |
| **Engaged** | 1.8 | 6 |
| **Married** | 49.9 | 164 |
| **Divorce** | 0.3 | 1 |
| **Religion** | | |
| **Islam** | 80.2 | 264 |
| **Hindu** | 15.5 | 51 |
| **Christianity** | 3.7 | 12 |
| **Buddhism** | 0.6 | 2 |
| **Have children** | | |
| **None** | 68.5 | 113 |
| **1-2 children** | 31.5 | 52 |
| **Education level before joining diploma** | | |
| **HSC or equivalent** | 97.9 | 322 |
| **Bachelors** | 2.1 | 7 |
| **Trained from** | | |
| **Government institutes** | 57.8 | 190 |
| **BRAC Affiliated institutes** | 42.3 | 139 |

[2] For brevity we have used the term “Government trained” and “BRAC trained” in the remaining sections of this report to distinguish the midwives trained in government institutes and the institutes affiliated with BRAC University.

| | Percent | N |
|---|---|---|
| **Completed diploma in midwifery** | | |
| **2015** | 66.6 | 219 |
| **2016** | 28.6 | 94 |
| **2017** | 4.9 | 16 |
| **Received license to practice midwifery** | | |
| **2015** | 0.6 | 2 |
| **2016** | 69.9 | 230 |
| **2017** | 28.9 | 95 |
| **2018** | 0.6 | 2 |
| **Present in type of health facility** | | |
| **Upazila health complex** | 98.8 | 325 |
| **Union sub centre** | 1.2 | 4 |
| **Locality of the health facility** | | |
| **Urban** | 58.4 | 192 |
| **Rural** | 41.6 | 137 |
| **Venue of interview place: posted health facility** | 92.4 | 307 |
| | **Mean ± SD** | **N** |
| | **Median** | |
| **Age of midwife** | 24.5 ± 1.76 | 329 |
| | 24.0 | |
| **Number of midwives** | | 329 |

As mentioned in the sampling methods in Section 2.2.3, since the proportion of the midwives trained in BRAC University affiliated institutions were lower compared to that of the government institutes, the former cohort was over-sampled to have a representative sample of that cohort and to increase the power to detect statistically significant differences. Therefore, the proportions for the total sample (both government and BRAC trained midwives) are weighted to provide the representative data of the overall sample.

A majority (55%) of the midwives were staying at the accommodation provided by the health facilities, whilst 40% live in rented accommodation and 5% live in their own accommodation. These small proportion of midwives are probably posted close to their permanent residence.

### Table 28: Accommodation and Transportation

| | Percent |
|---|---|
| **Accommodation** | |
| **Accommodation provided by the facility** | 55.3 |
| **Own accommodation** | 5.2 |
| **Rented accommodation** | 39.5 |
| | |
| **Mode of travel to work** | |
| **On foot** | 86.9 |
| **Bicycle** | 0.0 |
| **Rickshaw/ rickshaw van** | 4.6 |
| **Motorbike** | 0.0 |
| **Auto-rickshaw** | 6.1 |
| **Microbus/ minibus/ bus** | 2.4 |
| **Health facility provides transport** | 3.0 |

| | Percent |
|---|---|
| **Total** | 100.0 |
| **Number** | N=329 |
| | **Mean ± SD** |
| | **Median** |
| **Distance from work for those living outside premise (in kilometres)** | 6.8 ± 10.9 |
| | 2.0 |
| | |
| **Number of midwives** | 47 |

The average distance of the accommodation for those who were living outside the premise was 6.8 km with high standard deviation of 10.9. The high SD is because of some outliers as a result of some of the midwives travelling long distances for work. The median distance from work to residence was 2.0 km.

## 5.2 Diploma education

Helping people was the most commonly (82.5%) stated motivating factor to become a midwife as reported by the respondents (Table 29). The majority (55.7%) of the midwives were encouraged by their parents to become a midwife, whilst others were encouraged by other family members (18.7%), relatives (14.1%) or others.

**Table 29: Motivation behind becoming a midwife**

| | Overall |
|---|---|
| **Motivation on becoming a midwife** | |
| **For better job security** | 0.0 |
| **To have a job that pays well** | 0.9 |
| **Have better social status** | 2.1 |
| **To have greater responsibilities** | 2.1 |
| **Have lighter workload** | 0.3 |
| **To help people** | 82.5 |
| **Suggested by family/ relatives/ others** | 6.4 |
| **Others (Specify)** | 5.5 |
| **Influenced or encouraged mainly by:** | |
| **Parents** | 55.7 |
| **Spouse** | 1.5 |
| **Other family members** | 18.7 |
| **Relatives** | 14.1 |
| **Friends** | 2.1 |
| **Teacher** | 0.6 |
| **A health professional** | 1.5 |
| **Television / radio / newspapers/ books** | 1.2 |
| **Others (specify)** | 4.6 |
| | |
| **Total** | 100.0 |
| **Number** | 327 |

Half of the midwives (50.0%) received waiver of the tuition fee during their course. A significant proportion of the midwives also received funding for education materials (45.9%), accommodation (40.1%) and other expenses (26.0%).

### Table 30: Expenses covered through the stipend

| | Percent |
|---|---|
| **Tuition fee** | 50.0 |
| **Education materials** | 45.9 |
| **Accommodation** | 40.1 |
| **Other expenses** | 26.0 |
| **Other (stipend)** | 18.5 |
| **Number** | 147 |

Among all, 82% paid a one off admission fee with an average 5,500 taka. Almost all the midwives had to spend some amount for the living cost and the average was 3,000 taka. Table 31 shows the average cost of the diploma educaiton with percentages of midwives who have paid any amount in Bangladeshi Taka (BDT).[3]

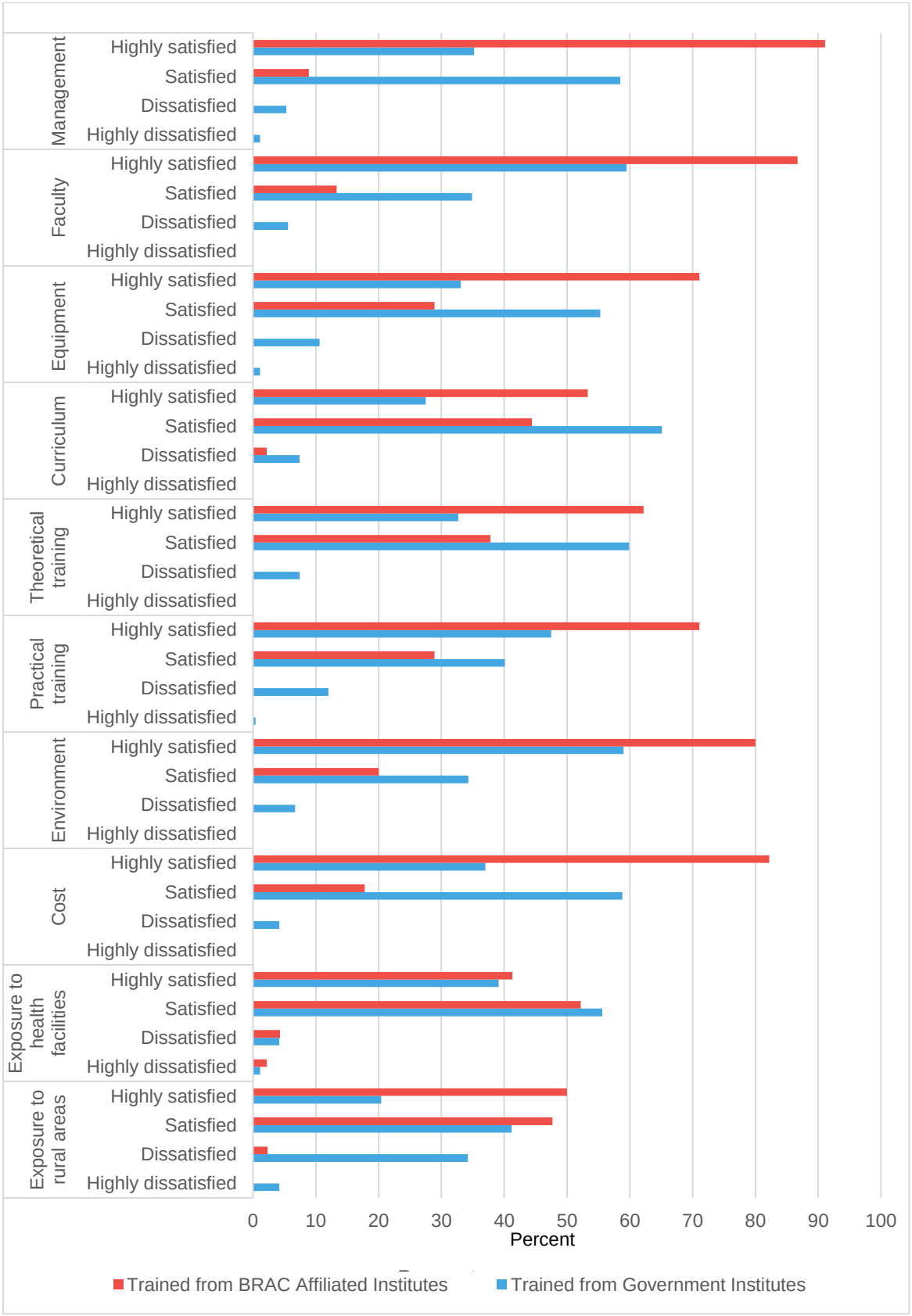
### Table 31: Average cost during diploma course in Bangladeshi Taka

