



**USAID's MaMoni Maternal and Newborn Care
Strengthening Project (MaMoni MNCSP)**
(USAID Cooperative Agreement # 720388-18-CA00002)

**Findings from the Quality of Care Survey in
Manikganj District**

MaMoni MNCSP Baseline Survey Report

July 2020



This report summarizes the baseline findings of MaMoni MNCSP project quality of care (QoC) survey in Manikganj. As a consortium member of MaMoni MNCSP, International Centre for Diarrheal Disease Research, Bangladesh (icddr,b) conducted the baseline survey of MaMoni MNCSP facilities. The aim of this survey was to portray the baseline situation of quality of care for maternal and newborn health in MaMoni MNCSP facilities included in the QI initiative.

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ACRONYMS

ACS	Antenatal Corticosteroid
ANC	Antenatal Care
CEmONC	Comprehensive Emergency Obstetric and Newborn Care
DH	District Hospital
EDD	Expected Date of Delivery
EmONC	Emergency Obstetric and Newborn Care
HBsAg	Hepatitis B Surface Antigen
IFA	Iron-Folic Acid
IMCI	Integrated Management of Childhood Illness
LMP	Last Menstrual Period
MCHIP	Maternal and Child Health Integrated Program
MCWC	Manikganj Mother and Child Welfare
MEL	Monitoring, Evaluation and Learning
MgSO ₄	Magnesium Sulfate
MMR	Maternal Mortality Ratio
MNCSP	Maternal and Newborn Care Strengthening Project
MNH	Maternal and Newborn Health
MR	Menstrual Regulation
PDCA	Plan, Do, Check, Act
PNC	Postnatal Care
PPFP	Post-partum Family Planning
PPH	Post-partum Hemorrhage
PROM	Premature Rupture of Membrane
QED	Quality, Equity, Dignity
QI	Quality Improvement
QoC	Quality of Care
SOP	Standard Operating Procedure
UHC	Upazila Health Complex
USG	Ultrasonogram
VDRL	Venereal Disease Research Laboratory
WHO	World Health Organization

EXECUTIVE SUMMARY

Background

The World Health Organization (WHO) envisions “*a world where every pregnant woman and newborn receives quality care throughout the pregnancy, childbirth and the postnatal period.*” It is evident that ANC can save lives by averting maternal deaths from pregnancy-related complications and reducing the prevalence of stillbirths. The time around childbirth (labor, delivery and post-partum) is a crucial period for saving a majority of maternal and newborn lives and preventing stillbirths. With the increase in the coverage of facility deliveries, it is important to ensure quality of care. Poor quality of care not only increases mortality and morbidity, but also reduces utilization of effective interventions. The WHO definition of quality of care is “*the extent to which health care services provided to individuals and patient populations improve desired health outcomes. In order to achieve this, health care must be safe, effective, timely, efficient, equitable and people-centered.*” The MaMoni MNCSP Quality of Care (QoC) survey aims to assess the provision of care and experience of care for labor, delivery and antenatal care services.

Methods

We used the WHO QoC framework for the QoC assessment of labor and delivery services in selected public and private health facilities. Case observations (labor, delivery and post-partum period); exit interviews of the women whose deliveries were observed; and hospital record reviews were employed as data collection methods. We also observed ANC consultations from the same facilities for assessing provision of care during ANC service delivery. Women receiving ANC consultation were interviewed to understand their experience of care during ANC. Facilities from Manikganj district under MaMoni MNCSP Quality Improvement (QI) initiatives that provided delivery services were included in this study. Data collection continued between May and August 2019.

Key Findings

Quality of care for labor and delivery services

Standard 1: Evidence-based care for maternal and newborn health

- Input level indicators
 - Overall, 97% of facilities had 7.1% chlorhexidine solution in their delivery room; newborn bag and mask was available in 90% of facilities.
 - Injection oxytocin was available in 35% of facilities on the day of observation. Availability varied by level of facility; 100% in the district hospital and maternal and child welfare center (MCWC), 66% in upazilla health complexes (UHCs), 23% in union level facilities, and 100% in the 2 private hospitals.
 - Overall, 10% facilities had magnesium sulfate available on the day of observation; however, this included 100% availability in the district and private hospitals, and no availability in the other facilities levels (MCWC, UHCs, and union level facilities).
 - Antenatal corticosteroid (ACS) was rarely available in the facilities.
- Process level indicators
 - *Routine care during labor, delivery and the immediate postpartum period*

- Appropriate prenatal history and risk assessment is crucial for patient management. Overall, 43% of women were asked about current pregnancy complications, while only 12% women were asked about previous pregnancy complications.
 - Partograph was initiated among 26% of women in first stage of labor.
 - Overall, 66% women were delivered by C-section; the percentage of delivery by C-section was higher at private facilities (84%), followed by tertiary care public health facilities (District Hospital/Maternal and Child Welfare Centre) at 61%.
 - Around 83% of women received injectable oxytocin within one minute of delivery (*MaMoni MNCSP project performance indicator/WHO Core MNC QoC Indicator*).
 - Less than half of the women received monitoring of danger signs within two hours' post-partum. Blood pressure was monitored among 42% of postpartum women. Monitoring of vaginal bleeding took place for 38% of women.
 - Around 71% of newborns initiated breastfeeding within one hour of birth (*MaMoni MNCSP's project performance indicator/WHO Core MNC QoC Indicator*).
 - Overall 9% of newborns received all five essential newborn care practices.
 - Birth weight was documented for around two-thirds of newborns (*WHO Core MNC QoC Indicator*).
- *Maternal and newborn complications*
 - Among 1,923 deliveries reviewed, the prevalence of prolonged labor, eclampsia/severe preeclampsia, and PPH were 4%, 2% and 0.4%, respectively.
 - We reviewed a total of 38 eclampsia/severe preeclampsia cases. Overall around 65% eclampsia/severe preeclampsia cases admitted in the facilities were treated with magnesium sulfate; though administration was higher in district hospitals (74%) than in private hospitals (40%) (*MaMoni MNCSP project performance indicator*).
 - Out of 1,795 live births reviewed, 5% were preterm and 2.2% of newborns suffered from birth asphyxia. KMC was initiated for around 5.8% of preterm newborns weighing less than 2500g (*WHO Core MNC QoC Indicator*). Around 34% of the premature rupture of membrane (PROM) cases received ACS.
 - *Postnatal care*
 - Postnatal assessment of mothers for danger signs was low. Around half of the mothers were checked for excessive bleeding before discharge, while blood pressure was measured for around 38% of mothers.
 - For 31.1% of newborns, providers inspected the cord stump. Monitoring practices were better in private hospitals compared to public facilities.
 - Around one third (34%) of women were counselled on post-partum family planning (PPFP), while 9% of recently delivered women received family planning methods before discharge.

Standard 2: Health information systems

- Only 20% facilities had registers for patients referred for emergency obstetric and newborn care (EmONC).
- Availability of referral forms was very low (10%).
- In 13% of facilities, the Quality Improvement (QI) team regularly extracts data and calculates and visualizes prioritized quality indicators. Data was used for decision making in around 10% of facilities.

Standard 3: Functional referral system

- Observations include cases from both public and private facilities, so any referral note (govt. slip and others) given was included in the analysis. 6% of cases were referred out, out of which 66% were given a referral note
- A majority of the referral notes contain only diagnosis. History and management given were not mentioned.

Standard 4: Communication

- Almost all the women who delivered in the facilities received counselling before discharge (94%) (*MaMani MNCSP project performance indicator/WHO Core MNC QoC Indicator*).
- Around 84% of women reported that they were given an opportunity to discuss their concerns and preferences.

Standard 5: Respect and dignity

- Around 83% of women reported that they were adequately informed by health workers about their health and care.
- Few women (1.1%) reported physical or verbal abuse during their stay at the hospital discharge (*MaMani MNCSP project performance indicator/WHO Core MNC QoC Indicator*).

Standard 6: Emotional support

- Around 63% of women who wanted a companion during labor and childbirth, ending up having a birth companion (*MaMani MNCSP project performance indicator/WHO Core MNC QoC Indicator*).

Standard 7: Competent and motivated human resources

- Delivery roster was displayed in 17% of facilities.
- One in 10 facilities had regular quality assurance activities with observed documentation.
- 45% of facilities had a mechanism of receiving client feedback on health care services.

Standard 8: Essential physical resources available

- Around 79% of facilities had basic provision of water supply in the delivery area.
- Almost all facilities had basic sanitation facilities available for women during and after labor and childbirth.

- Electricity was available in 75% of facilities.
- More than half of the facilities (55.2%) provided for safe disposal of sharp waste.
- Safe disposal of infectious waste was available in 44% of facilities.

Quality of care for antenatal care (ANC) services

Provision of care

- Findings on provision of care for ANC were reported based on observation of ANC case consultations.
- Around 85% of the women were asked about history of previous pregnancy loss (menstrual regulation (MR)/abortion).
- Inquiry about current pregnancy complications and previous pregnancy complications are critical components of history taking during ANC consultation. During history taking, around 87% women were asked about current pregnancy complications. Among the women who had history of previous pregnancy, around one-third were asked about previous pregnancy complications.
- During physical examination at ANC, around three-fourths of women were assessed for uterine height. Fetal presentation and fetal heart sound were assessed among 23% and 45% of the women. Assessment of edema and urine protein were done only among 41% of women.
- Routine laboratory tests during pregnancy are important for identification of complications and to prevent adverse pregnancy outcomes. Overall, 79% of women were asked or referred to for hemoglobin measurement. Blood grouping or typing was recommended to 41% of women. Around half of the women were asked or referred to undertake different urine tests and an ultrasonogram scan.
- The WHO 2016 ANC guidelines recommend context-specific routine supplementation of iron-folic acid (IFA), calcium, vitamins, and deworming medications for improving maternal and perinatal outcomes. Among all women observed during ANC, 84% were prescribed IFA, 55% calcium and 39% vitamins. None of the women who were in third trimester of pregnancy, were either prescribed or supplied misoprostol and chlorhexidine.
- Around 48% of women received counselling on nutritious diet, while 16% received counselling on danger signs. Less than one-third of women received counselling on different components of birth preparedness.

Experience of care among ANC clients

- Experience of care information was collected during client exit interviews using a structured questionnaire. Women were asked about different components of counselling. They were asked whether they were satisfied with the level of information received, not satisfied, or not informed at all. Overall, satisfaction with counselling on specific topics areas was low: 41% of women were satisfied with the counselling on nutritious food, 25% on selection of place of delivery, 17% on birth preparedness, and only 10% on danger signs during pregnancy.

- A majority of the participants were satisfied with the attitude of the provider (87%), opportunity to discuss concerns (87%), and cleanliness of the facilities (73%).
- Very few participants at the district hospital were satisfied with the waiting time. Overall, satisfaction on different ANC service provisions was less among the mothers at the district hospital.

Conclusion

Findings from the MaMoni MNCSP QoC survey provide a comprehensive picture of the quality of care with regard to maternal and newborn health in facilities included in the QI initiative. These results depict the baseline situation in the study facilities against which progress of the project can be measured. The findings provide critical insights into areas that need careful attention by the project for improvement.

BACKGROUND

According to WHO, globally, 2.6 million children died within the first four weeks after birth (neonatal period) in 2016 – approximately 7,000 deaths daily. Half of all neonatal deaths occur within 24 hours after birth and 75% of the neonatal deaths occur within seven days (1). Moreover, neonatal mortality accounts for 46% of all under five deaths (2). Children are at the highest risk of dying during the neonatal period (30 deaths per 1000 live births in Bangladesh) with the risk decreasing over the course of time (3). The majority of newborn deaths occur in developing countries due to low access to health care (2). The greatest proportion of newborn deaths occur in southern Asia (39%), followed by sub-Saharan Africa (38%) (3).

In Bangladesh, neonatal deaths constitutes 67% of the overall under-five deaths, although the country achieved the MDG target for under-five mortality rate (3). From 1994 to 2014, there has been a sharp decline in under-5 mortality rate, from 133 to 46 per 1,000 live births. However, within the same timeframe, neonatal mortality only declined from 52 to 28 per 1,000 live births (5). This much slower reduction of neonatal mortality has led to a rise in the proportion of neonatal deaths as part of overall under-five deaths, from 40% in 1993-1994 to 60% in 2010-2014 (5). There are also vast disparities in neonatal mortality within the population related to household wealth, mother's educational level, and geographic location. Newborns from poorer families and those in which the mother is uneducated are at higher risk of newborn mortality compared to wealthier families or a families with an educated mother (5). Neonates who die suffer from conditions or diseases that are mostly due to a lack of quality of care during birth and post-birth management (2). Skilled and quality care is essential to avert this scenario. The WHO, in collaboration with other international experts, has identified interventions proven to result in improved newborn outcomes. These focus on interventions during pregnancy and the immediate neonatal period. To achieve SDG target 3.2 (neonatal mortality of 12 per 1,000 live births and under-5 mortality of 25 per 1,000 live births), Bangladesh has to further reduce under-5 mortality by 44%, including newborn deaths by 60%.

Everyday around 830 women die globally due to complications of pregnancy and childbirth, and 99% of these deaths occur in developing countries (6). Most of these deaths could be averted by skilled care before, during, and after childbirth. There was a rapid decline of maternal mortality between 2001 and 2010. Within this timeframe the maternal mortality ratio (MMR) decreased to 194 from 322 per 100,000 live births (7). According to the Bangladesh Maternal Mortality and Health Care Survey (BMMS) 2016, Bangladesh's MMR is 196 per 100,000 live births, which is similar to the 2010 BMMS (194 per 100,000 live births).

On the other hand, utilization of the complete continuum of maternity care (antenatal care, delivery care, and postnatal care from medically trained provider) has increased from 19% in 2010 to 43% in 2016 (8). Antenatal care (ANC) seeking from a medically trained provider has increased to 74%, compared to 55% in BMMS 2010. However, disparities in utilization persists among wealth quintiles (51% vs 93% between the lowest and highest quintiles), and educational status (48% vs 93% in mothers with no education and mothers with secondary or higher education) (8). In the 2016 BMMS, 37% of pregnant women received four or more ANC (8), which was only 23% in the 2010 survey (7). Deliveries attended by a medically trained provider more than doubled in six years (27% in 2010 vs 50% in 2016). Seeking facility based care for reported maternal complications increased from 29% in 2010 to 46% in 2016 (7,8). Despite these improvements in utilization of maternity care, maternal mortality reductions in Bangladesh have stalled.

This paradox of increased health care utilization with minimal or no impact on mortality indicators raises the issue of quality of care to the forefront. A multi-country analysis found that improvements in quality of care are more important in reducing maternal mortality than high utilization of care (9). Low quality of care not only causes low reduction of mortality; it also limits the utilization of the program itself (10). In order to increase health care utilization along with positive changes in health outcome, maintaining WHO Standards for Improving Quality of Maternal and Newborn Care in Health Facilities¹ is essential.

MaMoni MNCSP

The USAID-funded MaMoni Maternal and Newborn Care Strengthening Project (MaMoni-MNCSP) led by Save the Children Bangladesh works with a broad objective of increasing equitable utilization of quality maternal and newborn care services. Key outcomes will be achieved through improvements in four closely linked intermediate results (IRs) to advance health system responsiveness: MNH service quality and governance; access to and demand for services and healthy household practices; and national capacity to deliver these services with quality at scale.

