USAID's MaMoni Maternal and Newborn Care Strengthening Project (MaMoni MNCSP)

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Household Survey Final Summary Report

June 2023

This report summarizes the baseline and endline findings of the MaMoni MNCSP household survey conducted in 10 MaMoni intervention districts. As a consortium member of MaMoni MNCSP, International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) conducted the baseline and the endline survey for MaMoni MNCSP. The survey provides the baseline and endline level and change in coverage of maternal and newborn health indicators.

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USAID's MaMoni Maternal and Newborn Care Strengthening Project

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ACRONYMS

ANC	Antenatal Care
BBS	Bangladesh Bureau of Statistics
BDHS	Bangladesh Demographic Health Survey
BSMMU	Bangabandhu Sheikh Mujib Medical University
BMMS	Bangladesh Maternal Mortality and Health Care Survey
CC	Community Clinic
CHX	7.1% Chlorhexidine Di-gluconate Solution
DH	District Hospital
DP	Development Partner
DID	Difference in Difference
ENC	Essential Newborn Care
EPCMD	Ending Preventable Child and Maternal Deaths
FP	Family Planning
FWV	Family Welfare Visitor
GIS	Geographic Information Systems
IHI	Institute for Healthcare Improvement
MC	Medical College
MCHD	Maternal & Child Health Division
MCWC	Maternal & Child Welfare Centre
MDG	Millennium Development Goal
MEL	Monitoring, Evaluation and Learning
MH	Maternal Health
MNCSP	Maternal Newborn Care Strengthening Project
MNH	Maternal and Newborn Health

MPDSR	Maternal and Perinatal Death Surveillance and Response
MOH&FW	Ministry of Health and Family Welfare
NGO	Non-Governmental Organization
NIPORT	National Institute of Population Research and Training
NMR	Neonatal Mortality Rate
PHD	Partners in Health and Development
PPFP	Postpartum Family Planning
PPH	Postpartum Hemorrhage
PPS	Probability Proportional to Size
PNC	Postnatal Care
PSU	Primary Sampling Unit
QoC	Quality of Care
RDW	Recently Delivered Woman
SC	Save the Children
SH	Specialized Hospital
UH&FWC	Union Health and Family Welfare Center
UHC	Upazila Health Complex
USAID	United States Agency for International Development

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INTRODUCTION

Maternal and Newborn Health Situation in Bangladesh

Globally, 2.3 million children die within the first four weeks of birth (neonatal period), which accounts for approximately 7,000 newborn deaths daily (1). In Bangladesh, neonatal deaths account for nearly three-fifths of overall under-five deaths (2). From 1994 to 2014, there was a sharp decline in the under-five mortality rate, from 133 to 45 per 1,000 live births (3). However, neonatal mortality declined only from 52 to 30 per 1,000 live births (4). The slower reduction of neonatal mortality led to a rise in the proportion of overall under-five deaths among newborns. Most neonatal deaths could be prevented through high quality care during birth and in post-birth management (5).

Globally, around 810 women die every day due to complications of pregnancy and childbirth, and most of these deaths could be averted through the provision of skilled care before, during, and after childbirth. While there was a rapid decline in maternal mortality between 2001 to 2010, from 322 to 194 deaths per 100,000 live births (6), progress has since stagnated. According to the Bangladesh Maternal Mortality and Health Care Survey (BMMS) 2016, the maternal mortality ratio of Bangladesh was 196 per 100,000 live births (7). Utilization of the complete continuum of maternity care (antenatal care [ANC], delivery care, and postnatal care [PNC] from a medically trained provider) has increased from 19% in 2010 to 43% in 2016 (7). 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 brings the issue of quality of care (QoC) to the forefront. Low QoC not only causes low reduction of mortality; it also limits the utilization of the care itself (8).