| | Percent | Mean ± SD<br>Median | N |
|---|---|---|---|
| **Admission fee (one off)** | 82.0 | 6306 ± 3120<br>5500 | 269 |
| **Session fee (yearly)** | 28.2 | 1799 ± 861<br>1518 | 93 |
| **Tuition fees (yearly)** | 5.8 | 1415 ± 596<br>1200 | 19 |
| **Other fees (yearly)** | 29.0 | 2142 ± 1482<br>1500 | 95 |
| **Education materials (yearly)** | 66.4 | 6018 ± 4654<br>5000 | 219 |
| **Living cost (monthly)** | 99.1 | 3177 ± 1595<br>3000 | 326 |

Most of the midwives were satisfied with different dimensions of their training as shown in Figure 26. The only notable findings from this analysis is a significant proportion of the midwives were not happy with the level of exposure they had to the rural areas when they were trained.

[3] 1 GBP = 110 BDT

## Figure 26: Satisfaction levels on diploma course



## 5.3 Current job

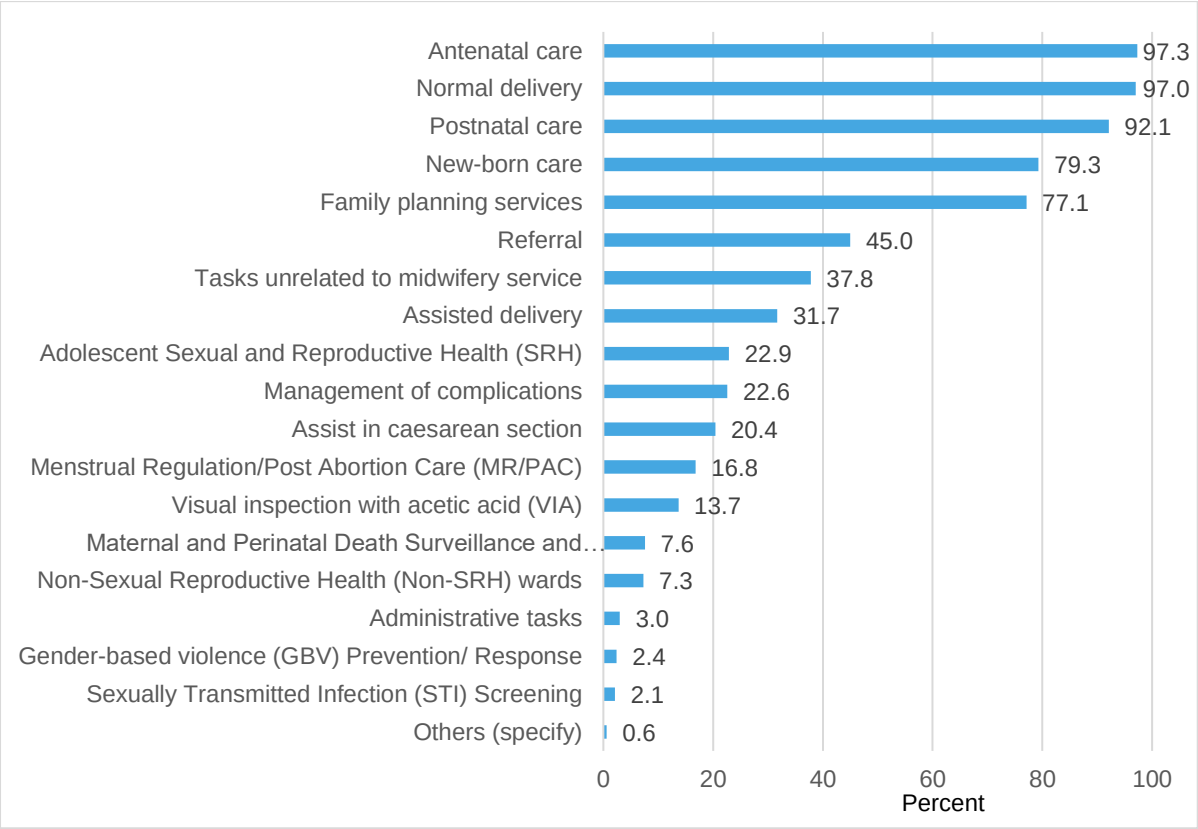
The current employment was the first job for most (72.6%) of the midwives. For nearly all (96.7%) midwives, the current posting was their first health facility to be posted. Sixty percent of the midwives were born in the districts that they were posted. More than half of them (55.2%) did not have any preference about their posting, whereas 36% reported that their current posting is not their preferred workplace.

**Table 32: Current job**

| | | Locality of the health facility | |
|---|---|---|---|
| | Total | Urban | Rural |
| **First job** | 72.7 | 75.3 | 69.3 |
| **First posting in the current facility** | 96.7 | 97.4 | 95.7 |
| **Number of months in current job** | | | |
| **< 1 month** | - | - | - |
| **1-6 months** | 100.0 | 100.0 | 100.0 |
| **7-12 months** | - | - | - |
| **> 12 months** | - | - | - |
| **Number of months worked in this facility** | | | |
| **< 1 month** | 0.0 | 0.0 | 0.0 |
| **1-6 months** | 93.3 | 92.6 | 94.3 |
| **7-12 months** | 0.0 | 0.0 | 0.0 |
| **> 12 months** | 0.0 | 0.0 | 0.0 |
| **Not posted yet** | 6.7 | 7.4 | 5.7 |
| **Midwife wanted to be posted in this facility** | | | |
| **Yes** | 8.5 | 9.0 | 7.9 |
| **No** | 36.0 | 33.9 | 38.8 |
| **No preference** | 55.5 | 57.1 | 53.2 |
| **Born in this district** | | | |
| **Yes** | 60.2 | 61.1 | 59.0 |
| **No** | 39.8 | 38.9 | 41.0 |
| **Midwife has sufficient time to complete all the tasks** | | | |
| **I can do more than what I do** | 4.3 | 4.2 | 4.3 |
| **It is just right** | 78.4 | 78.9 | 77.7 |
| **Sometimes it is difficult to manage** | 17.0 | 16.3 | 18.0 |
| **It is completely unmanageable** | 0.3 | 0.5 | 0.0 |
| | | | |
| **Total** | 100.00 | 100.00 | 100.00 |
| **Number** | 329 | 190 | 139 |
| | **Mean ± SD** | | |
| | **Median** | | |
| **Number of health facilities posted in before this posting** | 2.4 ± 1.8 | 2.9 ± 2.4 | 2.0 ± 1.2 |
| | 2.0 | 2.0 | 2.0 |
| **Number of hours per week typically worked at the facility** | 43.8 ± 6.2 | 43.6 ± 6.4 | 44.1 ± 5.9 |
| | 44.0 | 42.0 | 45.0 |