The MaMoni-MNCSP strategic objective aligns with Government of Bangladesh (GoB) priorities to target the major causes of maternal and newborn deaths. The MaMoni-MNCSP consortium embraces the GoB vision of “a Bangladesh where there are no preventable deaths of newborns or stillbirths, where every pregnancy is wanted, every birth celebrated, and women, babies and children survive, thrive and reach their full potential” and will meaningfully contribute to achieving its goals of reducing the neonatal mortality rate to less than 18/1,000 live births and the maternal mortality ratio (MMR) to less than 121/100,000 live births by 2022.

As a member of MaMoni MNCSP consortium, International Center for Diarrheal Disease Research, Bangladesh (icddr,b) planned, organized, implemented, analyzed and developed this report with technical assistance from the monitoring, evaluation, research and learning team of MaMoni MNCSP.

Objectives

The MaMoni MNCSP baseline assessment included a household survey, health facility assessment, and quality of care survey in priority MaMoni MNCSP districts. The overall aims of the three surveys are to track the coverage of maternal and newborn interventions in MaMoni MNCSP priority districts and to evaluate the impact of the program on reductions in neonatal mortality in intervention areas at the end of the project. In this quality of care (QoC) survey, we investigated quality of maternal and newborn health (MNH) care in selected facilities of Manikganj district, using the WHO QoC framework.

¹ 1) Evidence based management of complications; (2) Actionable information systems; (3) Functional referral systems; (4) Effective communication with women and families; (5) Patients/caretakers treated with respect; (6) Emotional support for parents/caretakers of newborn (7) Competent, motivated staff; (8) Infrastructure, environment and resources to provide care

METHODOLOGY

Study design

We employed a cross sectional study design for the QoC assessment in selected public and private health facilities. Data collection methods included case observations, exit interviews, and hospital record reviews. Data collection was conducted between May and August 2019.

Study sites

For the QoC assessment, facilities under MaMoni MNCSP quality improvement (QI) initiative in Manikganj district that provide delivery services were included. Facilities participating in the MaMoni QI initiative were purposively selected for the assessment. The selected intervention health facilities were:

- Manikganj District Hospital (DH) (250 bed capacity)
- Manikganj Mother and Child Welfare Centre (MCWC)
- 3 Upazila Health Complexes (UHCs)
 - Satura UHC
 - Daulatpur UHC
 - Shibalaya UHC
- 24 Union Health and Family Welfare Centers (UHFWCs)
- 2 private hospitals
 - Monno Medical College and Hospital, Manikganj
 - Islami Bank Community Hospital, Manikganj

Table 1: List of study facilities

Sub-district	DH	MCWC	UHC	UHFWC	Private Facilities	Total
Manikganj	1	1	N/A	8	2	12
Shibalaya	N/A	N/A	1	4	0	5
Saturia	N/A	N/A	1	8	0	9
Daulatpur	N/A	N/A	1	4	0	5
Total	1	1	3	24	2	31

Ethical considerations

IRB approval

The survey protocol was approved by the Institutional Review Board of icddr,b and the Ethical Review Committee of Save the Children USA.

Informed consent process

Participants were informed of the objective of the study along with associated risks or benefits and were asked to participate voluntarily. Informed written consent was taken from the participants. Participants were assured of confidentiality in the handling of the information they provided and that they would only be identified with unique IDs in the study. Study data were kept in strict confidence and in safe storage, only available to the senior staff on the study. Participants were informed that the study was entirely voluntary and they had the right to withdraw from the study at any stage. Written consent, which was indicated by a signature or thumbprint, was taken from the participants. Only consenting subjects were enrolled in the study. All interviews were conducted in Bangla.

Safety considerations

This was an observational study in which pregnant women presenting in labor and pregnant women attending regular ANC in the selected health facilities were observed and interviewed. There were no expected risks to the participants in the study.

Reimbursement or compensation to study participants

No direct monetary compensation was provided to the participants in this study.

Data collection methods and participants

This baseline QoC assessment included a health facility assessment, case observations, structured interviews, case simulation interviews and record reviews. Relevant assessment tools and their potential sources are provided in Annex 2. The major data collection methods are described below.

Facility assessment

The health facility assessment was conducted using a structured observation checklist adapted from the Bangladesh Health Facility Assessment Survey 2017 (Annex 2). The facility assessment focused on overall quality of the facility at a structural level, with special attention to the indicators related to maternal and newborn health services. The domains of the facility assessment included general service availability, readiness of the facilities for MNH services, provision of sanitation, electrical supply, availability of medicines in the store or pharmacy, laboratory services, infection control, waste management, equipment and sterilization facility, and blood transfusion services.

Case observation

We observed the quality of delivery care, immediate newborn care, and postnatal care services within the first 24 hour period (before discharge from the facility) at the district hospital, MCWC, UHCs and private facilities. Delivery case observations were not done in union level facilities, as delivery service utilization was very low during the data collection period. A structured observation checklist adapted from USAID's Maternal and Child Health Integrated Program (MCHIP) was used for the delivery observations (Annex 2). Pregnant women coming to the facilities for childbirth were observed continuously starting from reception to discharge. Service provision during antenatal check-ups was also observed at all facilities, including union level facilities. A structured observation checklist was used to assess the quality of history taking, physical examination, laboratory investigations, and counselling services.

Client exit interview

Client perceptions regarding the overall services of the health facilities, satisfaction regarding services, patient care, behavior of the provider and staff, cleanliness and counselling services were assessed using structured interviews. Pregnant women after receiving an antenatal check-up (at all tiers of facilities) and recently delivered women being observed were interviewed before leaving health facilities.

Case simulation interviews

We were unable to observe deliveries from union level facilities, as delivery service utilization was low during our study period. Therefore, we conducted case simulation-based interviews with the health care providers to understand their knowledge on recommended practices. A case simulation interview questionnaire was developed based on the GoB maternal and newborn standard operating procedure (SOP) (Annex 2). We presented to the provider different scenarios regarding delivery, childbirth, newborn care, and complications during pregnancy and delivery and asked how they would manage the case. The following scenarios were presented to the providers:

- Normal delivery
- Immediate newborn care
- Newborn with birth asphyxia
- Patient in preterm labor with premature rupture of membrane
- Severe preeclampsia/eclampsia
- Post-partum hemorrhage
- Pre-discharge counselling of the patients following facility delivery

We used findings from simulation interviews as proxy indicators for the provision of care from the union level facilities.

Record Review

We reviewed records of 100 delivery cases from each of the facilities to estimate the World Health Organization's Quality, Equity, Dignity Network (QED) outcome level indicators, including maternal deaths, facility stillbirth rate, pre-discharge neonatal mortality rate, obstetric case fatality rate, and premature newborns initiated on KMC. Data extraction tools were developed based on the government registers in the facilities (Annex 2).

Data collection

Data collection team

A team of 12 research physicians and six field research assistants were involved in data collection. A delivery observation team consisted of three physicians and two research assistants whereas one physician and one research assistant were in an ANC observation team. Physicians were responsible for observation of service provision and research assistants conducted the exit interviews. Two teams of physicians (two in each team) conducted case simulation interviews.

The research physicians were qualified MBBS doctors. For delivery observation, we recruited female physicians and female research assistants since it was culturally and religiously more acceptable for them to directly observe deliveries in context of Bangladesh. Field research assistants were first degree holders with a science background. They conducted the interviews with the recently delivered mothers in the facilities before discharge and the pregnant women who came for ANC consultation. For facility assessment, the same trained team collected data from the QoC study facilities involved in the MaMoni MNCSP Health Facility Assessment survey.

A central team of researchers coordinated and supervised the study. The team was also responsible for local adaptation of the uniform protocols and tools, recruitment of staff, training of staff, planning of field implementation, coordination of the supply of logistics for the study, and producing the deliverables on time.

Training

After recruitment of the data collectors, we trained the delivery observation team in the last week of April 2019. In the first week of May 2019, we trained the data collection teams responsible for ANC observations, record reviews, and case simulation interviews. Data collectors were trained on different components of data collection, such as basic communication skills, the consent taking process, administering tools, and extracting records from different registers. One-day refresher training was provided on 13 June 2019 to all team members in their respective field sites.

Data collection system

A tablet-based data collection system was used for the health facility assessment data collection. For the rest of the data collection (e.g., observation of provision of care, exit interviews, record reviews, and case simulation interviews), a paper-based system was used.

Privacy and confidentiality of data

All the client exit interviews took place in a private location chosen by respondents to ensure privacy and allow respondents to provide responses freely without fear of retaliation by health care providers. Hard copies of the study-related forms were stored in secured cabinets in a storage room, under the supervision of the principal investigators. Only approved senior level study personnel had access to the data. After completion of the study, identifier information was removed and only study IDs were used during analysis. Analyses present in this report are aggregate results without identifier information.

Sample Size

A total of 90 delivery cases were observed and 90 recently delivered women were interviewed before discharge. A total of 249 ANC consultations were observed and all pregnant women whose ANC sessions were observed were interviewed before leaving the facility. We have extracted records of 38 admitted cases of eclampsia/severe preeclampsia. Table 2 summarizes the sample size achieved by method and facility type.

Table 2: Sample size

No. of completed questionnaire forms	Name of facility					
	District hospital	MCWC	UHC	UH&FWC	Private Facilities	Total
Facility assessment	1	1	3	24	2	31
ANC observation	31	30	55	102	31	249
Exit interview of pregnant women after ANC	31	30	55	102	31	249
Delivery case observation	30	6	23	N/A	31	90
Exit interview of RDW before discharge from facilities	30	6	23	N/A	31	90
Record review (delivery cases)	100	100	300	1223	200	1923
Eclampsia/Severe Preeclampsia case review	28	0	0	0	10	38
Case simulation Interview	N/A	N/A	N/A	30	N/A	30

Data analysis

Microsoft SQL was used for data entry. After rigorous data cleaning through range and consistency checks, cleaned data were transferred into Stata® version 14.0 (statistical software) for analysis. Basic descriptive analysis was done. Percentages were reported for categorical variables. Data was presented using appropriate numerical, tabular and graphical methods.

RESULTS

Standard quality improvement measures during labor, childbirth, and post-partum

The time around childbirth (labor, delivery and postpartum) is a crucial period for saving the majority of the maternal and newborn lives and preventing stillbirths. With the increase in the coverage of facility deliveries, it is important to ensure quality of care. Poor quality of care not only increases mortality and morbidity, it also reduces utilization of effective interventions. WHO's definition of quality of care is "*the extent to which health care services provided to individuals and patient populations improve desired health outcomes. In order to achieve this, health care must be safe, effective, timely, efficient, equitable and people-centered*" (10,16). Quality of care includes two interlinked dimensions: provision and experience of care. The WHO MNH QoC Framework identifies eight standards based on priority evidence-based interventions for measuring progress (9,16). The survey assessed selected quality statements from each of the eight standards, for which the indicators are identified at input, process and outcome level. The quality statements from the WHO MNH QoC framework are used as is, with their accompanying prefix codes. This section presents findings on the baseline situation of WHO quality standards in MaMoni MNCSP facilities included in the QI initiative.

Standard 1: Evidence-based care for during labor, childbirth, and post-partum

The WHO standard 1 quality statement states, "*Every woman and newborn receives routine, evidence-based care and management of complications during labor, childbirth and the early postnatal period, according to WHO guidelines.*" The aim of this statement is to ensure the expected evidence-based management of labor, childbirth and the immediate postnatal period for mothers and newborns in the first few days of life. It includes routine care, early diagnosis of complications, and their appropriate management. Different aspects of quality standard one are given below starting from facility readiness to management of complications.

Availability of equipment and supplies in delivery room

The GoB Maternal Health Strategy identifies essential lists of equipment and supplies for the delivery room (11). The survey data collectors checked availability of supplies in the delivery room using structured checklists (HFA tool). Table 3 shows that less than one third of facilities had a baby weighing scale and oxygen cylinder. A blank partograph was present in 10% of facilities on the day of observation. Among the basic equipment and supplies for routine delivery management, we found that injection oxytocin was available in 35% of facilities, while an IV fluid and infusion set was available in 45% of facilities. Overall, 97% of facilities had 7.1% chlorhexidine solution in their delivery room, and newborn bag and mask were available in 90% of facilities. Availability of logistics and supplies were quite low for upazila and union level facilities.

Guidelines or protocols are essential to maintain standards of treatment given to the patients. These documents are reference materials for service providers on the provision of clinical care for patients. Seven comprehensive emergency obstetric and newborn care (CEmONC) facilities were assessed. Only in 14% of the CEmONC facilities were CEmONC guidelines observed. Postnatal Care (PNC) guidelines were available and observed in 17% of facilities.

Table 3: Percentage of facilities with basic equipment and supplies in the delivery room¹

	Overall (N=29)	DH (n=1)	MCWC (n=1)	UHC (n=3)	Union level facilities* (n=22)	Private hospitals (n=2)
Percentage of facilities with basic essential equipment and supplies available in the delivery room						
Delivery bed with stirrup	41.4	0.0	0.0	33.3	40.9	100.0
Room thermometer ²	0.0	0.0	0.0	0.0	0.0	0.0
Stairs for climbing delivery bed	65.5	100.0	100.0	33.3	63.6	100.0
Examination light ²	44.8	100.0	100.0	33.3	36.4	100.0
Weight machine for baby ²	27.6	0.0	100.0	33.3	18.2	100.0
Stethoscope ²	86.2	100.0	100.0	100.0	81.8	100.0
Oxygen cylinder	24.1	100.0	100.0	66.7	4.6	100.0
Kidney Basin or Gallipot	93.1	100.0	100.0	66.7	95.5	100.0
Blank partograph	10.3	0.0	100.0	33.3	0.0	50.0
Equipment needed for mother						
Gloves	89.7	100.0	100.0	100.0	86.4	100.0
Drape or blanket to cover mother	24.1	100.0	100.0	33.3	13.6	50.0
Inj. Oxytocin ³	34.5	100.0	100.0	33.3	22.7	100.0
Syringe	79.3	100.0	100.0	100.0	72.7	100.0
Cord cutting scissors	86.2	100.0	0.0	66.7	90.9	100.0
Needle holder	65.5	100.0	100.0	66.7	59.1	100.0
Clean perineal pad	41.4	0.0	100.0	33.3	40.9	50.0
IV. fluid and saline set ³	44.8	100.0	100.0	66.7	36.4	50.0
Equipment needed for newborn						
Clean cloth (1 meter×1 Meter); 2 pieces	10.3	100.0	0.0	0.0	4.6	50.0
Umbilical cord clamp and/or thread	31.0	100.0	0.0	66.7	22.7	50.0
7.1% Chlorhexidine solution	96.6	100.0	100.0	100.0	95.5	100.0
Suction bulb or penguin sucker ²	86.2	100.0	100.0	100.0	81.8	100.0
Newborn bag and mask (Ambu bag and mask) ²	89.7	100.0	100.0	100.0	86.4	100.0
Percentage of facilities with written, up-to-date clinical protocols⁴ for newborn care						
PNC guideline	17.2	0.0	0.0	33.3	18.2	0.0
Guideline on management of preterm baby	0.0	0.0	0.0	0.0	0.0	0.0
IMCI guideline	13.8	100.0	0.0	33.3	4.6	50.0
BEmONC guideline	3.5	0.0	0.0	33.3	0.0	0.0
CEmONC guideline ⁵	14.3	0.0	0.0	33.33	N/A	0.0

Notes: ¹Source: Health Facility Assessment ²Observed and functioning. ³Observed and at least one valid. ⁴Observed. ⁵Total number of CEmONC facilities 07 (1 DH, 1MCWC, 3 UHCs and 2 private hospitals). *There were 24 union level facilities, however this analysis was restricted to 22 union level facilities providing normal delivery services.