MaMoni Maternal and Newborn Care Strengthening Project (MNCSP)

USAID's MaMoni MNCSP (2018-2023) focused on strengthening public sector maternal and newborn care (MNC) services by advancing learning and expanding and scaling up effective MNC interventions. The project aimed to address the critical health system challenges at national, district, and sub-district levels through increased, equitable utilization of quality MNC services. MaMoni MNCSP geographic coverage originally included direct implementation support to 10 priority districts where MNC interventions and approaches would be scaled up, institutionalized and ultimately sustained through MOH&FW systems. The selection of districts was based on the burden of maternal and neonatal mortality, coverage of interventions, and opportunities for leveraging the efforts of USAID and the MOH&FW.

MaMoni MNCSP performance indicators identified in Monitoring, Evaluation and Learning (MEL) Plan relating to population level MNC coverage include:

1. Percentage of women aged 15-49 years receiving quality ANC 4+ visits during their last pregnancy (at least one visit from medically trained provider, with blood pressure checked, weight taken,

blood and urine checked and counselling for danger signs) in the MaMoni MNCSP-supported 10 original districts.

2. Percentage of women aged 15-49 years who reported delivering in a public sector health facility in the 10 original MaMoni MNCSP districts.
3. Ratio of coverage for facility delivery between richest and the poorest wealth quintiles in the 10 original MaMoni MNCSP districts
4. Percentage of women aged 15-49 years who delivered at home who reported consuming misoprostol tablets immediately after delivery for postpartum hemorrhage (PPH) prevention in the 10 original MaMoni MNCSP districts.
5. Percentage of women aged 15-49 years who delivered in past 15 months who expressed their intention to deliver at a public facility and/or who would recommend others to deliver at a public facility in the 10 original MaMoni MNCSP districts.
6. Percentage of infants born to women aged 15-49 years who were put to the breast within the first hour after birth in the 10 original MaMoni MNCSP districts.
7. Percentage of women aged 15-49 years initiating a modern method of family planning in the postpartum period (PPFP) in the 10 original MaMoni MNCSP districts

A baseline and endline household survey was conducted by icddr,b in 10 MaMoni MNCSP intervention and 4 comparison districts, in order to collect MNC-related coverage estimates and provide change in estimates from baseline to endline for a final evaluation. This is the final report for the household survey, which presents findings on the project achievements with regard to population-level coverage of key MNC practices in 10 priority intervention districts.

The objectives of the MaMoni household survey were:

- To estimate the coverage of key project performance maternal and newborn health (MNH) indicators in the original 10 MaMoni MNCSP intervention districts.
- To assess project progress by comparing estimates with the baseline data and endline achievements of selected MNH indicators; and,
- To assess the project impact by estimating the difference in difference estimate of the selected key indicators using the intervention and comparison districts' baseline and endline data

STUDY METHODOLOGY

Study design

A cross-sectional baseline survey (13 March – 13 September 2019) and endline evaluation household survey (26 December 2022 – 23 March 2023) were conducted to estimate the coverage of selected MNC indicators for MaMoni MNCSP's 10 intervention and four comparison districts. The household survey collected information on utilization of key MNC practices, access to MNH services, and background and household characteristics of women.

Study sites

The baseline and endline studies were conducted in the original 10 MaMoni MNCSP intervention districts (Brahmanbaria, Chandpur, Lakshmipur, Feni, Noakhali, Faridpur, Manikganj, Madaripur, Kushtia, and Habiganj) and in four comparison districts (Kishoreganj, Natore, Rajbari, and Bhola). These studies were conducted to obtain project-level estimates of selected indicators, including: quality ANC, skilled birth attendance, public sector facility delivery, PNC from a skilled provider, misoprostol consumption, breast feeding practices, care-seeking for complications during pregnancy, delivery, postpartum and newborn illness, postpartum family planning practices, and women's preferences towards public facilities for MNH services. The survey population are recently delivered women (RDW), defined as women who had a pregnancy outcome (live birth or stillbirth) in the last 15 months prior to the survey. Figure 1 provides a visual of the geographic locations of study sites.