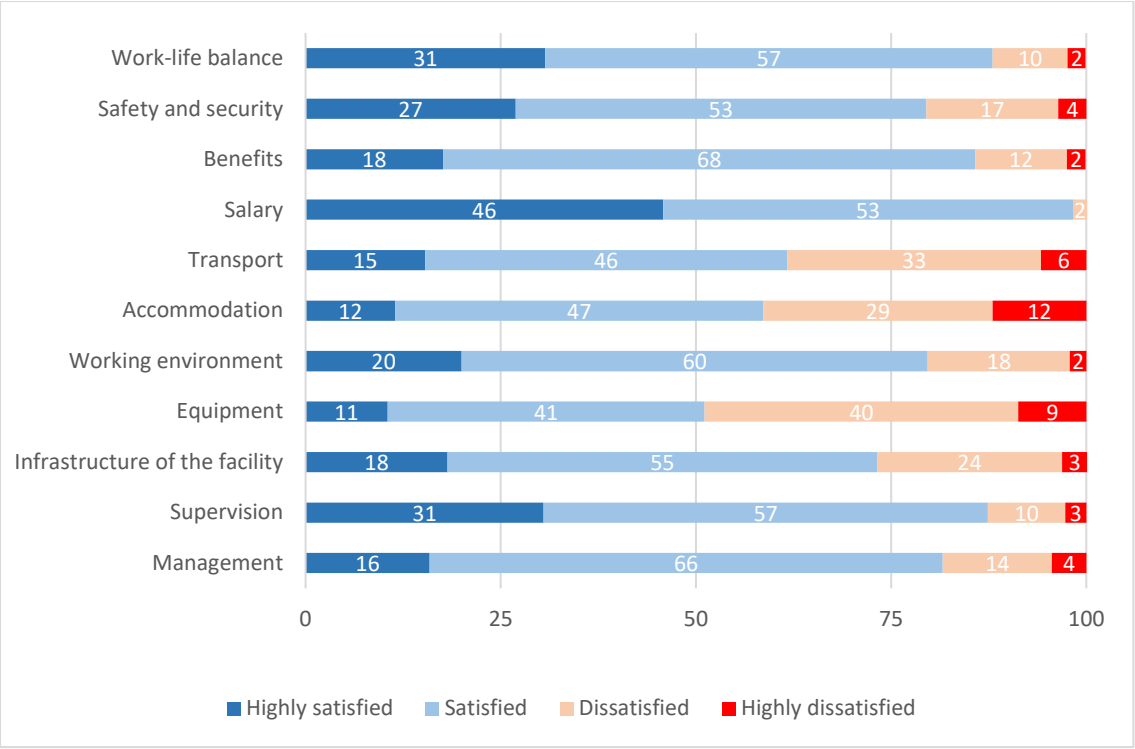
The midwives have reported performing some of the key tasks that they are supposed to carry out at their current workplace including antenatal care (97.3%), normal delivery (97%), postnatal care (92.1%), newborn care (79.3%) and family planning services. However, more of the respondents reported not working on referral, assisted delivery, adolescent sexual and reproductive health, managing complications etc. Thirty eight percent of midwives reported performing tasks unrelated to midwifery services (e.g. nursing).

**Figure 27: Tasks performed by midwife in the facility**




A vast majority of the midwives were either highly satisfied or satisfied with their current job. The overall satisfaction levels were very high for salaries, benefits, supervision and management. Nearly half of the midwives were not satisfied with the availability of the equipment at the health facilities.

**Figure 28: Satisfaction level of current job**




## 5.4 Preference and motivations

Nearly all (99.7%) midwives reported public sector as their long-term preferred employer. Nearly two-third of the respondents preferred working in urban health facilities. Upazila health complexes (37.9%) and district hospitals (31.5%) were the two topmost preferred workplaces, whereas only 5.5% wished to work at union level facilities overall. Almost all (99.7%) midwives wished to pursue higher education in future, and three-quarter of them would prefer migrating abroad at a later stage of their career.

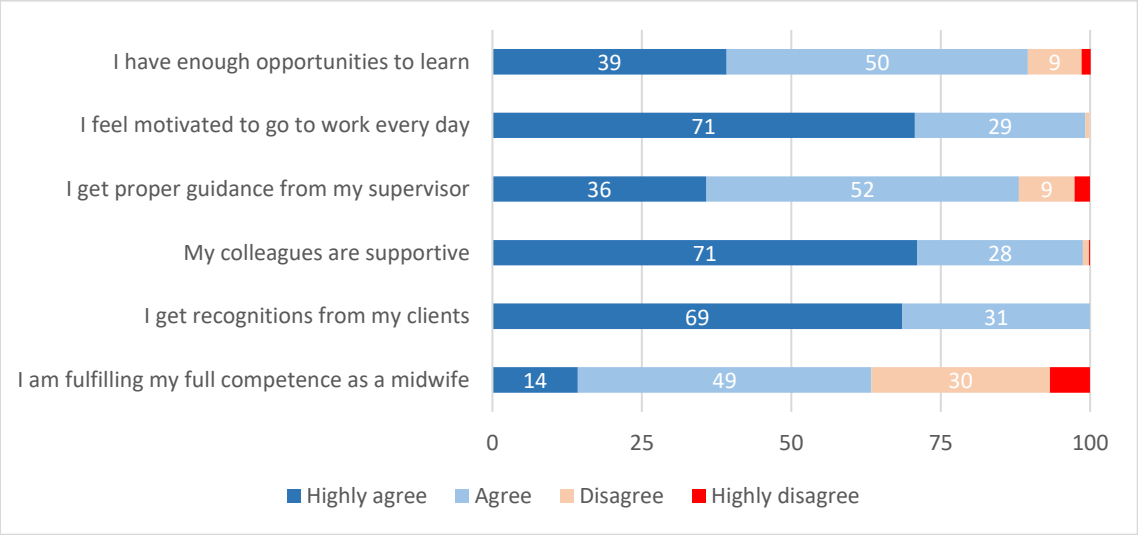
**Table 33: Long term preferences of midwives**

| | Total | Government trained | BRAC trained |
|---|---|---|---|
| | Percent | | |
| **Long run work preference area:** | | | |
| **Urban** | 66.5 | 67.5 | 60.0 |
| **Rural** | 31.1 | 30.0 | 37.8 |
| **No preference** | 2.4 | 2.5 | 2.2 |
| **Long run sector preference:** | | | |
| **Public/ government sector** | 99.7 | 99.6 | 100.0 |
| **Private sector** | 0.0 | 0.0 | 0.0 |
| **NGO sector** | 0.3 | 0.4 | 0.0 |
| **Others** | 0.0 | 0.0 | 0.0 |
| **No preference** | 0.0 | 0.0 | 0.0 |
| **Long run facility preference** | | | |
| **Tertiary hospitals** | 7.0 | 7.4 | 4.4 |
| **District hospitals** | 31.5 | 31.2 | 33.3 |
| **Maternal and Child Welfare Centres** | 17.7 | 19.1 | 8.9 |
| **Upazila Health Complexes** | 37.9 | 36.2 | 48.9 |

| | Total | Government trained | BRAC trained |
|---|---|---|---|
| Union Sub Centres | 5.5 | 5.7 | 4.4 |
| Family Welfare Centres | 0.3 | 0.4 | 0.0 |
| Others (specify) | 0.0 | 0.0 | 0.0 |
| No preference | 0.0 | 0.0 | 0.0 |
| Long run, has migration plan to go abroad | | | |
| Yes | 74.8 | 76.8 | 62.2 |
| No | 25.2 | 23.2 | 37.8 |
| Desire to pursue higher education | | | |
| Yes | 99.7 | 99.6 | 100.0 |
| No | 0.3 | 0.4 | 0.0 |
| Higher education in: | | | |
| Bachelors (BSc) | 32.0 | 28.6 | 53.3 |
| Masters (MSc) | 11.9 | 11.7 | 13.3 |
| PhD | 56.1 | 59.7 | 33.3 |
| | | | |
| Total | 100.0 | 100.0 | 100.0 |
| Number | 328 | 283 | 45 |

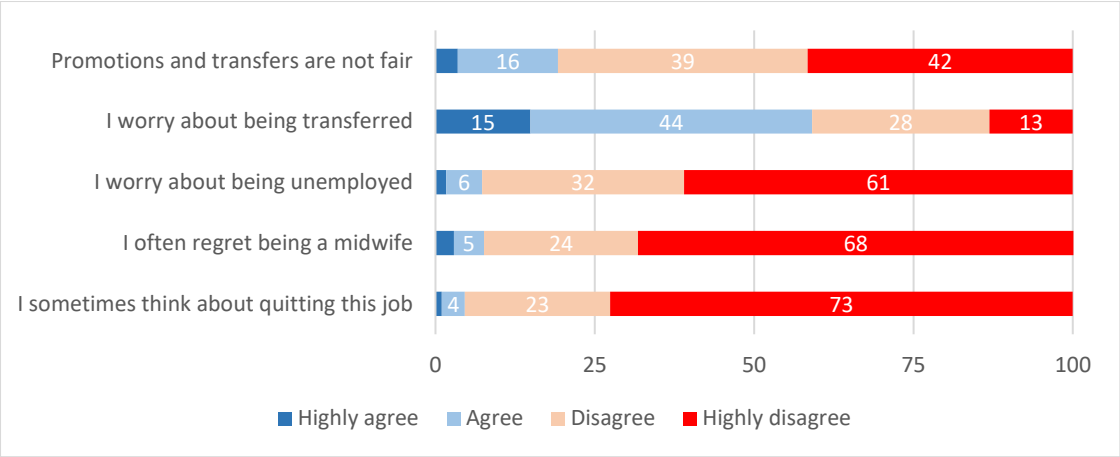
A vast majority of the midwives reported being highly motivated, having enough opportunities to learn, getting proper guidance and support from the supervisors and colleagues and recognised by the clients. However, more than one-third reported that they were not yet reaching their full potential as a midwife.