Assessments at the time of admission

Proper assessment leads to correct diagnosis and appropriate management of the patients (12,15). Clinical assessment of a pregnant woman at the hospital includes proper history taking and physical

examinations. The survey team observed assessments of the study participants at the time of admission, using a structured observation checklist. Table 4 presents the percentage of women who were assessed appropriately (prenatal history/risk factors, vital signs, danger signs, physical exam) at admission. Almost all women were asked about parity and gravida. Health care providers asked 43% of women about current pregnancy complications and only 12% about past pregnancy complications. Current pregnancy record was checked for routine investigations. The majority of women had their ultrasonogram (USG) available and checked by provider (88%), followed by hemoglobin (77%), and blood group reports (70%).

General examinations and assessments of vital signs are important at admission. Around 78% of women had their blood measured, while edema was checked for only 39% at admission. Abdominal and vaginal examination was performed for 84% and 67% of women, respectively.

Table 4: Percentage of women delivered in the facilities assessed appropriately at admission by type of facility and by components of assessments [prenatal history/risk factors, vital signs, danger signs, physical exam], Manikganj 2019*

	Overall** (N=90)	DH&MCWC (n=36)	UHC (n=23)	Private facilities (n=31)	Union level facilities*** (n=30)
Percentage of women delivered in the facility whose:					
Prenatal history for risk factors were taken on					
Age	86.7	72.2	91.3	100.0	70.0
Last menstrual period (LMP)	91.1	77.8	100.0	100.0	96.7
Parity	100.0	100.0	100.0	100.0	86.7
Gravida	100.0	100.0	100.0	100.0	90.0
Time of starting labor pain	71.1	72.2	65.2	74.2	100.0
Frequency and severity of pain	54.4	47.2	60.9	58.1	80.0
Movement of the baby	86.7	83.3	91.3	87.1	80.0
Current pregnancy complications	43.3	27.8	34.8	67.7	56.7
Previous pregnancy complications	11.5	5.0	5.9	26.7	60.0
Current pregnancy record checked for the following:					
Urine Routine Microscopic Examination	55.6	33.3	56.5	80.7	50.0
USG	87.8	77.8	91.3	96.8	93.3
Hemoglobin	77.8	69.4	60.9	100.0	96.7
Blood group	70.0	72.2	47.8	83.9	66.7
VDRL	13.3	8.3	17.4	16.1	10.0
HBsAg	41.1	13.9	26.1	83.9	16.7
Blood sugar	48.9	30.6	26.1	87.1	60.0
Tetanus vaccination	3.3	5.6	0.0	3.2	53.3
Physical examination done for:					
Vital signs					
Temperature measured	6.7	0.0	0.0	19.4	100.0
Pulse counted	35.6	27.8	26.1	51.6	96.7
Blood pressure measured	77.8	80.6	65.2	83.9	100.0
Others					
Anemia checked	44.4	47.2	4.4	71.0	70.0
Jaundice checked	22.2	5.6	0.0	58.1	46.7
Edema checked	38.9	38.9	4.4	64.5	76.7
Dehydration checked	14.4	2.8	0.0	38.7	20.0
Abdominal examination					
Checked fetal heart rate	80.0	86.1	65.2	83.9	60.0
Performed vaginal examination	66.7	83.3	60.9	51.6	86.7

Notes: *Source: Delivery observation. **Overall estimates are derived from estimates from DH/MCWC, UHC and private facilities.***Estimates for union level facilities reported from case simulation interviews (n=30) and are not included in overall estimate calculation.

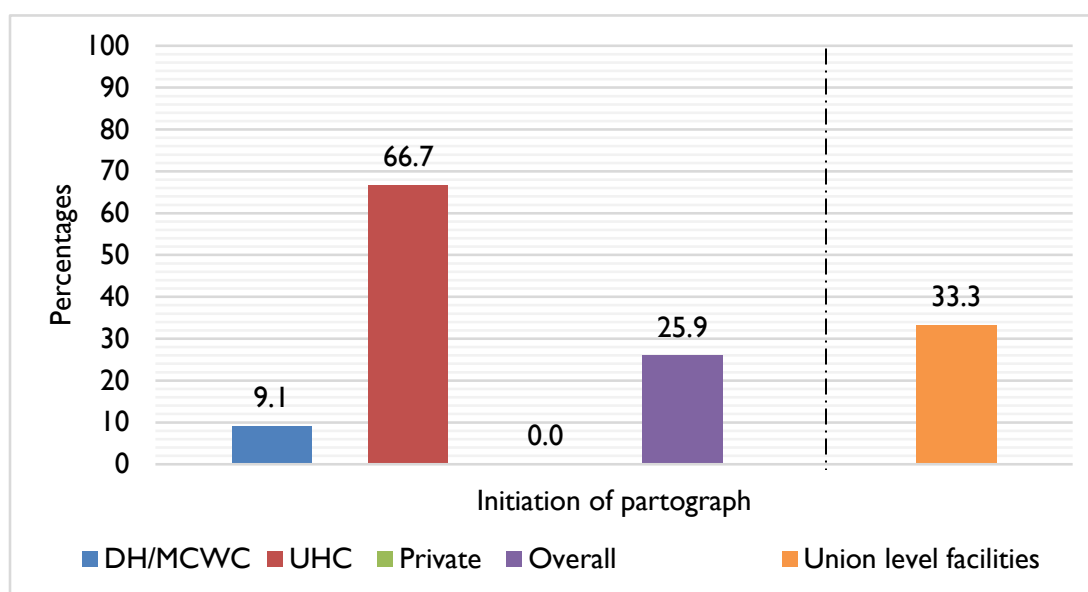
Routine care during labor, delivery and postpartum

Initiation of partograph

Use of a partograph for monitoring of labor is an effective intervention recommended by WHO. Evidence suggests that labor monitoring using a partograph helps identify delays in the progress of labor and reduces stillbirth rates and adverse pregnancy outcomes (13-15).

Figure 1 depicts that a partograph was initiated for only 1 in 4 women in the first stage of labor. We used observation data for reporting this indicator. Use of a partograph was higher in UHCs, whereas a partograph was initiated in none of the private facilities. We interviewed providers in union level facilities on monitoring of labor using case simulation questionnaire. Of 30 participants, only one-third reported that a partograph should be initiated for labor monitoring.

Figure 1: Percentage of women delivered in the facilities whose partograph was initiated during first stage of labor (taken as a proxy of appropriate monitoring during labor), Manikganj 2019

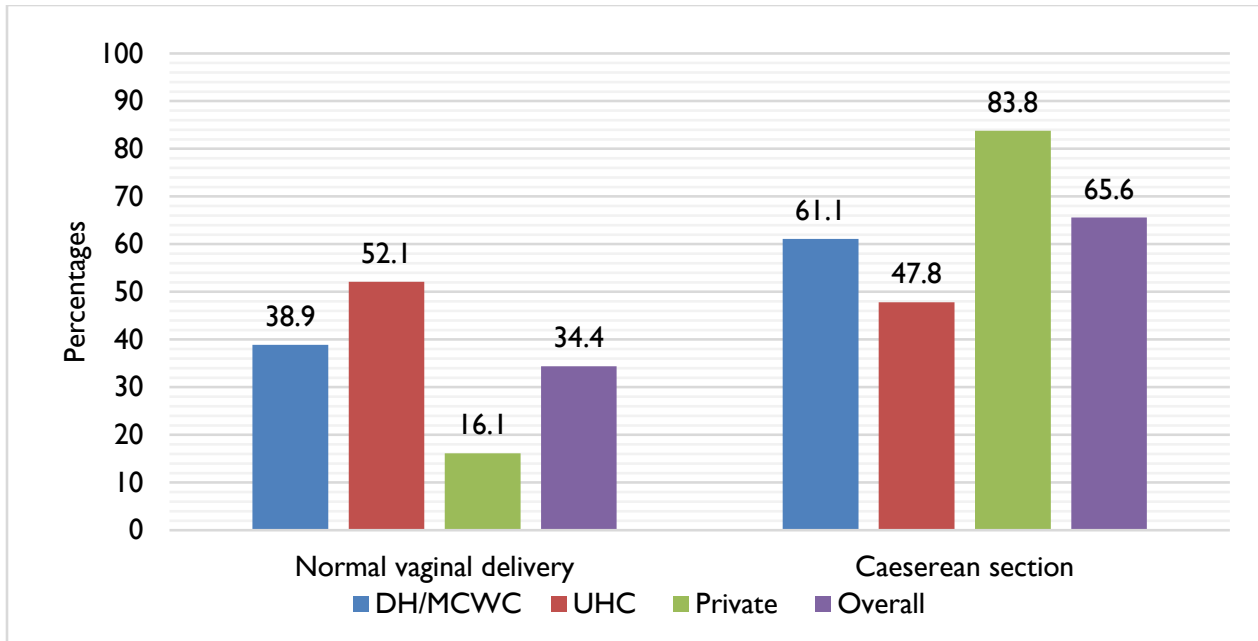


Notes: *Source: Delivery observation. Denominators (n): DH/MCWC= 11; UHC=9; Private=7 and Overall=27. Overall estimates are derived from estimates from DH/MCWC, UHC and private facilities. Estimates for union level facilities reported from case simulation interviews (n=30) and are not included in overall estimate calculation.

Mode of delivery

WHO set the benchmark for the rate of caesarean deliveries at 15%. Figure 2 shows that 66% of women observed were delivered by C-section in the facilities (DH/MCWC, UHC, and private facilities), whereas only 34% of the cases observed had normal vaginal delivery. The rate of C-section was higher at private facilities (84%) and tertiary care public health facilities (DH/MCWC) (61%).

Figure 2: Mode of delivery among women who gave birth in the study hospitals

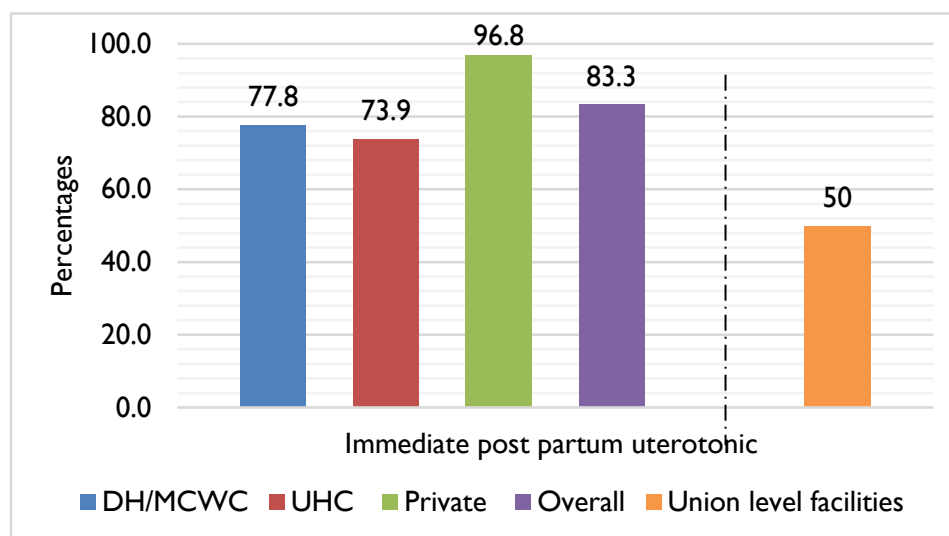


Notes: * Source: Delivery observations; Overall (N=90); DH/MCWC (n=36); UHC (n=23); and Private (n=31).

Immediate uterotonic

Post-partum hemorrhage (PPH) contributes to around one-third of maternal deaths in Bangladesh (22). Immediate administration of post-partum uterotonics, preferably within one minute of birth, is a proven intervention for prevention of PPH (21, 23). Oxytocin (10 IU, IM/IV) is the uterotonic drug recommended by WHO (21). Overall, 83% of all women observed received injectable oxytocin within one minute of delivery (Figure 3) (MaMoni MNCSP project performance indicator). The percentage of women who received injectable oxytocin was higher in private facilities (96%) than in the district hospital (78%) or UHCs (74%). Half of the providers from union level facilities reported administration of oxytocin within 1 minute of delivery during case simulation interviews.

Figure 3: Percentage of women administered immediate postpartum uterotonic (PPH prevention), Manikganj 2019



Notes: Source: Delivery observation. Denominators (n): DH/MCWC= 36; UHC=23; Private=31 and Overall=90. Overall estimates are derived from estimates from DH/MCWC, UHC and private facilities. Estimates for union level facilities reported from case simulation interviews (n=30) and are not included in overall estimate calculation

Postpartum monitoring

Post-partum monitoring of delivered women is crucial for identification and management of complications following childbirth. WHO recommends monitoring of vital signs, including bleeding, within 24 hours of delivery (21). Within a resource-constrained context, the maternal health strategy of Bangladesh recommends intensive post-partum monitoring within two hours after birth (2). Vaginal bleeding was considered to be monitored if the health care provider estimated the amount bleeding by any means and recorded in the patient follow up sheet.

Table 5 presents the percentage of women who received appropriate monitoring within two hours of delivery. Blood pressure and vaginal bleeding were monitored in 42% and 38% of postpartum women, respectively; while less than a third of women had their pulse (29%) and temperature checked (17%). Appropriate monitoring in the postpartum period was higher among women who delivered in the private facilities. Case simulation interviews, conducted only at union level facilities, depict that the majority of the health care providers knew about monitoring of pulse and blood pressure during the post-partum period.

Table 5: Percentage of women delivered in the facilities who received appropriate monitoring during postpartum period by facility type Manikganj 2019*

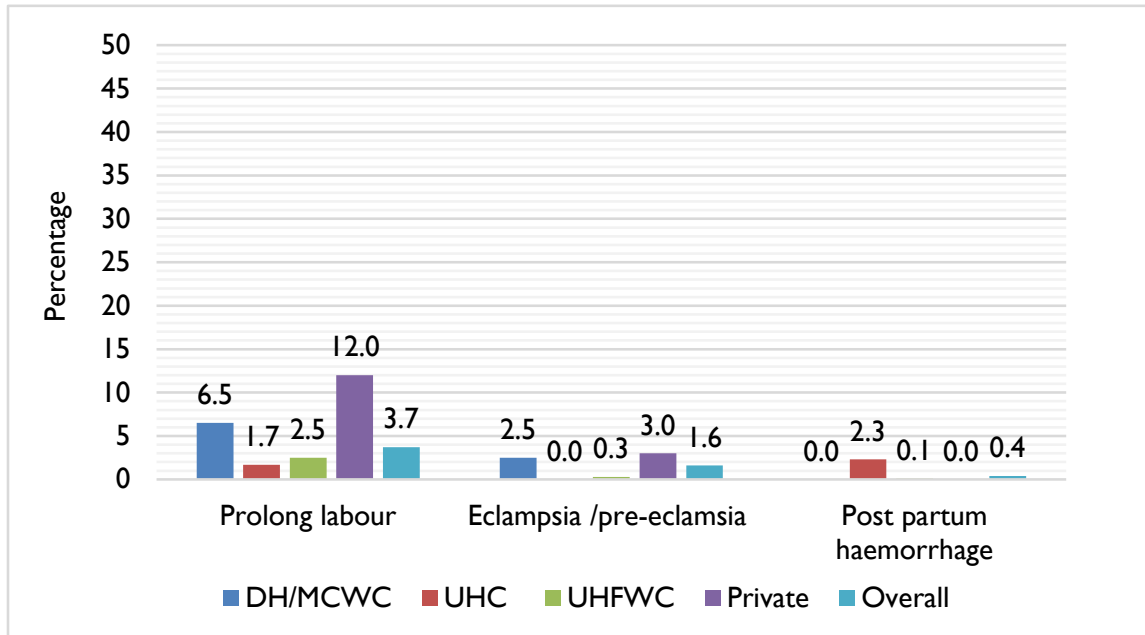
	Overall** (N=90)	DH&MCWC (n=36)	UHC (n=23)	Private facilities (n=31)	Union level facilities*** (n=30)
Percentage of women delivered in the facilities whose:					
Pulse monitored within 2 hours of delivery	28.9	11.1	4.4	67.7	93.3
Blood pressure monitored within 2 hours of delivery	42.2	25.0	13.0	83.9	96.7
Temperature monitored within 2 hours of delivery	16.7	0.0	0.0	48.4	76.7
Vaginal bleeding monitored within 2 hours of delivery	37.8	27.8	4.4	74.2	83.3

Notes: *Source of data: observation. **Overall estimates are derived from observation data collected from DH/MCWC, UHC and private facilities. ***Estimates reported from case simulation interviews (n=30) and are not included in overall estimate calculation.

Maternal and newborn complications

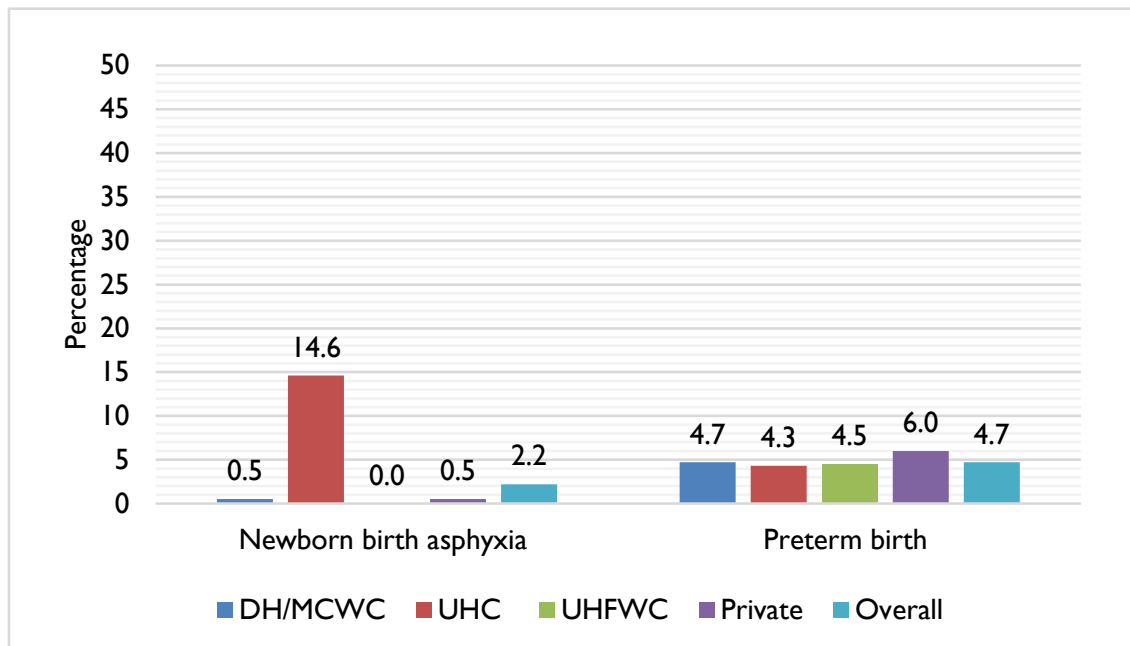
According to the Bangladesh Maternal Mortality Survey (BMMS) 2015 preliminary report, around 55% of maternal deaths are from PPH and eclampsia/ severe preeclampsia. We reviewed records of the last 100 delivery cases in the delivery register from each of the facilities preceding the day of data collection. Among 1,923 deliveries reviewed, the prevalence of prolonged labor, eclampsia /severe preeclampsia, and PPH were 4%, 2% and 0.4% respectively (Figure 4). Among all deliveries reviewed, the distribution of PPH case were 0% in DH/MCWC, 2.3% UHC, 0.1% in union level facilities and 0% in private facilities. A majority of the complicated cases were reported from tertiary care public facilities and private facilities. Figure 5 shows the prevalence of newborn complications from document reviews. Out of 1,795 live births, 5% were preterm birth, while 2.2% of newborns suffered from birth asphyxia.

Figure 4: Percentage of women who suffered from different complications during labor, delivery and postpartum; Manikganj 2019



Notes: * Source: Record review; Overall (N=1923); DH/MCWC (n=200); UHC (n=300); UH&FWC (n=1223); Private (n=200);

Figure 5: Percentage of newborns who suffered from different newborn complications, Manikganj, 2019



Notes: * Source: Record review; Overall (N=1795); DH/MCWC (n=193); UHC (n=254); Private (n=199); UH&FWC (n=1149).

Management of maternal and newborn complications

Availability of essential supplies for complication management

Preeclampsia or eclampsia, post-partum hemorrhage, delayed or obstructed labor, and pre-term labor are the major complications that women can face during pregnancy and delivery. Facilities should have necessary logistics and supplies to provide quality care in such conditions.

We found magnesium sulfate (MgSO₄) which is essential to treat cases of eclampsia and preeclampsia, only available in the district hospital and private facilities (Table 6); overall availability was only 10% across the facilities. Injectable oxytocin and availability of blood transfusion services is crucial to manage cases of post-partum hemorrhage. Validity of medicines were checked based on date of expiry. Only 38% of the facilities had at least one valid vial of oxytocin on the day of observation. One UHC and a majority of the union level facilities did not have oxytocin available. We also assessed the availability of blood transfusion services in the CEmONC facilities. Out of seven CEmONC facilities (district hospital, MCWC, three UHCs and two private hospitals), only the district hospital and private facilities had functional blood transfusion services available (Table 7). A manual vacuum extractor for vacuum-assisted delivery was only available in the district hospital. Antenatal corticosteroids to manage preterm labor were rarely available in the facilities.

Table 6: Essential logistics and supplies for management of complications during pregnancy, child birth, and postpartum, Manikganj 2019¹

	Total (29)	DH (1)	MCWC (n=1)	UHC (n=3)	Union level facilities (n=22)	Private hospitals (n=2)
1.2. Women with Preeclampsia or Eclampsia						
Percentage of facilities with magnesium sulfate available ²	10.3	100.0	0.0	0.0	0.0	100.0
1.3. Women with post-partum hemorrhage (PPH)						
Percentage of facilities with injectable uterotonic drug (oxytocin) available ²	37.9	100.0	100.0	66.7	22.7	100.0
Percentage of CEmONC facilities with functional blood transfusion service ³	42.9	100.0	0.0	0.0	N/A	100.0
1.4. Women with delayed or obstructed labor						
Percentage of facilities with Manual vacuum extractor (for vacuum-assisted delivery) ⁴	3.5	100.0	0.0	0.0	0.0	0.0
1.6.a. Women in pre-term labor						
% facilities with antenatal corticosteroids available						
Betamethasone injection ²	6.9	0.0	0.0	66.7	0.0	0.0
Dexamethasone injection (oradexon) ²	13.8	0.0	0.0	66.7	0.0	100.0

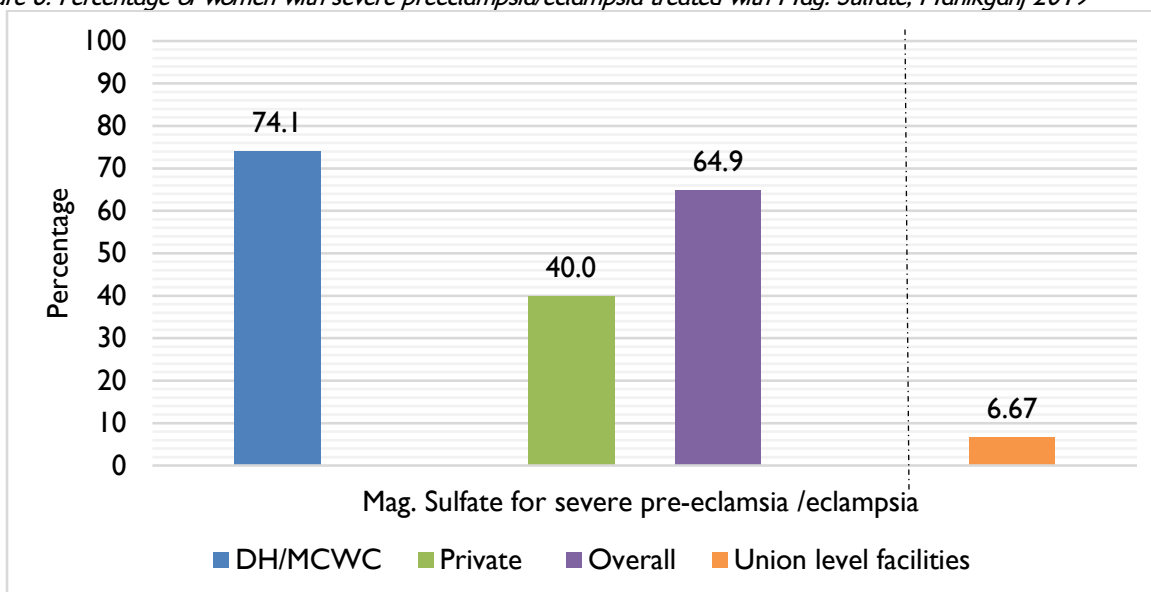
Notes: ¹Source: Health Facility Assessment. ²Availability of the drugs were checked at drug store and if at least one unexpired medication is found then considered as available. ³Total number of CEmONC facilities 07 (1 DH, 1MCWC, 3 UHCs and 2 private hospitals). ⁴ Defined as equipment was available and functional.

Management of eclampsia/severe preeclampsia

Treating cases of severe preeclampsia or eclampsia with magnesium sulfate is an effective intervention. We reviewed severe preeclampsia/eclampsia cases from the past six months of the survey to assess the quality of the management provided. A total of 38 cases were identified from the delivery register: 28 from the district hospital and 10 from private hospitals. Figure 6 shows that 65% of the admitted severe preeclampsia/eclampsia cases were treated with magnesium sulfate (findings from case sheet review)

(MaMoni MNCSP project performance indicator). The practice was more prevalent in the district hospital than in the private hospitals (74% vs 40%). Findings from case simulation interviews at union level facilities suggest that very few providers (6.7%) reported providing magnesium sulfate for treatment of eclampsia/severe preeclampsia.

Figure 6: Percentage of women with severe preeclampsia/eclampsia treated with Mag. Sulfate, Manikganj 2019



Notes: Data for this indicator has been derived from record review of severe preeclampsia and eclampsia cases. All severe preeclampsia and eclampsia cases from the past 6 months of survey were included. Overall estimates are derived from estimates from DH/MCWC, UHC and private facilities. Estimates for union level facilities reported from case simulation interviews (n=30) and are not included in overall estimate calculation.

Management of premature rupture of membrane (PROM)

We reviewed 29 cases of premature rupture of membrane: 23 from private facilities, four from UHCs, and two from the district hospital and MCWC. One in five PROM cases received antenatal corticosteroids (ACS) and more than half of PROM cases received antibiotic (Table 7).

Table 7: Number of women with PROM who received ACS and antibiotic, Manikganj 2019

	Overall (N=29)	DH&MCWC (n=2)	UHC (n=4)	Private facilities (n=23)
Percentage of women with PROM who				
Received ACS	10	1	3	6
Received antibiotic	28	2	3	23

Immediate newborn care

Table 8 describes the percentage of newborns who received essential care immediately after birth. We assessed five essential newborn care components: drying, immediate skin-to-skin, delayed cord clamping, chlorhexidine cord care, and early initiation of breastfeeding. The percentage of newborns that received the different essential newborn care practices varied by component. Around 71% of newborns were

initiated breastfeeding within one hour of birth (MaMoni MNCSP project performance indicator). Birth weight was documented for around two-thirds of newborns (MaMoni MNCSP project performance indicator). More than two-fifths of newborns received delayed cord clamping while only 13% of newborns were given immediate skin-to-skin within two hours of birth. Around 87% of newborns received chlorhexidine cord care. Overall, only 9% of newborns received all five essential newborn care components.

Information on newborn care practices at union level facilities was drawn from case simulation interviews conducted with the providers. The case simulations showed high knowledge of essential newborn care practices among providers from union facilities, particularly on delayed cord clamping, Chlorhexidine cord care and early initiation of breastfeeding.

Table 8: Percentage of newborn received routine care immediately after birth, Manikganj 2019*

	Overall ^{**} (N=90)	DH&MCWC (n=36)	UHC (n=23)	Private facilities (n=31)	Union level facilities ^{**} (n=30)
1.1.b. Newborns receive routine care immediately after birth					
Percentage of newborns with documented birthweight	64.4	94.4	95.7	6.5	66.7
Percentage of newborns who received essential early newborn care (ENC) (drying, skin to skin, delayed cord clamping, chlorhexidine cord care, breastfeeding.)					
Drying from head to toe	92.2	100.0	82.6	90.3	83.3
Initiated skin to skin	13.3	2.8	30.4	12.9	83.3
Delayed cord clamping	85.6	80.6	91.3	87.1	96.7
Chlorhexidine cord care	86.7	97.2	95.7	67.7	96.7
Early initiation of breast feeding	71.1	83.3	69.6	58.1	96.7
Received all five ENC components	8.9	0.0	26.1	6.5	63.3

Notes: *Source: Observations.** Overall estimates are derived from estimates from DH/MCWC, UHC and private facilities.

*** Estimates reported from case simulation interviews (n=30) and are not included in overall estimate calculation.

Postnatal care (PNC)

WHO recommends the first PNC check-up of the mother and baby before discharge from the facility. We observed first PNC for both mother and baby before leaving the hospital.

Table 9 shows that the postnatal assessment of mothers and newborns for danger signs was very low. Around half of the mothers were checked for excessive bleeding before discharge, blood pressure was measured for around 38% of mothers, and about a quarter had their pulse checked and abdominal examination. For newborns, assessment of temperature, respiratory rate, and heart rate were very low; and only about 31% of newborns had their cord stump examined. Generally, monitoring practices were better in private hospitals compared to public facilities.