**Figure 29: Motivations, recognition, and aspirations**




Most of the midwives also reported of not being worried about fairness in transfers and promotions and being unemployed. Most of them also did not regret being a midwife and were not considering quitting the job. However, 58.9% midwives reported worrying about being transferred.

**Figure 30: Concerns and challenges**




## 5.5 Knowledge

The mean score on the self-reported knowledge test was nearly 66% across all five areas that they were tested for. In general, the knowledge on ANC and delivery care were higher than PNC, newborn care and family planning (Figure 31). With regards to the various steps in a consultation, the knowledge of midwives were tested about the history taking, examination, management and diagnosis of the five scenarios (Figure 32). Knowledge regarding correct management of the patient was relatively higher compared to the knowledge of other components.

**Figure 31: Percentage of Knowledge of midwife**

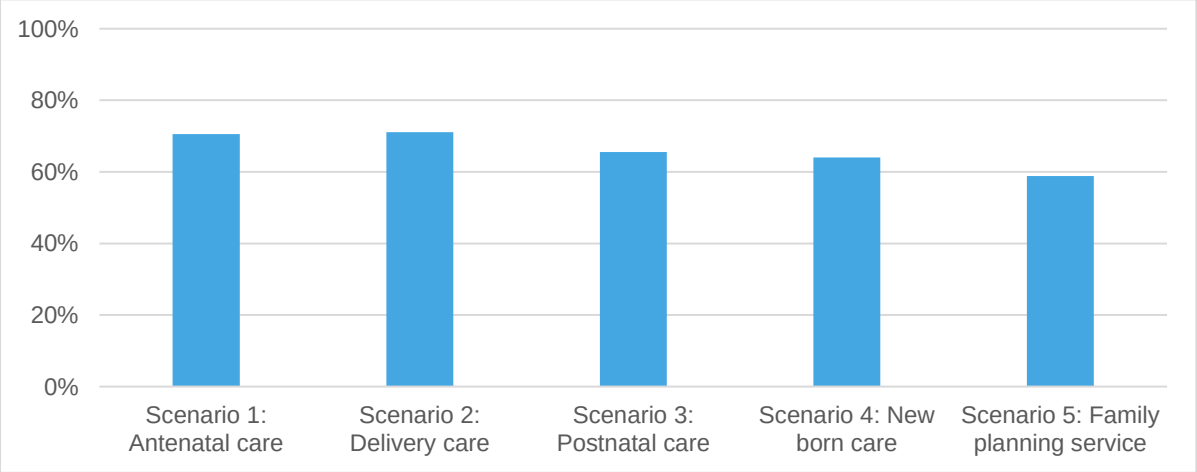
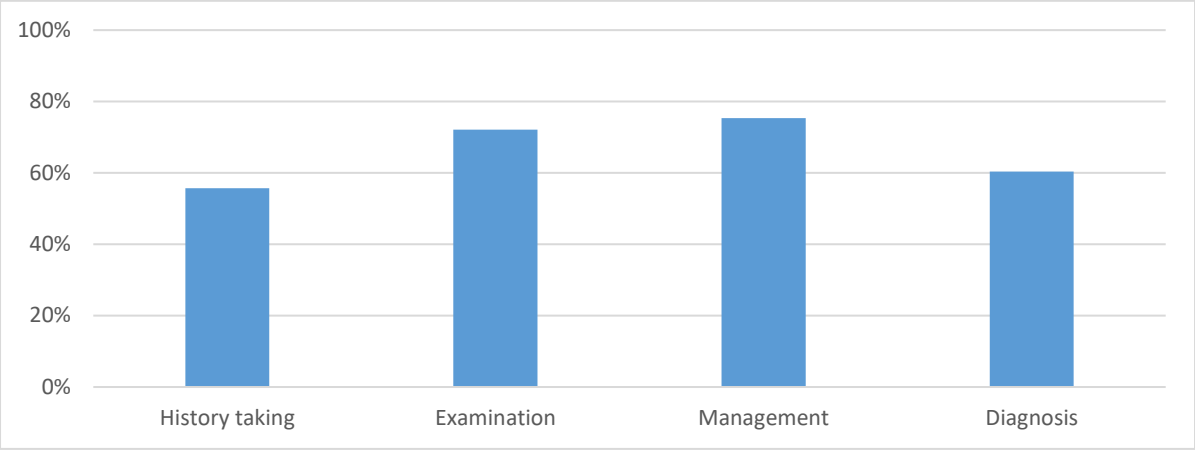


**Figure 32 Percentage of knowledge of midwives regarding various consultation steps**




## 5.6 Skills

The midwives reported learning most of the key skills either at the training institutes or at work and most of them are also confident to perform those at work. However, in many cases they did not get the opportunity to perform those tasks during last one month.

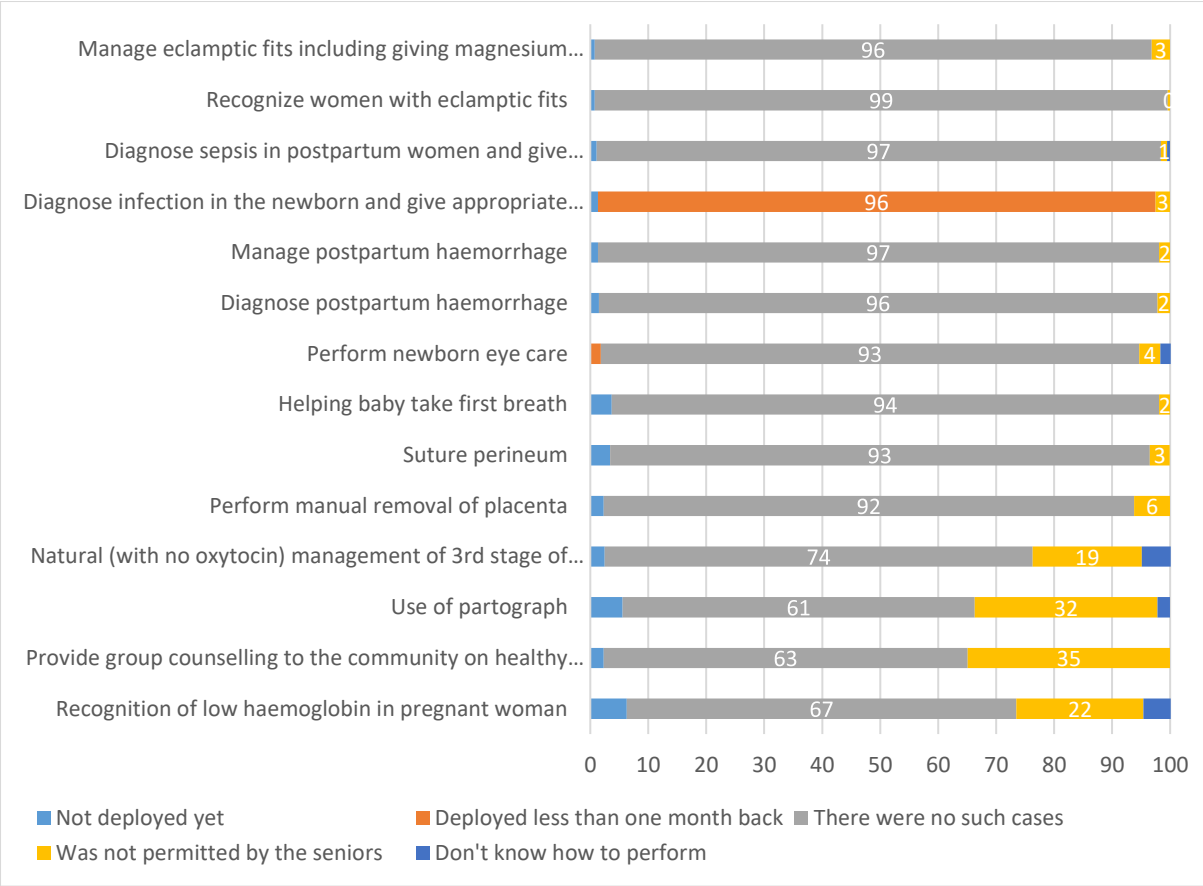
**Table 34: Self-assessment of midwifery clinical skills**