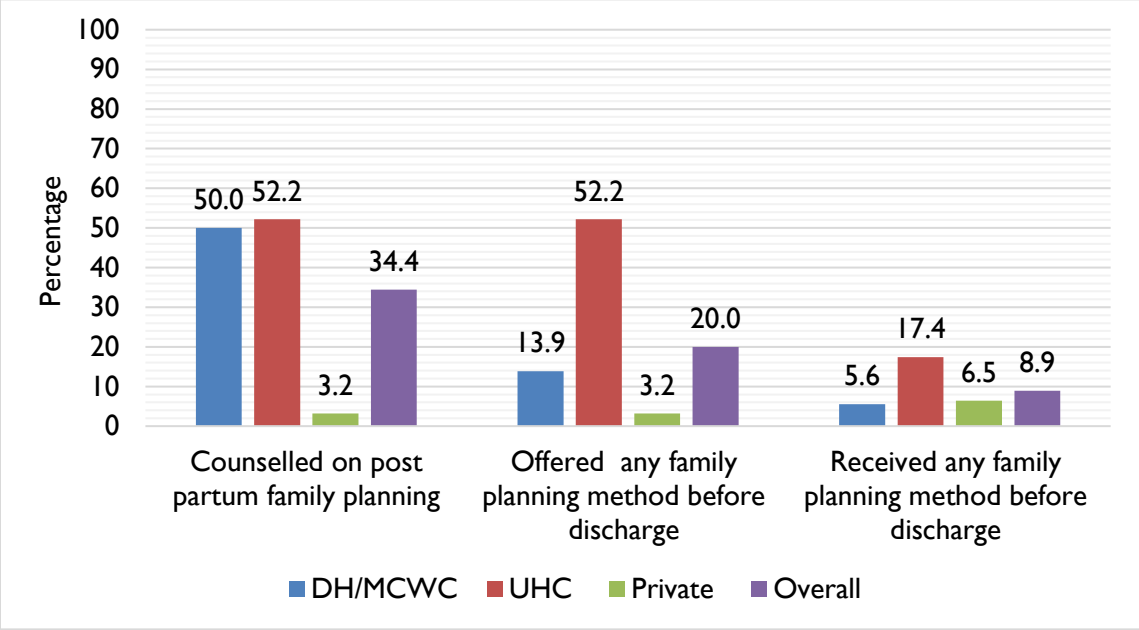
Counselling on post-partum family planning (PPFP) is an essential component of postnatal care. Providers need to counsel recently delivered women on PPFP and offer them choices of methods available. Preferably, for women who choose to use a PPFP method, the method should be provided before discharge. In figure 7 we can see that about one-third (34%) of women were counselled on PPFP—the highest percentage in public facilities (50% in DH and 52% in MCWC) and the lowest in private facilities (3%). Although, 1 in 5 recently delivered women were offered PPFP methods, only 9% received family planning methods before discharge.

Table 9: Among the women delivered in the facilities, the percentage of women and newborns who received routine postnatal care (PNC) before discharge from the facilities, Manikganj 2019*

	Overall* (N=90)	DH &MCWC (n=36)	UHC (n=23)	Private facilities (n=31)	Union level facilities** (n=30)
1.1.c. Women and newborns receive routine postnatal care					
Percentage of postnatal mothers/babies monitored appropriately for danger signs (vital signs/clinical signs)					
Monitoring of mother					
Checked Pulse	25.6	22.2	8.7	41.9	100.0
Measured Blood pressure	37.8	8.3	13.0	90.3	100.0
Measured Temperature by thermometer	8.9	0.0	0.0	25.8	83.3
Abdominal examination done by palpation	27.8	19.4	17.4	45.2	46.7
Checked pad for excessive bleeding / discharge	53.3	52.8	13.0	83.9	86.7
Checked for anemia	12.2	25.0	8.7	0.0	50.0
Checked perineum / episiotomy for perineal trauma	2.2	2.8	4.4	0.0	36.7
Assessed Urine Output	20.0	2.8	8.7	48.4	10.0
Assessed bowel movement	13.3	2.8	4.4	32.3	13.3
Monitoring of newborn					
Took baby's temperature by thermometer	0.0	0.0	0.0	0.0	86.7
Checked and counted breathing	4.4	0.0	4.4	9.7	76.7
Checked heart rate	7.8	5.6	4.4	12.9	53.3
Inspected the cord stump	31.1	16.7	21.7	54.8	60.0

Notes: *Overall estimates are derived from estimates from DH/MCWC, UHC & private facilities. ** Estimates reported from case simulation interviews (n=30) and are not included in overall estimate calculation

Figure 7: Family planning services provided to recently delivered women before discharge from the facility *



* Source: Exit interview; Denominators (n): DH/MCWC= 36; UHC=23; Private=31 and Overall=90

Standard 2: Health information systems

Standard 2 states: “The health information system enables use of data to ensure early, appropriate action to improve the care of every woman and newborn.” The aim of this standard is to assess provision of accurate data collection mechanisms in the facilities and improve the quality of care by using data. As part of an actionable information system, we assessed availability of standardized registers and mechanisms of data collection, analysis, and use of data. All of the facilities had a delivery register (Table 10). Only 20% of facilities had a register for patients referred for emergency obstetric and newborn care (EmONC). Availability of referral forms was very low (10%). In 13% of facilities, the QI team reported to regularly extract data, and calculate and visualize prioritized quality indicators. Data was reported to be used for decision making in around 10% of facilities.

Table 10: Percentage of facilities having complete, accurate, standardized medical records and mechanisms for data collection, analysis and feedback, Manikganj 2019

	Overall (N=29)	DH (n=1)	MCWC (n=1)	UHC (n=3)	Union level facilities (n=22)	Private hospitals (n=2)
2.1. Complete, accurate, standardized medical record						
Percentage of facilities with standardized registers ¹						
Delivery register	100.0	100.0	100.0	100.0	100.0	100.0
IMCI register	37.9	100.0	0.0	66.7	36.4	0.0
Sick newborn care register	34.5	0.0	0.0	33.3	36.4	50.0
Register for patient referred for EmONC	20.7	0.0	100.0	33.3	13.6	50.0
Referral form	10.3	0.0	0.0	33.3	4.6	50.0
2.2. Mechanism for data collection, analysis and feedback						
Percentage of facilities in which QI team regularly extracts data, calculates and visualizes prioritized quality indicators						
	13.8	100.0	0.0	66.7	4.6	0.0
Percentage of facilities where data regularly reviewed and used to make decisions on quality improvement						
	10.3	100.0	0.0	66.7	0.0	0.0

Notes: Source: Health Facility Assessment: ¹Observed

Standard 3: Functional referral systems

Standard 3 states: “Every woman and newborn with condition(s) that cannot be dealt effectively with the available resources is appropriately referred.” For ensuring appropriate management of referred patients, communication should be made with the referral facility and a complete referral note should be handed over to the patient before referral. Table 11 shows that out of 96 cases observed, 6% of patients were referred out after admission. Observations included cases from both public and private facilities, so any referral note (govt. slip and others) given was included in the analysis. Among the referred patients, around two-thirds were given a referral note.

A proper referral note should contain the patient’s history, treatment given, and the patient condition at the time of referral for appropriate management at the referral facility. After investigating the components of the referral note, we found that patient history (25%), diagnosis (75%), and the name of the referred facility (50%) were there. There was no information on examination findings, given treatment, or contact number of the referred facility in any of the referral notes.

Table 11: Percentage of women/newborns with complications referred, Manikganj 2019**

	Overall (N=96)	DH&MCWC (n=36)	UHC (n=29)	Private facilities (n=31)
3.1. Decision to refer made without delay				
Percentage of women/newborns with complications* referred	6.3	5.6	10.3	3.2
Percentage of women/newborns with complications transferred with referral note**	66.7	50.0	100.0	0.0
Referral note given with *				
History written	25.0	100.0	0.0	0.0
Examination findings written	0.0	0.0	0.0	0.0
Diagnosis written	75.0	100.0	66.7	0.0
Given treatment written	0.0	0.0	0.0	0.0
Place of referred facility	50.0	0.0	66.7	0.0
Person whom to contact	0.0	0.0	0.0	0.0
Any contact number of referred facility	0.0	0.0	0.0	0.0

* Denominators (n): Total number of cases observed; Overall (N=96), DH/MCWC= 36; UHC=29; Private=31

**Denominators (n): Number of cases referred DH/MCWC= 2; UHC=3; Private=1 and Overall=6

Standard 4: Communication

Standard 4 states: “Communication with women and their families is effective and responds to their needs and preferences.” Effective communication with the patient and her family is crucial for a positive pregnancy experience. Patients should be informed adequately about the care given and should be involved during decision-making. The patients should also get the opportunity to discuss their queries and preferences with the providers.

Almost all women (94%) received counselling before discharge (MaMoni MNCSP project performance indicator). Around 84% women reported that they were given an opportunity to discuss their concerns and preferences. A higher percentage of mothers reported effective communication during care at the private facilities compared to the public facilities

(Table 12).

Table 12: Among the women delivered in the facilities, percentage who reported that they received information about care and had effective interactions with staff, Manikganj 2019

	Overall (N=90)	DH&MCWC (n=36)	UHC (n=23)	Private facilities (n=31)
4.1. Women and families received information about care and had effective interactions with staff				
Percentage of women receiving postnatal information and counseling before discharge	94.4	88.9	95.7	100.0
Percentage of women who reported they were given an opportunity to discuss their concerns and preferences	84.4	83.3	78.3	90.3

Standard 5: Respect and dignity

Standard 5 states: “*Women and newborns receive care with respect and can maintain their dignity.*” The aim of this standard is to ensure respect and dignity of the women by ensuring informed choice of care and preventing physical, verbal, and sexual abuse during the stay in the facilities. Around 83% of women reported that they were adequately informed by health workers about their health and care (Table 13). Very few women (only 1.1%) reported physical or verbal abuse during their stay at the hospital (MaMoni MNCSP project performance indicator).

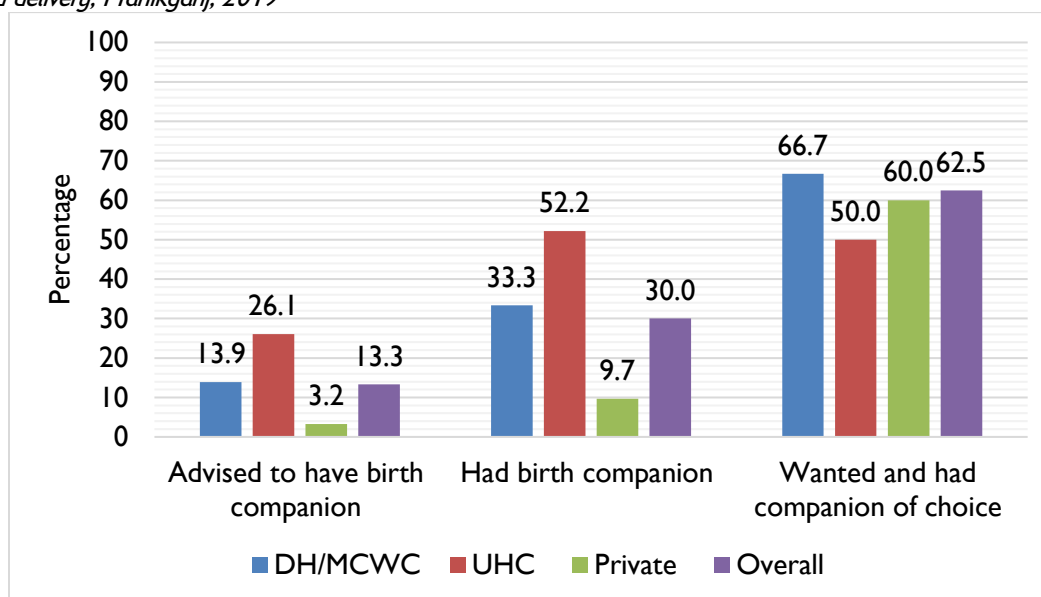
Table 13: Among the women delivered in the facilities, the percentage who reported physical/verbal or sexual abuse and the percentage who reported that they received informed choices about services, Manikganj 2019*

	Overall (N=90)	DH&MCWC (n=36)	UHC (n=23)	Private facilities (n=31)
5.2. Subjected to mistreatment				
Percentage of women who gave birth in facility who reported physical or verbal abuse to themselves [or their newborns]	1.1	2.8	0.0	0.0
5.3. Informed choices about the services				
Percentage of women who felt adequately informed by health workers about their health and care	83.3	91.7	65.2	87.1

Standard 6: Emotional support

Standard 6 states: “*Every woman and her family are provided with emotional support that is sensitive to their needs and strengthens the woman’s capability.*” Companion of choice means continuous presence of a support person during labor and childbirth. Evidence suggests that the presence of a birth companion improves confidence of the women, reduces the need for analgesics, improves likelihood of vaginal birth, and improves women’s birth experience (18). Figure 8 shows that only 13.3% of women were advised by the providers to have a birth companion during labor. In UHCs, one-fourth of women got advice from the provider to have a birth companion, while only 3% of women who delivered in a private hospital received the advice. Less than one-third of women had a birth companion of their choice during labor. For UHCs, the percentage is higher (52.2%) and, again, this was very low in private hospitals. To look at the data differently, we wanted to see the percentage of women who wanted and had birth companion, and observed that more than three-fifths of women (62.5%) wanted and had a birth companion (MaMoni MNCSP project’s performance indicator on quality of care). This finding indicates that many women were not aware of their right to have a birth companion and that providers should encourage women to have one.

Figure 8: Among the women delivered in the facilities, the percentage who reported that they were advised to have birth companion*, had a birth companion, *and who reported that they wanted and had a birth companion of choice** during labor and delivery, Manikganj, 2019



* Denominators (n): DH/MCWC= 36; UHC=23; Private=31 and Overall=90

** Denominators (n): DH/MCWC= 9; UHC=2; Private=5 and Overall=16

Standard 7: Competent and motivated human resources

Standard 7 states: “For every woman and newborn, competent, motivated staff are consistently available to provide routine care and manage complications.” Trained and motivated staff play a crucial role in providing quality care. A facility should have access at all times to a skilled birth attendant. We found that only 17% of facilities have a duty roster of providers displayed at facilities (Table 14). We did not find any duty roster displayed in the district hospital, two of the upazila health complexes, and one private hospital. Almost all facilities received external supervision in the past six months.

Strong and effective leadership is needed to support providers to identify essential gaps in maternal and newborn care and to plan, implement, and continuously assess and refine interventions to address identified gaps. One in 10 facilities had regular quality assurance activities with observed documentation. Another way of improving quality is to have client feedback and act according to address issues raised. Less than half of facilities (45%) had a mechanism in place to receive client feedback on health care services. The most common feedback mechanism used among the surveyed facilities was a suggestion/complaint box. Other feedback mechanisms asked about include client surveys or interview forms; meetings with community leaders; informal discussions with client or community; email; facility website; letters from clients/community, and phone calls. None of the facilities reported to have client interviews or client surveys as mechanism to receive feedback.

Table 14: Percentage of facilities had access at all time to skilled birth attendant and leadership in continuous quality improvement (QI), Manikganj 2019¹

	Overall (N=29)	DH (n=1)	MCWC (n=1)	UHC (n=3)	Union level facilities (n=22)	Private hospitals (n=2)
7.1. Access at all times to skilled birth attendant						
Percentage of facilities displaying roster of staff on duty, shift times ² at delivery service area	17.2	0.0	100.0	33.3	9.1	50.0
Percentage of facilities that received external supervision in past six months	93.1	100.0	100.0	100.0	90.9	100.0
7.3. Leadership in continuous quality improvement (QI)						
Percentage of facilities with written up to date plan for improving QoC and patient safety ³	10.3	0.0	0.0	33.3	4.6	50.0
Facilities with regular quality assurance activities with reported documentation ⁵	24.1	100.0	0.0	100.0	9.1	50.0
Facilities with regular quality assurance activities with observed documentation ⁵	10.3	0.0	0.0	33.3	9.1	0.0
Percentage of facilities with systems/mechanism for determining client's opinions about the health facility or it's service ⁴	44.8	100.0	0.0	66.7	36.4	100.0

Notes: ¹ Source: Health Facility Assessment; ² The duty roster was observed; ³ The document was observed

⁴ The mechanism includes suggestion/complain box, client survey or interview form, meeting with community leaders, informal discussion with client or community, email, facility website, letters from client/community, phone calls etc. ⁵ This could be a report or minutes of a quality assurance meeting, a supervisory checklist, a mortality review or an audit of records or registers

Standard 8: Essential physical resources available

Standard 8 states: “*The health facility has an appropriate physical environment, with adequate water, sanitation and energy supplies, medicines, supplies and equipment for routine maternal and newborn care and management of complications.*” A clean physical environment and provision of water sanitation and hygiene are crucial for preventing infection and better pregnancy outcomes. All facilities had a water supply in the delivery care area, except union level facilities. More than one-fourth of union level facilities did not have basic water supply (Table 15). We considered basic hygiene to be maintained in the delivery room if there was running water (piped, bucket with tap or pour pitcher) and soap (liquid soap was also accepted) available on the day of observation. The DH, all UHCs, and private hospitals had basic hygiene provision available in the delivery room. We also looked for availability of basic sanitation for women during and after labor and childbirth. Almost all, except a few union level facilities, had a functioning flush or pour-flush toilets or a ventilated improved pit latrine or composting toilet for women during and after labor and childbirth. We asked for recently delivered women’s opinion regarding cleanliness of the facility. Figure 9 shows that three in four women reported a clean physical environment of the facility. From UHCs, only 39% of women reported the same.

Appropriate management of health care waste is crucial for infection prevention. More than half of the facilities had safe disposal of sharps waste. Safe disposal of infectious waste was available in 44% of facilities (Table 15). A continuous electricity supply is mandatory to ensure quality maternal and newborn care. Almost all, except for a few union facilities, had a regular source of electricity. We considered a facility to have regular electricity if it was connected to a central power grid and there was no interruption in power supply lasting for more than two hours at a time during normal working

hours in the seven days before the survey, if the facility had a functioning generator with fuel available on the day of the survey, or if the facility had back-up solar power.

Our data collectors investigated for essential supplies and tests for maternity care. At least one valid test kit for urine protein testing was found in half of the facilities. A test kit for measuring urine glucose and blood hemoglobin was found in 48% and 69% facilities, respectively. We also looked for blood grouping and typing services. This was considered available if all the reagents (Anti-A, Anti-B, Anti-D, Coomb's and Anti-AB) were observed and at least one valid. Only one private facility had availability of blood grouping and typing services. Only the district hospital and one private hospital had a functioning ultrasound machine.

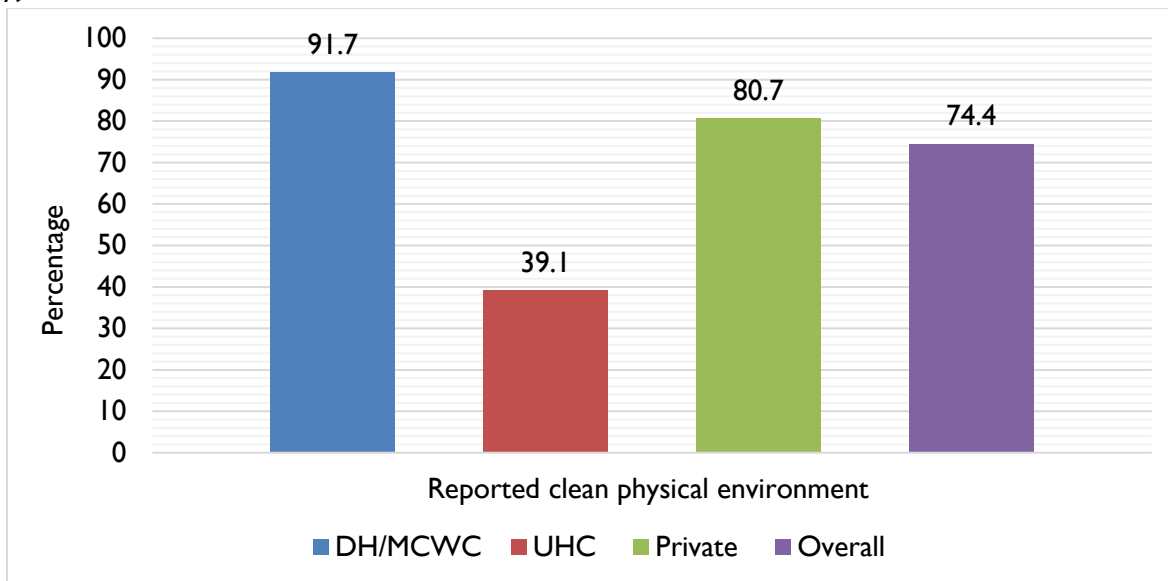
Table 15: Percentage of facilities with WASH functioning, reliable, safe and sufficient; clean physical environment and regular source of electricity; essential supplies of laboratory supplies and tests, Manikganj 2019¹

	Overall (N=29)	DH (n=1)	MCWC (n=1)	UHC (n=3)	Union level facilities (n=22)	Private hospitals (n=2)
8.1. WASH functioning, reliable, safe and sufficient						
Percentage of facilities with basic water supply in delivery care area ²	79.3	100.0	100.0	100.0	72.7	100.0
Percentage of facilities with basic healthcare waste management system						
Safe final disposal of sharps waste ³	55.2	100.0	0.0	33.3	54.6	100.0
Safe final disposal of infectious waste ⁴	41.4	100.0	0.0	0.0	45.5	50.0
Percentage of facilities with basic hygiene provisions in delivery room ⁵	69.0	100.0	0.0	100.0	63.6	100.0
Percentage of facilities with basic sanitation available for women during and after labor and childbirth (toilet, latrine) ⁶	96.5	100.0	100.0	100.0	95.5	100.0
8.3. Adequate stock of medicines, supplies and equipment						
Percentage of facilities with regular source of electricity ⁷	75.9	100.0	100.0	100.0	68.2	100.0
Percentage of facilities with essential laboratory supplies and tests						
Urine Protein Test ⁸	51.7	0.0	100.0	33.3	54.6	50.0
Urine Glucose Test ⁸	48.3	100.0	100.0	33.3	45.5	50.0
Any rapid test for Hemoglobin ⁸	69.0	100.0	100.0	33.3	72.7	50.0
Syphilis Rapid Diagnostic Test ⁸	6.9	100.0	0.0	0.0	0.0	50.0
VDRL test for Syphilis ⁸	10.3	0.0	0.0	33.3	4.6	50.0
Urine Pregnancy Test ⁸	72.4	100.0	0.0	66.7	72.7	100.0
Blood grouping and typing ⁹	3.45	0.00	0.00	0.00	0.00	50.0
USG ¹⁰	10.3	100.0	0.00	0.00	0.00	100.0

Notes: ¹ Source: Health Facility Assessment. ² Observed running water (piped, bucket with tap or pour pitcher). ³The process of sharps waste disposal is incineration and the facility has a functioning incinerator with fuel on the day of survey, or else the facility disposes of sharps waste by open burning in a protected area, dumping without burning in a protected area, or removing offsite with storage in a protected area prior to removal offsite. ⁴The process of infectious waste disposal is incineration and the facility has a functioning incinerator with fuel on the day of survey, or else the facility disposes of infectious waste by means of open burning in a protected area, dumping without burning in a protected area, or removal offsite with storage in a protected area prior to removal offsite. ⁵ Observed running water (piped, bucket with tap or pour pitcher) and hand washing soap (liquid soap is also accepted). ⁶ Facility has functioning flush or pour-flash toilet or a ventilated improved pit latrine or composting toilet for women during and after labor and childbirth. ⁷ Facility is connected to a central power grid and there was no interruption in power supply lasting for more than two hours at a time during normal working hours in the seven days before the survey, or facility has a functioning generator with fuel available on the day of the survey, or else facility has back-up solar

power. ⁸ Observed and found at least one valid kit. ⁹ Blood grouping and typing service was considered available if all the reagents (Anti-A, Anti-B, Anti-D, Coomb's and Anti-AB) were observed at least one valid. ¹⁰ Functioning.

Figure 9: Among the women delivered in the facilities; the percent who reported clean physical environment*, Manikganj 2019



Notes: *Data collected using exit interviews of women who delivered in the facilities. Denominators (n): DH/MCWC= 36; UHC=23; Private=31 and Overall=90,

QoC for antenatal care (ANC) services

Provision of care for antenatal care (ANC) services

The World Health Organization (WHO) envisions “a world where every pregnant woman and newborn receives quality care throughout the pregnancy, childbirth and the postnatal period” (16). ANC can save lives by averting maternal deaths from pregnancy-related complications and reduce prevalence of stillbirths. Within the continuum of care, ANC provides the opportunity for timely implementation of evidence-based interventions including health promotion, screening and diagnosis, and disease prevention. The recent WHO 2016 ANC model aims to provide positive pregnancy experiences to the pregnant women by ensuring the following components (19):

1. Respectful, individualized, person-centered care at every contact
2. Implementation of effective clinical practices (interventions and tests)
3. Provision of relevant and timely information
4. Psychosocial and emotional support
5. ANC by practitioners with good clinical and interpersonal skills within a well-functioning health system

Therefore, ANC not only provides the platform for medical care but also the opportunity for counselling on important aspects of health, nutrition, and family planning in a respectful way. This respectful care and support functions of ANC are important for preventing mortality and morbidities and improving health care utilization and quality of care. We observed a total of 249 cases of ANC consultations to investigate the quality of ANC provided to pregnant women. Findings from those observations are presented below.

History taking and physical examination

Appropriate history taking and physical examinations are critical steps for early diagnosis of pregnancy complication and management. Table 16 presents the percentage of women that were assessed appropriately – having their history taken and a physical examination - during their ANC consultation. As an integral part of quality history taking during ANC, we observed whether the provider took history on age, occupation, last menstrual period date (LMP), parity, gravida, previous abortion/menstrual regulation (MR)/deliveries, previous ANC, family history of certain diseases, existing illnesses, current medicine intake, TT vaccination, and complications during current and previous pregnancy. Almost all women were asked about their age, LMP, parity and gravida. History of previous pregnancy loss (MR/abortion) was asked of around 85% of women. Overall, 87% of women were asked about current pregnancy complications, while around one-third were asked about previous pregnancy complications. We also assessed different components of physical examinations during ANC. Weight was measured for around 86% of the women, while height was taken for around 34%. Among the vital signs, blood pressure was measured among 93% of the women during their ANC. Assessment of pulse and temperature was done among a negligible number of participants. Assessment of uterine height, fetal presentation, and fetal heart sound is important for identification of intrauterine growth restriction, malpresentation and fetal distress, respectively. Around three-fourths of women were assessed for uterine height. Fetal presentation and fetal heart sound were assessed among 23% and 45% of the women. Assessment of edema and urine protein was done only among 41% of women.

Table 16: Percentage of women assessed appropriately during ANC consultation (history taking and physical examination), Manikganj 2019*

	Overall (N=249)	DH (n=31)	MCWC (n=30)	UHC (n=55)	Union level facilities (n=102)	Private hospitals (n=31)
Percentage of women whose						
History was taken for						
Age	99.6	96.8	100.0	100.0	100.0	100.0
Occupation	0.4	0.0	0.0	0.0	1.0	0.0
LMP	99.6	100.0	96.7	100.0	100.0	100.0
Expected date of delivery	98.4	100.0	96.7	98.2	99.0	96.8
Gravida	99.6	100.0	96.7	100.0	100.0	100.0
Para	99.6	100.0	96.7	100.0	100.0	100.0
Number of abortion/MR/deliveries	84.7	100.0	66.7	92.7	78.4	93.6
Any prior ANC visit/check-ups during current pregnancy	58.2	19.4	46.7	40.0	70.6	100.0
Family history (DM/HTN/TB)	27.3	0.0	0.0	7.3	34.3	93.6
Existing illness (allergy, TB, hypertension, diabetes, asthma, heart disease, goiter, hepatitis)	37.8	35.5	3.3	32.7	34.3	93.6
Current medicine use (iron, folic acid, vitamin, calcium, anti- hypertensive)	6.8	0.0	6.7	16.4	2.0	12.9
TT vaccination	69.9	12.9	93.3	65.5	74.5	96.8

	Overall (N=249)	DH (n=31)	MCWC (n=30)	UHC (n=55)	Union level facilities (n=102)	Private hospitals (n=31)
Current pregnancy complications						
Any complications in current pregnancy	87.2	100.0	90.0	87.3	78.4	100.0
Vaginal bleeding	2.8	0.0	0.0	7.3	2.0	3.2
Severe anemia	0.0	0.0	0.0	0.0	0.0	0.0
Convulsion	4.0	0.0	0.0	16.4	1.0	0.0
Excessive fever	13.3	0.0	46.7	25.5	3.9	3.2
Severe headache	13.7	3.2	50.0	32.7	0.0	0.0
Blurring of vision	5.2	0.0	6.7	18.2	1.0	0.0
Swelling of hand or feet or face	3.2	0.0	10.0	7.3	1.0	0.0
Foul smelling vaginal discharge	2.0	0.0	3.3	7.3	0.0	0.0
Less fetal movement	0.4	0.0	0.0	1.8	0.0	0.0
High blood pressure	2.0	0.0	0.0	5.5	1.0	3.2
Premature rupture of membrane	0.0	0.0	0.0	0.0	0.0	0.0
Diabetics in pregnancy	4.0	0.0	0.0	10.9	0.0	12.9
Injury	0.0	0.0	0.0	0.0	0.0	0.0
Complications in previous pregnancy						
H/O Previous Pregnancy	31.3	0.0	63.3	49.1	28.4	9.7
Any complications in previous pregnancy	30.8	26.3	37.0	24.1	66.7	26.3
High fever or infection	0.0	0.0	0.0	0.0	0.0	0.0
Pregnancy induced hypertension	0.0	0.0	0.0	0.0	0.0	0.0
Convulsion	0.0	0.0	0.0	0.0	0.0	0.0
Multiple pregnancy	0.0	0.0	0.0	0.0	0.0	0.0
Prolonged labor	1.3	0.0	0.0	3.7	0.0	0.0
UTI	0.0	0.0	0.0	0.0	0.0	0.0
Assisted delivery	5.1	0.0	5.3	3.7	6.9	0.0
Bleeding during pregnancy	1.3	0.0	0.0	3.7	0.0	0.0
Heavy bleeding during or after delivery	1.3	0.0	0.0	3.7	0.0	0.0
Preterm labor	0.0	0.0	0.0	0.0	0.0	0.0
Still birth	6.4	0.0	0.0	11.1	6.9	0.0
Abortion	5.1	0.0	5.3	7.4	3.5	0.0
Infant's death	7.7	0.0	0.0	7.4	6.9	66.7
Gestational diabetes	1.3	0.0	0.0	3.7	0.0	0.0
Physical examination						
Weight	86.8	74.2	93.3	96.4	81.4	93.6
Height	34.1	6.5	90.0	32.7	7.8	96.8
Vital signs						
Pulse	1.6	3.2	0.0	0.0	0.0	9.7
Blood pressure	92.8	83.9	100.0	96.4	91.2	93.6
Temperature with thermometer	1.6	0.0	13.3	0.0	0.0	0.0
Abdominal examination						

	Overall (N=249)	DH (n=31)	MCWC (n=30)	UHC (n=55)	Union level facilities (n=102)	Private hospitals (n=31)
Uterine height	75.5	67.7	93.3	56.4	82.4	77.4
Uterine girth/ liquor volume	0.0	0.0	0.0	0.0	0.0	0.0
Fetal presentation	22.5	6.4	30.0	23.6	28.4	9.7
Fetal heart rate	45.0	64.5	16.7	43.6	48.0	45.2
Others						
Eye (conjunctiva) or palm for anemia	28.1	77.4	20.0	41.8	15.7	3.2
Eye (sclera) or tongue for jaundice	12.9	9.7	0.0	38.2	5.9	6.5
Hand or feet or leg for edema	41.8	58.1	50.0	43.6	36.3	32.3
Urine protein	41.4	3.2	50.0	1.8	83.3	3.2

Note: *Data collected through observations of ANC consultations.