| | Learnt this skill in training | Learnt this training at work | Confident to perform this skill at work | Performed this skill in the last month |
|---|---|---|---|---|
| **Taking an antenatal history** | 99.6 | 99.6 | 99.1 | 97.2 |
| **Calculating Expected Date of Delivery (EDD)** | 100.0 | 99.5 | 100.0 | 98.3 |
| **Measurement of uterine size with tape** | 99.1 | 96.3 | 99.1 | 88.2 |
| **Provide individual counselling for preparing for birth/ making birth plan and emergency preparedness plan** | 99.9 | 99.5 | 99.6 | 95.9 |
| **Recognition of low haemoglobin in pregnant woman** | 98.2 | 95.5 | 95.8 | 82.0 |
| **Management of anaemia in pregnancy** | 99.6 | 97.7 | 99.5 | 84.4 |
| **Provide group counselling to the community on healthy pregnancies and safe motherhood** | 94.3 | 83.9 | 97.4 | 60.3 |
| **Identify signs of the onset of labour** | 100.0 | 99.6 | 99.6 | 95.5 |
| **Determination of foetal position by abdominal examination** | 98.4 | 97.2 | 98.5 | 88.6 |
| **Listening to the foetal heart sounds** | 100.0 | 100.0 | 99.9 | 97.2 |
| **Use of partograph** | 99.1 | 89.4 | 98.1 | 69.9 |
| **Identify the signs of second stage of labour** | 99.6 | 100.0 | 100.0 | 95.1 |
| **Manage second stage of labour** | 100.0 | 99.6 | 99.6 | 93.3 |
| **Natural (with no oxytocin) management of 3rd stage of labour** | 98.2 | 94.8 | 96.3 | 78.6 |
| **Inspection of placenta and membranes** | 100.0 | 99.6 | 100.0 | 92.0 |
| **Perform manual removal of placenta** | 99.4 | 95.1 | 97.2 | 63.1 |
| **Suture perineum** | 97.9 | 98.4 | 99.0 | 80.4 |

| | Learnt this skill in training | Learnt this training at work | Confident to perform this skill at work | Performed this skill in the last month |
|---|---|---|---|---|
| **Assess APGAR scores** | 100.0 | 99.5 | 100.0 | 94.9 |
| **Helping baby take first breath** | 99.9 | 99.4 | 100.0 | 85.4 |
| **Assist in immediate breastfeeding** | 100.0 | 99.6 | 100.0 | 95.3 |
| **Perform newborn eye care** | 98.6 | 96.4 | 98.2 | 84.2 |
| **Recognize uterus is well contracted immediately postpartum (after birth)** | 99.9 | 98.6 | 99.6 | 94.4 |
| **Provide client-focused postnatal Family Planning counselling** | 98.5 | 98.9 | 98.5 | 93.5 |
| **Examine newborn** | 99.0 | 99.1 | 99.9 | 92.9 |
| **Diagnose postpartum haemorrhage** | 100.0 | 96.5 | 99.1 | 57.9 |
| **Manage postpartum haemorrhage** | 99.6 | 97.9 | 99.6 | 50.8 |
| **Diagnose infection in the newborn and give appropriate immediate care for newborn as per national protocols** | 99.1 | 89.2 | 95.4 | 50.6 |
| **Diagnose sepsis in postpartum women and give immediate care according to national protocols** | 99.6 | 91.2 | 96.7 | 43.2 |
| **Recognise women with eclamptic fits** | 100.0 | 87.1 | 98.1 | 26.0 |
| **Manage eclamptic fits including giving magnesium sulphate** | 99.5 | 82.0 | 97.0 | 24.2 |

The reasons for not performing some of the key tasks are mainly due to lack of cases. However, in some cases, for example, using partograph and counselling, they reported not being allowed by seniors to perform those activities.

**Figure 33: Reasons for being unable to perform skills of a midwife**




## 5.7 Findings from the FGDs with the midwives

### Joining Midwifery courses

Most of them heard about the midwifery course from friends or family members. Friends and family members, in most cases, were related to the training facilities or organisations. Few were also informed through newspaper advertisements. Many never knew about midwifery courses and thought of nursing. After joining the course, when they came to realise that it was not nursing, many were upset and wanted to leave. Few heard that it was a special type of nursing to deal with women and children only.

> *'I thought it was nursing. After joining in the course, when I found that it was midwifery and not nursing, I was so upset and was thinking of leaving the course.'*
>
> *Midwife trained in BRAC University institute*

Many had had bad experiences with the medical care system for women and children, which motivated them to join a profession related to medical care. For many, better job opportunities motivated them. Some had very little understanding about the nature of the job but thought of serving people and earn independently. Since many of them were from relatively less solvent backgrounds, a course where everything was free – tuition fees, hostel with meals, even with some with expenses, was attractive.

Previous family history's of maternal health complications also encouraged some to choose midwifery as profession.

> *'My Aunt had prolonged labour. As there was no trained birth attendant in our remote village, the baby died within womb. I thought if I had training, I could be of help.'*
>
> *Midwifery student in BRAC University institution*

## Course experience

Experiences differed from public and BRAC University institutions. Since in public institutions, midwifery was an add-on course, midwifery students faced discrimination from nursing students. Some even reported discrimination by the faculties and authorities. In many government institutions, where midwifery courses were added, B.Sc. nursing was the only other course apart from nursing. Naturally, this led to more discrimination, as midwifery was a diploma level course and thus considered to be lower level. Nursing students separated the floors between them and the midwifery students. In the dining halls, midwifery students were not allowed in when nursing students were taking their meals.

> *'Since our institution is for nurses, our tutor give us very little time and remain busy with nursing students.'*
>
> *Midwifery student in public institution*

> *'Throughout one year, we took meals in the veranda standing beside the drain.'*
>
> *Midwife studied in public institution*

In the same institution, where nursing students had comfortable accommodation, midwifery students were forced to confine themselves into just a few rooms even when excess rooms were available. They also faced problems with bathing, washing, sanitation and water supply.

Early batch students also suffered from lack of course materials. As there were no books, teachers provided sheets (said to be obtained from the internet) and that was the only teaching materials available. As the teachers were nurses, and not midwives, students felt the limitations in what they were able to learn.

For clinical training, those institutions attached to medical college hospitals, had problems of exposure. There were crowds of medical students, intern doctors, trainee doctors, nursing, and midwifery students. In the medical hierarchy, midwifery students were placed at the bottom, and thus faced problems in gaining the appropriate education needed.

BRAC university institutions students had better classroom training. As their institutions were solely for them (as there was no concurrent nursing training), they were well accommodated with satisfactory food and leisure time. However, since they did not have their own hospitals, they were placed in public facilities for clinical training. Those who were in the medical college hospitals experienced the same experience as mentioned above. Moreover, being from non-government institutions they faced issues in terms of language of instruction.

All the students were from the Bangla medium, but in midwifery course the language of instruction was in English, which led to initial struggle for some students. Those who were from a humanities (non-science) background also suffered set-backs.

## Deployment

Initially when students joined the course, they reported that they never expected a government job, particularly at class 2 level and this was truer of those who studied in BRAC university institutions. This led to most students being satisfied with the level of job they could get. However, the places where they were poted, was in most cases, far away from home, creating issues such as loneliness and unease in living in a new location. Students, irrespective of public or BRAC university institutions, preferred to join the government sector and those who were working in non-governmental facilities were waiting for a government role.

## Integration into the health system

During the course, students reported that they experienced difficulties in working with other health professionals, such as physicians and nurses, in regard to labour room duties. The midwives felt as though they were the last to arrive and this valued the least. This was also experienced when they returned home, where despite some family members and neighbours welcoming the information about maternal care, they were not receptive to antenatal check-ups or allowing the midwife to conduct a delivery. The midwife was perceived to be too young, and as they were unmarried, had little life experience and thus no authority. Instead, the widwife needed to gain the confidence of rural traditional birth attendants, who after being satisfied with their knowledge, allowed them to conduct deliveries.

Midwives reported that after joining the government-run facilities, they are facing difficulties, whereby nurses want them to work as a nurse alongside them, as there is not a continual admittance of women in labour. Since they are not trained in general nursing, discharging general nurses' duties is embarrassing, particularly with male patients. However, midwives generally feel that they need to oblige with the nurses requests, as if they do not, the nurse will not engage or cooperate with them.

> *'I do night duty alone. The other night 9 patients came of which 2 were related to delivery and other 7 general patients. I had to manage those 7 general patients too.'*
>
> *Midwife working in public facility and trained in public institute*

Only a few examples were cited where a pregnant woman and her attendants refused to receive service from a young midwife and left the facility in search of another provider.

As in most government facilities, the support staff (aids), conduct normal deliveries and receive a monetary incentive in exchange, thus they are reluctant to allow midwives to assist due to fear of losing the income.

## Foreseeable challenges

Acceptance by the existing health system in allowing midwives to perform their job seems to be a great challenge. Since there are shortages of nurses in general, there is a tendency to use them as nurse. Nurses also are reluctant to allow midwives to perform their dedicated tasks. Ayas, due to fear of losing extra income also resist midwives in discharging their duties. Therefore, dedicated efforts are required to facilitate their work environment.