Routine diagnostic tests

Routine laboratory tests during pregnancy are important for identification of complications and to prevent adverse pregnancy outcomes. Routine tests vary during first ANC and follow up ANC (11). In the first ANC, it is recommended to confirm the pregnancy and conduct the following tests:

1. Blood tests for hemoglobin, blood grouping and typing, blood sugar, venereal disease research laboratory (VDRL), and Hepatitis B surface antigen (HBsAg)
2. Urine tests for albumin, glucose, RME
3. Ultrasonogram

Anemia, eclampsia or preeclampsia, asymptomatic urine infection, and gestational diabetes are some of the common complications during pregnancy, which can be identified by routine urine and blood tests. It is important to know the blood group of the women for immediate blood transfusion in case of life - threatening bleeding during labor or post-partum. An ultrasound scan during the first trimester is important for estimating the expected date of delivery (EDD), while USG in the second trimester helps to identify anomalies of the baby within the mother's womb.

Table 17 presents the percentage of women during ANC who were asked or referred to undertake the recommended tests or the provider himself performed the tests during ANC. Overall 79% of women were asked or referred to undertake hemoglobin measurement. Blood grouping or typing exercise was advised to 41% women. Around half of the women were asked or referred to undertake different urine tests and an ultrasonogram scan.

The percent of women who were asked or referred to undertake the recommended tests or the provider himself performed the routine investigations during follow up ANC are shown in Table 18. A hemoglobin test was advised for 70% of women, while an ultrasonogram anomaly scan was advised for 33% of women.

Table 17: Among women in their first ANC, the percent who were asked or referred to undertake the tests or the provider performed the test, Manikganj 2019*

	Overall (N=116)	DH (n=17)	MCWC (n=21)	UHC (n=28)	Union level facilities (n=40)	Private hospitals (n=10)
Percentage of women who were asked/ referred to undertake the tests or the provider himself performed the tests						
Pregnancy test	17.2	0.0	14.3	53.6	0.0	20.0
Blood test for hemoglobin	78.5	100.0	76.2	78.6	70.0	80.0
Blood grouping and typing	41.4	88.2	38.1	71.4	0.0	50.0
Blood sugar (2hABF)	37.9	100.0	28.6	50.0	0.0	70.0
Blood test for VDRL	28.5	82.4	14.3	53.6	0.0	10.0
Blood test for HBsAg	40.5	94.1	28.6	60.7	0.0	80.0
Urine test for albumin	55.2	0.0	85.7	60.7	72.5	0.0
Urine test for glucose	56.0	0.0	85.7	64.3	72.5	0.0
Urine test for RME	50.9	94.1	57.1	82.1	0.0	80.0
Ultrasonogram	50.9	94.1	47.6	85.7	0.0	90.0

Note: *Data collected through observations of ANC consultations.

Table 18: Among women in their follow up ANC visit, the percent who were asked or referred to undertake the tests or the provider performed the test, Manikganj 2019*

	Overall (N=133)	DH (n=14)	MCWC (n=09)	UHC (n=27)	Union level facilities (n=62)	Private hospitals (n=21)
Percentage of women who were asked/ referred to undertake the tests or the provider himself performed the tests						
Blood test for hemoglobin	70.7	50.0	88.9	74.1	74.2	61.9
Blood sugar (2hABF)	27.8	50.0	55.6	37.0	3.2	61.9
Urine test for albumin	54.1	7.1	88.9	44.4	79.0	9.5
Urine test for RME	42.1	71.4	88.9	74.1	4.8	71.4
Ultrasonogram for anomaly scan (18-22 weeks)	33.8	57.1	11.1	51.9	9.7	76.2

Note: *Data collected through observations of ANC consultations.

Routine medicines

According to the National Micronutrient Survey Bangladesh 2011-12, around 35% women suffer from anemia in pregnancy. WHO 2016 ANC guidelines recommend context-specific routine supplementation of iron-folic acid (IFA), calcium, vitamins, and deworming medications for improving maternal and perinatal outcomes (19). The GoB maternal health strategy recommends provision of two misoprostol tablets during ANC in the third trimester for prevention of post-partum hemorrhage after delivery (11). Chlorhexidine (7.1%) cord care is an evidence-based, effective intervention for prevention of neonatal sepsis. It is not only important to prescribe and provide the routine medicines during ANC, as appropriate, but also to explain the dosages and side effects, which is critical to ensure optimal use and outcomes.

Table 19 describes the percentage of women who were prescribed, provided, and given an explanation on medicine intake and side effects during their ANC. Among all women, 84% were prescribed IFA, 55% calcium, and 39% vitamins. Supply of medicines was lower than the prescriptions; only 68% of women

received an IFA supply, while less than one-fourth of women received calcium and vitamin. None of the women were prescribed or supplied misoprostol or chlorhexidine.

Counselling

Counselling during ANC is crucial for sharing knowledge on important health- and nutrition-related interventions, such as diet during pregnancy, danger signs during pregnancy, vaccination, follow up ANC, importance of four ANC, birth preparedness, and immediate newborn care. Less than half of the women received counselling on nutritious food intake during pregnancy. Around 16% of women received counselling on danger signs in pregnancy. Overall, less than one-third of women received counselling on different components of birth preparedness. Only 21% of women were counselled on facility delivery, followed by blood grouping at 17%, saving emergency money for delivery at 10%, and identification of blood donor and vehicle arrangement at 8%. Less than 5% of women received counselling on different components of essential newborn care (Table 20).

Table 19: Percent of women who were prescribed, provided, and given an explanation on how to use different routine medicines, and given an explanation of the side effects of different routine medicines, Manikganj 2019*

	Overall (N=249)	DH (n=31)	MCWC (n=30)	UHC (n=55)	Union level facilities (n=102)	Private hospitals (n=31)
IRON-FOLATE TABLET (IFA)						
Prescribed	83.5	93.6	100.0	74.6	82.4	77.4
Provided	67.9	93.6	100.0	56.4	77.5	0.0
Explained how to use	34.9	58.1	0.0	25.5	30.4	77.4
Explained Side effects	1.6	0.0	0.0	5.5	1.0	0.0
CALCIUM tablet						
Prescribed	55.4	77.4	26.7	61.8	52.9	58.1
Provided	22.9	6.5	3.3	7.3	49.0	0.0
Explained how to use	28.1	51.6	0.0	21.8	23.5	58.1
Explained Side effects	0.4	0.0	0.0	0.0	1.0	0.0
VITAMINS						
Prescribed	38.6	51.6	36.7	47.3	35.3	22.6
Provided	23.7	48.4	36.7	1.8	31.4	0.0
Explained how to use	18.9	29.0	0.0	20.0	19.6	22.6
Explained Side effects	0.4	0.0	0.0	0.0	1.0	0.0
MISOPROSTOL for use if delivered at home (only in third trimester)**						
Prescribed	0.0	0.0	0.0	0.0	0.0	0.0
Provided	0.0	0.0	0.0	0.0	0.0	0.0
Explained how to use	0.0	0.0	0.0	0.0	0.0	0.0
Explained Side effects	0.0	0.0	0.0	0.0	0.0	0.0
7.15 Chlorhexidine for use if delivered at home (only in third trimester)**						
Prescribed	0.0	0.0	0.0	0.0	0.0	0.0
Provided	0.0	0.0	0.0	0.0	0.0	0.0
Explained how to use	0.0	0.0	0.0	0.0	0.0	0.0
Explained Side effects	0.0	0.0	0.0	0.0	0.0	0.0
Deworming medication						
Prescribed	0.4	0.0	0.0	0.0	1.0	0.0
Provided	0.4	0.0	0.0	0.0	1.0	0.0
Explained how to use	0.0	0.0	0.0	0.0	0.0	0.0
Explained Side effects	0.4	0.0	0.0	0.0	1.0	0.0

Note: *Data collected through observations of ANC consultations. ** Women in third trimester of pregnancy; overall (N=96); DH (n=13), MCWC (n=8), UHC (n=21), UH&FWC (n=45) and Private facilities (n=9).

Table 20: Percent of women who received counselling on different topics as per Maternal SOP Bangladesh during ANC, Manikganj 2019*

	Overall (N=249)	DH (n=31)	MCWC (n=30)	UHC (n=55)	Union level facilities (n=102)	Private hospitals (n=31)
Percentage of women who received counselling during ANC on:						
Nutritious food	48.2	19.4	73.3	49.1	52.9	35.5
Intake of fruits	22.9	3.2	50.0	30.9	21.6	6.5
Intake of green/colored vegetables	37.0	12.9	66.7	43.6	41.2	6.5
Iodized salt	0.4	0.0	3.3	0.0	0.0	0.0
Tetanus Toxoid (TT) vaccine	0.8	0.0	0.0	3.6	0.0	0.0
Rest during daytime	18.5	22.6	16.7	27.3	11.8	22.6

	Overall (N=249)	DH (n=31)	MCWC (n=30)	UHC (n=55)	Union level facilities (n=102)	Private hospitals (n=31)
Follow up visit	73.5	87.1	86.7	72.7	62.8	83.9
Danger signs during pregnancy	16.1	0.0	30.0	30.9	11.8	6.5
The risks of harmful practices (drinking alcohol, smoking tobacco)	0.4	0.0	3.3	0.0	0.0	0.0
Family planning options immediately after delivery (post-partum)	7.6	0.0	0.0	20.0	7.8	0.0
The importance of completing four ANC visits	11.2	3.2	6.7	9.1	17.7	6.5
Counselling on birth, neonate and emergency preparedness (BNEP)						
Place of delivery	27.7	6.5	13.3	45.5	32.4	16.1
Benefits of facility delivery	20.5	0.0	6.7	29.1	27.5	16.1
Identification of SBA for delivery	4.0	0.0	3.3	5.5	5.9	0.0
Delivery by SBA	6.4	0.0	6.7	7.3	9.8	0.0
Arranging vehicle or transport before delivery	8.0	0.0	0.0	21.8	7.8	0.0
Deposit money for emergency	10.4	0.0	10.0	20.0	11.8	0.0
Blood grouping	16.9	9.7	16.7	36.4	12.8	3.2
Identification of blood donor	8.4	6.5	10.0	10.9	7.8	6.5
Use of safe delivery kit in case the women decided to deliver at home	0.0	0.0	0.0	0.0	0.0	0.0
Misoprostol after home delivery	0.4	0.0	0.0	0.0	1.0	0.0
Counselling on immediate newborn care						
Thermal care	2.8	0.0	0.0	12.7	0.0	0.0
Delayed bathing	0.0	0.0	0.0	0.0	0.0	0.0
Early initiation of breast feeding	0.4	0.0	0.0	1.8	0.0	0.0
Exclusive breast feeding	4.8	0.0	0.0	20.0	0.0	3.2
Chlorhexidine cord care	2.8	0.0	0.0	12.7	0.0	0.0
Vaccination	2.0	0.0	0.0	1.8	3.9	0.0
Newborn danger sign	3.2	0.0	0.0	14.6	0.0	0.0

Note: *Data collected through observations of ANC consultations.

Experience of care following ANC

WHO defines a positive pregnancy experience as “maintaining physical and sociocultural normality, maintaining a healthy pregnancy for mother and baby (including preventing or treating risks, illness and death), having an effective transition to positive labor and birth, and achieving positive motherhood (including maternal self-esteem, competence and autonomy) (16).” Respectful care is an integral part of a positive pregnancy experience. In this section, we explored women’s satisfaction on different components of ANC.

Satisfaction on counselling

Women were asked about different components of counselling. They were asked whether they were satisfied with the level of information received, not satisfied, or not informed at all. Table 211 shows overall low satisfaction on counselling received during ANC; 41% were satisfied with the counselling on nutritious food, 25% on selection of place of delivery, 17% on birth preparedness, and only 10% on danger signs during pregnancy.

Table 21: Percent of women satisfied with different components of counselling during ANC, Manikganj, 2019*

	Overall (N=249)	DH (n=31)	MCWC (n=30)	UHC (n=55)	Union level facilities (n=102)	Private hospitals (n=31)
Percentage of women satisfied with the counselling on:						
Danger signs during pregnancy	10.4	3.2	6.7	25.5	8.8	0.0
Importance of taking nutritious food during pregnancy	41.0	25.8	80.0	36.4	44.1	16.1
Birth preparedness	16.9	9.7	10.0	32.7	16.7	3.2
Selection of place of delivery	24.9	9.7	13.3	38.2	28.4	16.1
Breast feeding	5.6	0.0	0.0	12.7	6.9	0.0
Four ANC	10.0	0.0	6.7	10.9	14.7	6.5
PNC visits	5.6	0.0	6.7	10.9	5.9	0.0
Importance of PNC	3.2	0.0	3.3	1.8	5.9	0.0
Newborn care	2.8	0.0	0.0	12.7	0.0	0.0
Danger sign of newborn	2.0	0.0	0.0	9.1	0.0	0.0
Postpartum family planning	6.8	0.0	0.0	16.4	7.8	0.0
Follow up visits	53.8	64.5	96.7	50.9	42.2	45.2

Note: *Data collected through observations of ANC consultations.

Satisfaction on provision of care

Women's satisfaction on different components of provision of care were explored. A majority of the participants were satisfied with the attitude of the provider (87%), opportunity to discuss concerns (87%), and cleanliness of the facilities (73%). Very few participants at the district hospital level were satisfied with the waiting time. Overall, satisfaction levels on different ANC service provisions were lower among the mothers who received ANC at district hospitals (Table 22).

Table 22: Percent of women who were satisfied with the provision of care during ANC, Manikganj 2019*

	Overall (N=249)	DH (n=31)	MCWC (n=30)	UHC (n=55)	Union level facilities (n=102)	Private hospitals (n=31)
Percentage of women satisfied with:						
Waiting time	54.2	3.2	96.7	52.7	67.7	22.6
Opportunity to discuss concerns	87.2	54.8	100.0	98.2	93.1	67.7
Information received on health and care	50.6	48.4	73.3	49.1	46.1	48.4
Privacy during consultation	53.0	41.9	50.0	80.0	42.2	54.8
Privacy during physical examination	61.0	41.9	93.3	80.0	49.0	54.8
Cleanliness	73.9	74.2	50.0	83.6	67.7	100.0
Attitude of the provider	86.8	54.8	96.7	92.7	91.2	83.9

Note: *Data collected through observations of ANC consultations.

CONCLUSIONS

Findings from the MaMoni MNCSP QoC survey provide a comprehensive picture of the quality of care of maternal and newborn health in facilities included in the QI initiative. These results depict the baseline situation in the study facilities against which progress of the project can be measured. The findings provide critical insights into areas that need careful attention by the project for improvement.

Quality of care for labor and delivery services

The results showed that overall readiness of the facilities for providing quality care around the period of childbirth was inadequate. Availability of essential drugs for ensuring routine care and complication management was low. Variation was observed across different standards. Overall risk assessment at admission was low. Implementation of evidence-based interventions like use of partograph was only 25%. Around 66% of women were delivered by caesarian section, which is higher than the national average at 31% (2). The WHO benchmark is a C-section rate between 10 to 15% of all births. Unnecessary caesarian section not only creates additional burden on the country's economy, but also has long-term adverse health outcomes for both mother and baby. The prevalence of early initiation of breastfeeding was 71%. One study conducted in Bangladesh observed early initiation of breastfeeding at 67% among the mothers delivered the facilities in 2016(20). Evidence suggests that women who delivered by caesarean section are less likely to initiate breastfeeding with one hour of birth (21). Postnatal assessment of mothers for danger signs was not satisfactory. Around half of the mothers were checked for excessive bleeding before discharge, while blood pressure was measured for around 38% of mothers. Overall monitoring practices were better in private hospitals compared to public facilities.

The presence of a birth companion improves confidence of the women, reduces the need for analgesics, improves likelihood of vaginal birth, and improves women's birth experience (24). Only one-third of women had a birth companion during labor and delivery. The literature identifies allocation of resources, organization of care, facility-related constraints, and cultural inclinations as the implementation barriers to having birth companions in different settings (18). Facility managers and health care providers need to be sensitized and orientated on the effectiveness of a birth companion in improving quality of care.

The facilities are lagging behind in terms of the health information system and functional referral system. Standard registers for MNH care were not available in majority of the facilities. Only 13% of facilities had designated QI teams and use of data for decision-making was even lower (10%). The referral system was not functioning appropriately. Only two-thirds of patients were referred with a referral note, the majority of which lacked essential components. Major inputs are required from the project for quality improvement of the health information system and referral system.

Quality of care for antenatal care (ANC) services

Women's positive experiences during ANC and childbirth can create the foundations for healthy motherhood. ANC not only provides platform for clinical care, but also provides opportunity for health promotion and behavior change. ANC from a medically trained provider, weight monitoring, abdominal examination, blood tests, urine tests, ultrasonography, and counselling on danger signs and birth preparedness were identified as part of quality ANC (2,23). Weight was measured for 86% of women, while abdominal examination was done for around 75%. Blood tests for hemoglobin was prescribed for around 78% of women while urine tests were prescribed for around half. Among all women during ANC, 84% were prescribed IFA, 55% calcium, and 39% vitamins. Supply of medicines was lower than the prescriptions. It is important to ensure supplies of essential supplements for improving compliance with medications prescribed. Around 16% of women received counselling on danger signs in pregnancy, while less than one-third of women received counselling on different components of birth preparedness.

We explored the experience of care among the women who received ANC from the study facilities. A majority of the participants were satisfied with the attitude of the provider (87%), opportunity to discuss concerns (87%), and cleanliness of the facilities (73%). Very few participants at district hospital level were satisfied with the waiting time. Overall, satisfaction on different ANC service provisions were less among the mothers at district hospitals. Lack of readiness of the health facilities could be one reason for poor quality of ANC in Bangladesh, similar to other findings (23). A nationally representative survey from Bangladesh also highlighted the gaps in readiness of the health facilities for providing ANC services following recommended guidelines. It is imperative to improve facility readiness and consider innovative approaches for improving quality of ANC.

RECOMMENDATIONS

In this section, we highlight some of the key gaps identified from the QoC baseline assessment by thematic area and our recommendations for how to address the gaps.

Antenatal care (ANC) services

1. Gaps were identified in the distribution of Misoprostol and 7.1% Chlorhexidine solution during ANC consultations occurring in the third trimester. To address this gap, MaMoni MNCSP recommends working with local governments during microplanning meetings to promote the combined distribution of Misoprostol and Chlorhexidine during ANC consultations and advocate for the distribution of the two medicines earlier on in pregnancy (to ensure women who do not return for ANC visits later on in pregnancy are not missed) and through FWAs.
2. Observations of ANC assessments revealed gaps in the physical assessments conducted by providers, particularly for assessment of fetal presentation and fetal heart sound and edema. Implementation of QI initiatives/bundles at the health facility level will be important to address these identified quality of care gaps.
3. Provider provision of counselling on key topic areas during ANC was observed to be low; especially on danger signs and birth preparedness. Similarly, client satisfaction with counselling was relatively poor, particularly with regards to danger signs during pregnancy, delivery, and the postpartum period, birth preparedness, selection of place of delivery, and nutrition. Provision of mentorship and training to improve provider counselling during ANC is needed. Educational materials that cover these important topic areas can be distributed to clients and used by providers to guide counselling sessions during ANC consultations.
4. Privacy during ANC consultations was an identified gap. Providing a screen to improve visual and auditory privacy can help improve the experience of care during ANC, and provide a more appropriate space for counselling.

Labor and delivery services

1. Strengthen the implementation of evidence-based interventions during labor and delivery, particularly the use of the partograph for monitoring progress of labor and promoting the presence of a birth companion, to help improve the quality and experience of care. Improvement in partograph use can be addressed through a QI initiative at facility level. Further, counselling during ANC should be strengthened as noted above to discuss birth preparedness and the important role of a birth companion.
2. KMC uptake was very low for low birth weight newborns in the DH/UHCs. It will be important to strengthen the linkages between maternity wards and the pediatric and neonatal wards to improve in-facility referrals. Strengthening health care providers counselling on the importance of KMC as a therapy for low birth weight newborns, and including the birth companions of

mothers as part of these sessions, can be another strategy employed to facilitate improved uptake.

3. The practice of skin-to-skin after birth had the lowest coverage of all essential newborn care practices, particularly in DHs, MWCWs, and UHC facilities. We recommend addressing this gap through strengthening of counseling with mothers during ANC on the importance of skin-to-skin, as well as targeted mentorship and coaching of healthcare providers and incorporation of ENC practices as part of QI initiatives within facilities. Given the high caesarean section rates, ensuring the documentation of essential newborn care practices is required, which will also facilitate improved uptake of the practices.
4. The quality of the postnatal assessment of mothers and newborns was generally poor, particularly for assessment of danger signs in mothers and newborns as well as in counselling, particularly around PFP. We recommend incorporating the use of checklist for health care providers to improve immediate PNC care.
5. There is an alarmingly higher proportion of caesarean section deliveries in district hospitals as well as in private facilities. Routine clinical audits using validated tools (e.g. the Robson classifications) need to be incorporated into the monitoring system for identifying unnecessary C-sections (26-29). MaMoni can demonstrate use of Robson classification system in a few hospitals with high C-section rates to maintain optimal use of C-section procedures.
6. Overall, there was inadequate readiness of the facilities for ensuring quality of care during labor and delivery. Support should be provided to equip facilities with updated protocols for labor and delivery management and to ensure that monitoring mechanisms are in place to assess guideline adherence.

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ANNEX 1: MAMONI MNCSP PERFORMANCE INDICATORS

Indicator 18: Percentage of health facilities that have improved on at least 50% of Core MNC QoC

Domain	Indicator (all Facility-based)	Overall**	DH & MCWC	UHC	Private facilities	UH&FWC
Outcome	1. Number of maternal deaths ¹ (*QED impact indicator measured annually)	00	00	00	00	00
	2. Maternal deaths by cause ¹ (Number of maternal deaths classified by cause (ICD-MM))	N/A	N/A	N/A	N/A	N/A
	3. Newborn deaths by cause ¹ (Number of neonatal deaths classified by cause (ICD-PM))	N/A	N/A	N/A	N/A	N/A
	4. Facility Stillbirth rate ^{1§} (Number of stillbirths per 1000 births (live and stillbirths))	10.9	35.0	14.7	14.9	5.2
	5. Pre-discharge Neonatal Mortality Rate ¹ (Percentage of babies born live in a facility dying prior to discharge from facility)	0.0	0.0	0.0	0.0	0.0
	6. Obstetric Case Fatality Rate ¹ (Percentage of women who develop complication in facility who die due to an obstetric complication (disaggregated by direct and indirect causes when feasible))	0.0	0.0	0.0	0.0	0.0
Output/ process	7. Pre-discharge counselling for mother and baby ³ (Percentage of women who received pre-discharge counselling for mother and baby)	94.4	88.9	95.7	100.0	
	8. Companion of choice ^{3,*} (The percentage of women who wanted and had a companion supporting them during labor and childbirth in the health facility)	62.5	66.7	50.0	60.0	
	9. Verbal or physical abuse ³ (Percentage of women who experienced physical or verbal abuse during labor or childbirth in the health facility)	1.1	2.8	0.0	0.0	
	10. Breastfed within one hour of birth ² (Percentage of babies born live in a facility breastfed within one hour of birth)	71.1	83.3	69.6	58.1	96.7 ⁵
	11. Immediate postpartum uterotonic ² (Percentage of women and girls who gave birth in a facility receiving prophylactic uterotonic immediately (within 1 min of delivery) after birth for prevention of PPH)	83.3	77.8	73.9	96.8	50.0 ⁵
	12. Newborns birth weight documented ² (Percentage of newborns with documented birthweight)	64.4	94.4	95.7	6.5	66.7 ⁵
	13. Premature newborns initiated on KMC ⁴ (Percentage of newborns < 2,500 gms initiated on KMC (or admitted to KMC unit if separate unit exists))	5.8	16.7	0	N/A	N/A

Indicators applicable to level of facility***

¹Source: Record review of 100 cases per facility: Overall (N=1825); DH/MCWC (n=199) ; UHC(n=272); Private (n=199); UH&FWC (n=1155)

[§] Source: Record review: Overall (N=1828); DH/MCWC (n=200) ; UHC (n=272); Private (n=202); UH&FWC (n=1155)
Denominator: per 1000 delivery

² Source: Delivery observation; Overall (N=90); DH/MCWC (n=36) ; UHC (n=23); Private (n=31);

³ Source: Exit interview of women delivered in the facilities; Overall (N=90); DH/MCWC (n=36) ; UHC (n=23); Private (n=31)

⁴ Source: Record review; Overall (N=17); DH (n=6); UHC (n=11); KMC facility was not available in MCWC, Private facilities and UH&FWC

⁵ Estimates reported from case simulation interviews (n=30) and are not included in overall estimate calculation

* among all women delivered in the facility who wanted to have birth companion of choice; Overall (N=16); DH/MCWC (n=9) ; UHC (n=2); Private (n=5);

** overall estimates are derived from estimates from DH/MCWC, UHC and private facilities

*** Data collection continued between 11th May-August 3rd, 2019

		Overall (29)	DH (1)	MCWC (1)	UHC(3)	Private Hospital (2)	UH&FWC ¹ (22)
Input	14. Basic Hygiene Provision² (The percentage of facilities in which delivery rooms have at least one functional handwashing station with water and soap available)	69.0	100.0	0.00	100.0	100.0	63.6
	15. Basic sanitation available to women and families³ (The percentage of facilities with basic sanitation available for women during and after labor and childbirth (private toilet/latrine, bathing.)	96.5	100.0	100.0	100.0	100.0	95.5

¹ 22 out of 24 UHFWC had the provision of delivery service

²**Basic Hygiene Provision:** Hand-washing soap (may be liquid soap) and Running water (piped, bucket with tap or pour pitcher)

³**Basic Sanitation:** Facility has functioning flush or pour-flash toilet or a ventilated improved pit latrine or composting toilet for women during and after labor and childbirth

Indicator 19: Percentage of women who delivered in the health facilities reporting positive experience of care.

Indicator (all Facility-based)	Overall (N=90)	DH & MCWC (n=36)	UHC (n=23)	Private facilities (n=31)
Percentage of women received immediate attention upon arrival at the labor ward	50.0	41.7	56.5	54.8
Percentage of women thought that they were adequately informed by health workers about the health and care	83.3	91.7	65.2	87.1
Percentage of women got an opportunity to discuss your concerns and preferences with concerned	84.4	83.3	78.3	90.3
The percentage of women had a companion supporting them during labor and childbirth in the health facility	30.0	33.3	52.2	9.7
Percentage of women who did not report any physical, verbal or sexual abuse during the stay in the facilities	98.9	97.2	100.0	100.0
Percentage of women receive pre-discharge counselling for mother and baby	94.4	88.9	95.7	100.0
Percentage of women received positive experience of care				
At least 2 out of 6	100.0	100.0	100.0	100.0
At least 3 out of 6	95.6	97.2	91.3	96.7
At least 4 out of 6	83.3	86.1	69.6	90.3
At least 5 out of 6	46.7	38.9	52.2	51.6
6 out of 6	15.6	13.9	34.8	3.2

Indicator 21: Percentage of women with Severe preeclampsia/ eclampsia received appropriate management in health facilities¹

Indicator (all Facility-based)	Overall (N=37)	DH & MCWC (n=27)	UHC (n=0)	Private facilities (n=10)	UNION level facilities (n=0)
Percentage of women with severe preeclampsia/ eclampsia received appropriate management in health facilities that had participated in QoC Learning Network	64.9	74.1		40.0	

¹ Data for this indicator has been derived from record review of severe preeclampsia and eclampsia cases. All severe preeclampsia and eclampsia cases from the past 6 months of survey were included. Data collection continued between 11th May-August 3rd, 2019

ANNEX 2: DATA COLLECTION PROCESS AND DATA SOURCES

Objectives	Main indicators	Data collection process	Data collection tools	Data sources / Study participants	Data collection site
Objective 1: Structural readiness	<ul style="list-style-type: none"> ○ Delivery area having Basic Hygiene Provision ○ Basic sanitation available to women and families ○ Basic equipment and supplies in the delivery room ○ Essential logistics and supplies for management of complications during pregnancy, child birth and postpartum ○ Standardized medical record and mechanisms for data collection, analysis and feedback ○ Laboratory supplies and tests 	<ul style="list-style-type: none"> ○ Structured observation ○ Health care provider interview 	Facility readiness assessment tool	<ul style="list-style-type: none"> ○ Observation ○ Statisticians and mangers of respective health facilities 	<ul style="list-style-type: none"> ○ DH, MCWC, UHC, UH&FWC, Private facilities
Objective 2: Quality of care	<p>Delivery Observation</p> <ul style="list-style-type: none"> ○ Complicated and uncomplicated labor and delivery management (if any)-preterm labor, prolong labor, obstructed labor, PROM, preeclampsia/eclampsia and PPH ○ Immediate newborn care – routine care and management of newborn complications ○ Immediate postnatal care within 24 hours (before discharge from the facility) ○ Routine care for mother and baby who remain in hospital as a result of caesarean delivery 	<ul style="list-style-type: none"> ○ Structured observation of delivery care, immediate newborn care, postnatal care within 24 hours (before discharge) 	<ul style="list-style-type: none"> ○ Delivery observation tool ○ Case simulation tool 	<ul style="list-style-type: none"> ○ Women delivered in the facilities ○ Health care providers for delivery services from DH/MCWC/ UHC/ private hospitals ○ Health care providers from Union level facilities 	<ul style="list-style-type: none"> ○ DH, MCWC, UHC, Private facilities

Objectives	Main indicators	Data collection process	Data collection tools	Data sources / Study participants	Data collection site
	<p>Observation of ANC consultation</p> <ul style="list-style-type: none"> ○ Women assessed appropriately during ANC consultation (History taking and physical examination) ○ Clinical and laboratory examinations ○ Women provided with IFA supplements, calcium and vitamins ○ Counselling on nutrition, birth , neonate and emergency preparedness(BNEP), immediate newborn care 	Direct observation of antenatal check-up session	ANC observation tool	<ul style="list-style-type: none"> ○ Pregnant women during their ANC in the facilities ○ ANC service providers 	<ul style="list-style-type: none"> ○ DH, MCWC, UHC, UH&FWC, Private facilities
Objective 3: Experience of care	<ul style="list-style-type: none"> ○ Perception about service of the facility ○ Satisfaction regarding service, patient care, behavior of the provider and staff, cleanliness and counselling services 	Structured interview	Exit interview tools	<ul style="list-style-type: none"> ○ Pregnant women during their ANC in the facilities ○ Recently delivered women before discharge from the facilities 	<ul style="list-style-type: none"> ○ DH, MCWC, UHC, Private facilities