Acceptance by the service recipients, despite their age and marital status, is again another challenge. Promotion of midwifery services may be helpful to dispel these negative beliefs.

Since nursing already has a B.Sc. course and has started an M.Sc., midwifery should at least establish a B.Sc. course. Further, midwives should have dedicated training institutions bbof their own and not be an add-on in nursing institutions.

# 6 Discussion, conclusions and recommendations

## 6.1 Discussion

### Interpretations of the findings of the study

This study is setting important baseline for the long term impact of training and deploying long dedicated midwives in Bangladesh. It also documents the historical context and factors that were considered during this important policy decision. While it will be difficult to directly attribute the impact of the newly trained midwives in saving maternal and neonatal lives because of absence of control areas, the follow-up studies can look into the trend in the key indicators and explore potential contribution of this programme.

It is too early to comment on whether it is an appropriate intervention or not given the challenges and difficulties the previous programmes have encountered. However, a skilled health workforce dedicated to address maternal and neonatal health should have an important effect, should they have the opportunity to engage with the existing health systems.

In this section we have discussed the key messages from various components of this study under three main objectives, as listed below.

- licensed midwives have necessary knowledge and skills;
- the system is utilising them optimally and efficiently;
- the midwives can make any difference to the health and well-being of women of reproductive age, especially pregnant women and newborns; and
- If not, then what are the barriers and what needs to be done to remove these?

The policy landscaping work that involved desk review and KIIs with the policy makers explored all the above objectives, the user survey has set the baseline for the key maternal and neonatal health indicators aimed to answer the first part of the last objective and the survey with the midwives sought to answer whether the midwives have required knowledge and skills.

### Policy landscaping

As the 3 year diploma certified midwives are a new cadre of health workers merging into the existing diverse health workforce, there has been efforts to create a distinct identity for this group of midwives such as by providing a pink uniform, from other midwives and health workers who perform deliveries, but more emphasis will be needed. Confusion by health professionals amongst the responsibilities of a nurse and midwife is common, especially in the facilities where nurses are few in number and midwives are making up for their duties. As discovered during KIIs, there is a lack of supervision with both capacity and authority from the DGNM and DPHN in ensuring the midwives are able to conduct their work as per their job specification. To empower these young midwives to lead maternal care independently as per there training and job role, it is important to educate and seek cooperation from both physicians and nurses to relieve their current authoritative status. In addition, it is equally important to promote midwifery services in the community to create awareness about this cadre who are looked upon as possibly too young in comparison to the older women who have been providing prenatal and child birth, particularly in rural areas.

In terms of facility preparedness, the UH&FWC are better able to facilitate midwives in carrying out deliveries and has an FWV who is accredited by the BNMC for midwifery tasks. Hence, midwives will be better utilised at UH&HWC than at USC. With regards to career progression, scope for further education for midwives and the ability to reach senior positions in the DGNM that are currently taken up by nurses, need to be ensured and

encouraged. Additionally, in the training facilities, nurses are currently conducting the midwifery courses in nursing institutes, which needs to be adapted so that midwives can take up the role of tutors to midwifery students and separate midwifery institutes are established to ensure sufficient capacity development.

Policy implications of the prime minister's commitment to establishing a new cadre of midwives to reduce maternal mortality are vast. The midwives so far being placed in only UHC and USC which are under DGHS, the DGFP has invested in training the FWVs to ICM standard midwives with an additional 6 month training which has created another group of midwives. It is essential for the government to now decide how this can be made uniform with focus on a specific group of midwives across all facilities. The two departments need to come together also for the purpose of ensuring proper mentoring of CSBAs who have been reported to be underperforming in regards to skilled birth attendance for deliveries taking place at home.

### User survey

The key findings from the household survey are listed in the table below. As shown in the table, most of the indicators, except the skin-to-skin contact after birth have high level of coverage or prevalence. As we have shown in the various graphs in Section 4 that there are increasing trend in almost all the indicators when results were compared to other recent surveys, e.g. BDHS 2014 and BMMS 2016. It would be useful to see how these trends are

**Key findings: Household survey**

| Indicators | Results |
|---|---|
| Percentage of women who received any ANC | 86.3 % |
| Percentage of women who received any ANC from skilled provider | 78.9 % |
| Percentage of women receiving Antenatal care visit 4+ | 38.4 % |
| Number of ANC visits (mean ± SD) | 3.7 ± 2.3 |
| Percentage delivered at health facility | 53.9 % |
| Percentage delivered by a Skilled Birth Attendant (SBA) | 55.8 % |
| Percentage delivered by C-section | 35.2 % |
| Percentage of instruments boiled before the cord was cut | 85.9 % |
| Percentage of mothers who applied nothing to the cord | 69.6 % |
| Percentage of birth that have skin-to-skin contact | 11.2 % |
| Percentage who received colostrum | 98.1 % |
| Percentage of mothers receiving postnatal care from skilled provider | 54.3 % |
| Percentage of new born receiving postnatal care from skilled provider | 54.6 % |
| Percentage of children receiving all basic vaccinations | 80.1 % |
| Percentage of mothers using any contraception method | 79.0 % |
| Percentage of mothers using any modern method | 74.0 % |

It would be important to observe how these indicators and trends are changed when the midwives are fully deployed in the health facilities and have offered their services for at least 2-3 years. We would expect that the institutional deliveries would further increase and so as the deliveries skill birth attendants and the frequency of caesarean section would reduce, especially the one that can be averted with continuous monitoring of labour by a qualified midwife.

### Midwifery survey

The key findings of the midwifery survey are presented in the table below. We have carried out a knowledge test using various scenarios and the average score is quite satisfactory. It is important that these midwives have continuous monitoring, supervision and training to make sure that they have the upto date knowledge and skills.

**Key findings: Midwifery survey**

| Indicator: | Results |
|---|---|
| Motivation to become a midwife is to help people | 82.5 % |
| Percentage of midwives in their first job | 72.7 % |
| Percentage of midwives born in the district of the facility she is posted in | 60.2 % |
| Percentage of midwives performing tasks unrelated to midwifery services | 37.8 % |
| Percentage of midwives wish to work in urban areas in the long term | 66.5 % |
| Percentage of midwives wish to work in public sector in the long term | 99.7 % |
| Percentage of midwives wish to pursue higher education in the long term | 99.7 % |
| Percentage of midwives wish to migrate abroad in the long term | 74.8 % |
| Percentage of midwives reported to have fulfilment as a midwife | 63.0 % |
| Percentage of midwives that have concerns about being transferred | 59.0 % |
| Average score on knowledge test | 66.0 % |
| Percentage of midwives confident to haves skills for managing of labour | 99.6 % |

Most of the midwives are highly motivated and wish to work in public sector in the long run, which is encouraging. However, many of them have also expressed their interest to work in urban areas and also wanted to get migrated abroad in the long term. A significant proportion of the midwives have reported working on tasks that are unrelated to midwifery, which is a concern.

## 6.2 Conclusions

Integrating the midwives in the health systems would continue to be a major challenge with many areas of potential issues from the top-level policy making to local level management.

As from the survey findings and evidence from previous nationally represented surveys, there is a positive trend in most of the maternal, neonatal, and reproductive health indicators. However, the rates of caesarean section is on a rise and already above the WHO recommended rate. Not only are caesarean section deliveries expensive in comparison to normal delivery, but the costs of maternal health services are high, more so in the private sector.

Midwives deployed at the health facilities are largely motivated. Some expressed dissatisfactions regarding the training and the work they are currently conducting as many of the tasks are unrelated to midwifery. Midwives have proven to have a satisfactory level of knowledge and acquired the required skills, but many reported of not being authorised by supervisors to perform several midwifery tasks. Lack of necessary equipment and supplies at the facility is another reason for constraining the midwives from sufficiently carry out their duties.

The ambition by most midwives is to work in the public sector though they have concerns about being transferred. Many midwives also have plans to migrate abroad in the future raising the future challenge of rural retention.

## 6.3 Recommendations

In the presence of a range of health care providers operating at the field, further effort is needed to carve out a distinct and valued identity within the health system at the central and local level for these 3 year diploma educated midwives. An awareness among the community is essential in order for mothers to be informed, seek out and learn to trust these relatively younger midwives in comparison to the traditionally elder health care providers for prenatal and child birth.

It is essential to provide the midwives an enabling working environment. This can be brought about in multiple ways. Firstly by clarifying, communicating and educating the senior health workers and physicians the exact job description of a midwife. This should avoid midwives from conducting tasks that are unrelated to midwifery and instead be permitted/authorised to carry out tasks that they have been trained to do. Secondly, facilities housing midwives need to be equipped with the appropriate functioning equipment and supplies to assist midwives otherwise there potential will be underutilised. Lastly, proper management, supervision and training of midwives needs to be ensured.

For further growth with respect to knowledge and career, there needs to be a clear career trajectory for midwives. To some extent, this will avoid frustration and demotivation among midwives in the long run and may also manage rural retention and out migration. To capture the progress of these midwives, additional research including an endline survey with a follow up on the same cohort of midwives for which the consent has already been taken, would be beneficial to this programme.

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# Annex A Additional data tables

### Table 35: Knowledge test scenario 1

| Knowledge test: Scenario 1 | | | | |
|---|---|---|---|---|
| Scenario 1 (prenatal care): A 29-year old woman comes in her fourth pregnancy. She has three living children, all born at home. She comes for her first visit at 32 weeks gestation. She complains that she has had bleeding since last night. When asked she answers that the baby is still moving. | | | | |
| | Total | Completed diploma in: | | |
| | | 2015 | 2016 | 2017 |
| **Midwife would ask the woman:** | | | | |
| **Whether she had any bleeding or spotting previously in this pregnancy** | 79.6 | 81.5 | 76.0 | 82.6 |
| **If she had any pain or contraction with the bleeding** | 74.8 | 75.1 | 76.7 | 62.5 |
| **If she had any treatment at home or elsewhere for this bleeding** | 51.2 | 49.5 | 54.2 | 50.0 |
| **What was she doing when the bleeding started** | 45.7 | 46.5 | 40.0 | 69.6 |
| **None of the above/ do not know** | 0.0 | 0.0 | 0.0 | 0.0 |
| **Physical examinations to be conducted by midwife** | | | | |
| **Look at genital area to see if bleeding from vagina and the amount of bleeding** | 61.6 | 60.9 | 61.2 | 69.6 |
| **Examine conjunctiva for anaemia** | 81.4 | 85.9 | 73.3 | 87.5 |
| **Take Blood pressure** | 93.9 | 96.2 | 91.7 | 87.5 |
| **Listen to the foetal heart sound** | 84.4 | 85.3 | 88.3 | 56.5 |
| **Abdominal exam for foetal position** | 60.8 | 62.0 | 58.7 | 62.5 |
| **None of the above/ do not know** | 0.0 | 0.0 | 0.0 | 0.0 |
| **Physical examinations not to conduct** | | | | |
| **Per vaginal examination** | 93.3 | 93.5 | 91.7 | 100.0 |
| **None of the above/ do not know** | 6.7 | 6.5 | 8.3 | 0.0 |
| **Possible causes of bleeding** | | | | |
| **Placenta Previa** | 95.2 | 97.8 | 92.6 | 87.5 |
| **Placental abruption** | 69.0 | 69.6 | 66.9 | 75.0 |
| **Trauma to vagina** | 81.5 | 82.1 | 76.9 | 100.0 |
| **None of the above/ do not know** | 0.3 | 0.0 | 0.8 | 0.0 |
| **Suppose the history and physical examination suggests that the provisional diagnosis is placenta previa and she is still bleeding vaginally. What treatment or advice would you give?** | | | | |
| **Reassure the women and explain what is happening** | 59.0 | 53.8 | 65.0 | 69.6 |
| **Start intravenous fluid** | 32.6 | 37.0 | 24.0 | 43.5 |
| **Make referral to hospital with CEmONC facility** | 94.2 | 94.6 | 95.9 | 82.6 |
| **Ask the family to take along possible blood donors, if possible** | 45.6 | 42.4 | 50.8 | 43.5 |
| **None of the above/ do not know** | 0.9 | 0.0 | 2.5 | 0.0 |

| Knowledge test: Scenario 1 | | | | |
|---|---|---|---|---|
| | Mean ± SD | | | |
| | Median | | | |
| Total score out of 17 | 12.0 ± 2.3 | 12.1 ± 2.2 | 11.8 ± 2.4 | 12.3 ± 2.5 |
| | 12.0 | 12.0 | 12.0 | 11.5 |
| Total | 100.0 | 55.9 | 36.8 | 7.3 |
| Number | 329 | 184 | 121 | 24 |

## Table 36 Knowledge test scenario 2

| Knowledge test: Scenario 2 | | | | |
|---|---|---|---|---|
| Scenario 2 (delivery care): A 24-year-old women in her second pregnancy arrives at your facility with strong contractions for the last 4 hours. She says her pregnancy is 'full 10 months'. Her first baby was delivered at home with no complications. | | | | |
| | Total | Completed diploma in: | | |
| | | 2015 | 2016 | 2017 |
| Midwife would ask the woman: | | | | |
| When did the contractions start | 74.4 | 76.3 | 73.9 | 62.5 |
| How often are the pains/contractions coming | 69.2 | 71.4 | 68.5 | 56.2 |
| Have her 'waters' broken | 94.6 | 94.5 | 94.8 | 93.8 |
| What colour is the fluid she is leaking | 37.7 | 34.8 | 42.3 | 37.5 |
| Is the baby moving | 82.1 | 86.7 | 75.4 | 81.2 |
| Is there any bleeding | 56.0 | 59.9 | 49.9 | 56.2 |
| Has she had any show? | 24.3 | 20.2 | 28.1 | 37.5 |
| None of the above/ do not know | 0.0 | 0.0 | 0.0 | 0.0 |
| Physical examinations to be conducted by midwife | | | | |
| Pulse | 87.2 | 87.9 | 86.1 | 87.5 |
| Temperature | 82.0 | 84.5 | 78.4 | 81.2 |
| Blood pressure | 97.4 | 98.2 | 95.7 | 100.0 |
| Check for oedema | 65.6 | 67.6 | 63.3 | 62.5 |
| Abdominal exam for presentation and position of the baby | 53.7 | 53.8 | 49.2 | 75.0 |
| Listen and count foetal heart | 83.8 | 82.9 | 86.8 | 75.0 |
| Frequency and length of contractions | 18.5 | 18.8 | 15.4 | 31.2 |
| Per vaginal exam | 82.0 | 83.8 | 80.6 | 75.0 |
| None of the above/ do not know | 0.0 | 0.0 | 0.0 | 0.0 |
| Immediate next steps | | | | |
| Admit the women | 76.2 | 75.4 | 75.4 | 87.5 |
| Use partograph to monitor the labour | 77.0 | 75.2 | 80.1 | 75.0 |
| Encourage her to keep mobile | 79.3 | 80.3 | 77.4 | 81.2 |
| Encourage her to drink and take light food | 70.6 | 72.7 | 62.7 | 93.8 |
| None of the above/ do not know | 0.0 | 0.0 | 0.0 | 0.0 |
| | Mean ± SD | | | |
| | Median | | | |
| Total score out of 19 | 15.6 ± 2.9 | 15.7 ± 2.8 | 15.2 ± 2.9 | 16.1 ± 3.7 |
| | 16.0 | 16.0 | 15.0 | 17.0 |
| Total | 100.0 | 55.9 | 36.8 | 7.3 |
| Number | 329 | 184 | 121 | 24 |

### Table 37: Knowledge test scenario 3

| Knowledge test: Scenario 3 | | | | |
|---|---|---|---|---|
| Scenario 3 (postnatal care): A woman delivered at home three days ago by a traditional birth attendant (TBA). Her waters had broken two days before she delivered. The TBA performed one or two per vaginal (PV) exams during labour. Today you have called to see the woman and baby and the woman complains she feels feverish. | | | | |
| | Total | Completed diploma in: | | |
| | | 2015 | 2016 | 2017 |
| **Midwife would ask the woman:** | | | | |
| **How long she was in labour** | 56.9 | 60.0 | 52.3 | 56.2 |
| **How long she has felt feverish** | 73.8 | 74.7 | 72.1 | 75.0 |
| **What is her vaginal discharge like** | 71.2 | 74.2 | 64.8 | 81.2 |
| **Does she have any pain** | 58.7 | 58.8 | 57.7 | 62.5 |
| **Does she have any pain/burning when passing urine** | 49.9 | 50.4 | 50.2 | 43.7 |
| **None of the above/ do not know** | 0.6 | 0.2 | 1.2 | 0.0 |
| **Physical examinations to be conducted by midwife** | | | | |
| **Pulse** | 83.7 | 85.7 | 81.1 | 81.2 |
| **Temperature** | 94.0 | 95.7 | 90.1 | 100.0 |
| **Blood pressure** | 93.4 | 94.0 | 91.3 | 100.0 |
| **Abdominal exam** | 45.7 | 40.6 | 51.5 | 56.2 |
| **Look at pad/observe lochia** | 66.1 | 69.0 | 62.4 | 62.5 |
| **Examine breasts** | 46.8 | 45.2 | 49.9 | 43.7 |
| **None of the above/ do not know** | 0.0 | 0.0 | 0.0 | 0.0 |
| **The provisional/ differential diagnosis identified:** | | | | |
| **Postpartum infection/retained products** | 92.2 | 97.0 | 85.7 | 87.5 |
| **Urinary tract infection** | 56.8 | 51.1 | 64.4 | 62.5 |
| **Physiological response to milk coming in** | 44.1 | 40.9 | 46.5 | 56.2 |
| **None of the above/ do not know** | 0.8 | 0.4 | 0.5 | 6.2 |
| **Suggested treatment for postpartum infection without fever** | | | | |
| **Refer to a doctor** | 62.2 | 62.8 | 62.4 | 56.2 |
| **Paracetamol** | 65.8 | 62.5 | 68.9 | 75.0 |
| **Sponging to reduce temperature** | 51.7 | 48.9 | 52.7 | 68.8 |
| **Drink plenty of fluid** | 66.5 | 60.9 | 74.6 | 68.8 |
| **None of the above/ do not know** | 0.1 | 0.0 | 0.3 | 0.0 |
| | Mean ± SD | | | |
| | Median | | | |
| **Total score out of 18** | 11.8 ± 2.9 | 11.7 ± 2.8 | 11.8 ± 3.0 | 12.4 ± 3.2 |
| | 13.5 | 12.0 | 12.0 | 13.5 |
| **Total** | 100.0 | 55.9 | 36.8 | 7.3 |
| **Number** | 329 | 184 | 121 | 24 |

### Table 38 Knowledge test scenario 4

| Knowledge test: Scenario 4 | | | | |
|---|---|---|---|---|
| Scenario 4 (newborn care): You are attending a delivery. The labour and delivery progress normally, but when born the baby is not crying. The skin is blue, and the baby is breathing at the rate of about 10 per minute. | | | | |
| | Total | Completed diploma in: | | |
| | | 2015 | 2016 | 2017 |
| **Possible health issues of the baby** | | | | |
| **Birth asphyxia** | 84.8 | 90.0 | 76.2 | 87.5 |
| **Neonatal asphyxia** | 43.3 | 39.3 | 49.2 | 43.7 |
| **Severe foetal distress** | 38.9 | 42.7 | 33.6 | 37.5 |
| **None of the above/ do not know** | 1.4 | 0.0 | 2.5 | 6.2 |
| **Immediate next steps** | | | | |
| **Cut the cord** | 60.3 | 63.4 | 56.2 | 56.2 |
| **Dry the baby** | 89.9 | 89.7 | 89.3 | 93.8 |
| **Wrap the baby with clothes** | 86.5 | 85.3 | 87.1 | 93.8 |
| **Check Appearance/ skin colour** | 49.9 | 44.7 | 56.5 | 56.2 |
| **Check Pulse rate** | 28.4 | 29.3 | 26.4 | 31.2 |
| **Check Grimace/ reflex** | 60.6 | 62.2 | 59.2 | 56.2 |
| **Check Activity** | 40.6 | 38.3 | 43.6 | 43.7 |
| **Check Respiration** | 67.8 | 70.8 | 66.7 | 50.0 |
| **Start resuscitation** | 64.6 | 70.3 | 52.5 | 81.2 |
| **None of the above/ do not know** | 0.0 | 0.0 | 0.0 | 0.0 |
| **Actions to take when baby is breathing normally and pink in colour** | | | | |
| **Encourage breast feeding** | 99.2 | 99.3 | 98.8 | 100.0 |
| **Encourage skin to skin contact** | 98.0 | 98.2 | 97.3 | 100.0 |
| **Continue to observe the baby** | 48.7 | 52.5 | 37.8 | 75.0 |
| **None of the above/ do not know** | 0.0 | 0.0 | 0.0 | 0.0 |
| | Mean ± SD | | | |
| | Median | | | |
| **Total score out of 15** | 9.6 ± 2.3 | 9.8 ± 2.4 | 9.3 ± 2.1 | 10.1 ± 2.7 |
| | 9.0 | 9.0 | 9.0 | 10.0 |
| **Total** | 100.0 | 55.9 | 36.8 | 7.3 |
| **Number** | 329 | 184 | 121 | 24 |

### Table 39: Knowledge test scenario 5

| Knowledge test: Scenario 5 | | | | |
|---|---|---|---|---|
| Scenario 5 (family planning service): A middle aged woman comes to you asking if she can have oral contraceptive pills (OCP). | | | | |
| | Total | Completed diploma in: | | |
| | | 2015 | 2016 | 2017 |
| **Midwife would ask the woman:** | | | | |
| **Previous history of taking OCP and if so, if she had any problems** | 81.6 | 80.1 | 82.8 | 87.5 |
| **Had she ever had migraine headaches** | 62.2 | 60.3 | 65.1 | 62.5 |
| **Is she generally well** | 31.9 | 29.7 | 35.5 | 31.2 |

| Knowledge test: Scenario 5 | | | | |
|---|---|---|---|---|
| Has she ever had blood clots in the past | 14.4 | 15.0 | 12.7 | 18.7 |
| Has she ever had jaundice/yellow skin colouring in the past | 28.9 | 33.6 | 22.4 | 25.0 |
| Does she smoke | 9.4 | 10.9 | 6.5 | 12.5 |
| Is she breastfeeding a child under 6 months | 45.8 | 45.7 | 44.0 | 56.2 |
| How old is she (<35) | 47.0 | 48.9 | 47.1 | 31.2 |
| Does she have menstrual problems | 64.1 | 65.0 | 63.0 | 62.5 |
| When was her last menstrual period (LMP) | 54.2 | 52.9 | 54.6 | 62.5 |
| Does she have any lump any in the breasts | 18.1 | 22.2 | 8.0 | 37.5 |
| None of the above/ do not know | 0.0 | 0.0 | 0.0 | 0.0 |
| Physical examinations to be conducted by midwife | | | | |
| Weight | 82.7 | 86.0 | 79.1 | 75.0 |
| Blood pressure | 91.9 | 96.1 | 86.4 | 87.5 |
| None of the above/ do not know | 2.4 | 0.2 | 6.2 | 0.0 |
| Suggested instructions after starting OCP | | | | |
| Start from day 1 of her period | 84.4 | 84.3 | 85.3 | 81.2 |
| Take each day at the same time | 95.9 | 95.5 | 97.0 | 93.8 |
| Use condom or abstain from sexual intercourse for first 7 days | 34.1 | 39.2 | 22.0 | 56.2 |
| None of the above/ do not know | 0.5 | 0.0 | 1.2 | 0.0 |
| Actions to be taken woman misses a dose of OCP | | | | |
| Continue taking the pill | 94.8 | 94.7 | 93.8 | 100.0 |
| Use condoms until the next period | 55.0 | 58.7 | 45.5 | 75.0 |
| None of the above/ do not know | 2.5 | 1.2 | 5.0 | 0.0 |
| | Mean ± SD | | | |
| | Median | | | |
| Total score out of 17 | 10.0 ± 2.8 | 10.2 ± 2.8 | 9.5 ± 2.7 | 10.6 ± 2.6 |
| | 10.0 | 10.0 | 10.0 | 11.0 |
| Total | 100.0 | 55.9 | 36.8 | 7.3 |
| Number | 329 | 184 | 121 | 24 |

# Annex B Key indicators compared with BDHS 2017-18

### Table 40 Comparison of key indicators with BDHS 2017-18

| Indicators | Midwifery survey 2018 | BDHS 2017-18 |
|---|---|---|
| Percentage of women who received any ANC | 86.3 % | 92.0 % |
| Percentage of women who received any ANC from skilled provider | 78.9 % | 81.9 % |
| Percentage of women receiving Antenatal care visit 4+ | 38.4 % | 47.0 % |
| Number of ANC visits (median) | 3.0 | 4.1 |
| Percentage delivered at health facility | 53.9 % | 49.6 % |
| Percentage delivered by a Skilled Birth Attendant (SBA) | 55.8 % | 52.7 % |
| Percentage delivered by C-section | 35.2 % | 32.7 % |
| Percentage of instruments boiled before the cord was cut | 85.9 % | 85.7 % |
| Percentage of mothers receiving postnatal care from skilled provider | 54.3 % | 52.1 % |
| Percentage of new born receiving postnatal care from skilled provider | 54.6 % | 52.2 % |
| Percentage of children receiving all basic vaccinations | 80.1 % | 85.6 % |
| Percentage of mothers using any contraception method* | 79.0 % | 61.9 % |
| Percentage of mothers using any modern method* | 74.0 % | 51.9 % |

* It is possible to have large differences in these indicators as BDHS sample women of reproductive, whereas the midwifery survey sampled mothers who have a children less than two years old and the contraceptive use between these groups may vary.