Figure 1: Geographic locations of the study sites

Sampling methodology

Women who had a birth outcome (live birth/stillbirth) in the past 15 months preceding the survey, termed as "recently delivered women," were interviewed. The survey was designed to provide estimates of the MNC indicators for the 10 project districts and 4 comparison districts. The survey used a sampling frame from the list of villages of the 2011 Population and Housing Census of the People's Republic of Bangladesh, provided by the Bangladesh Bureau of Statistics (BBS).

The household survey design was a two-stage cluster survey. Villages as clusters were selected in the first stage and households were selected in the second stage. The primary sampling unit (PSU) used was a cluster consisting of about 100 households. A complete household listing was conducted in all the chosen clusters to provide a sampling frame for the selection of households with RDWs. From that list, all ever-married women of reproductive age were identified. To provide statistically reliable estimates for socioeconomic characteristics, 30% more households were randomly interviewed per cluster for the household module. Finally, RDWs were identified and interviewed for MNC coverage indicators.

Sample size

Baseline: The sample size was primarily calculated to detect the minimum difference between intervention and comparison districts considering neonatal mortality as the main outcome of the MaMoni MNCSP evaluation study. The neonatal mortality rate was 38 per 1,000 life births. During the sample size calculation, we assumed a 25% reduction of neonatal mortality as the intervention effect. Considering 2.5:1 intervention to comparison sample size ratio, 80% power, 5% level of significance, 1.5 design effect, and 5% non-response, the calculated sample size was 16,654 in total (11,896 in intervention districts and 4,758 in comparison districts). Secondarily, we also calculated the sample size to estimate the district-level coverage of public health facility delivery. Considering 14.3% of public facility delivery prevalence, 2.5% absolute precision, 5% non-response, and 1.5 design effect, the calculated sample size for each district was ≅1,200. So, the total sample size for the 14 evaluation districts was 16,800.

Endline: For sample size calculation of the endline, the proportion of deliveries in public sector health facilities was considered the main outcome variable for the population-level coverage impact of USAID's MaMoni MNCSP. We found a smaller neonatal mortality rate at baseline (19 deaths per 1,000 live births) than expected (38 deaths per 1,000 live births). This smaller baseline rate would require a very large sample size to evaluate the project. Therefore, we dropped the main outcome variable of neonatal mortality and instead considered the proportion of deliveries in public sector health facilities to calculate the sample size. The sample size was calculated for both detecting a 5% overall difference between intervention and comparison districts and providing the project-level estimates for selected MNH indicators at a 5% absolute precision level in MaMoni MNCSP intervention districts. Considering the 2.15 design effect, 7% non-response rate, and 3:1 design ratio of intervention to comparison, the highest adjusted sample size was 6,400 RDWs in intervention areas and 2,150 RDWs in comparison areas. Rounding the sample size figure, we identified 6,500 RDWs from intervention areas and 2,200 RDWs from

comparison areas. We conducted a listing of approximately 870,000 households and interviewed 8,700 RDWs from 870 clusters in 10 intervention districts and 4 comparison districts.

Considering a crude birth rate of 23.3 births per 1,000 population per year (BDHS 2011), each cluster consisted of 100 households to attain a sample of approximately 10 RDWs. However, after listing approximately 100 households, if more households with RDWs were found, then we interviewed all of them in both the baseline and endline surveys. The actual sample sizes of intervention districts for both baseline and endline surveys are provided in Table 1 below.

Table 1: RDWs sampled per sub-district in selected intervention districts during baseline and endline

Intervention districts	Number of sub-districts	Number of clusters per district		Completed HH listing		All RDWs*		RDWs with live births	
		Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Brahmanbaria	9	143	65	14,330	6878	1,608	792	1,533	710
Chandpur	8	134	65	14,053	7232	1,496	793	1,360	708
Faridpur	5	151	65	15,750	6720	1,615	852	1,398	747
Feni	6	129	65	13,606	6635	1,495	831	1,373	747
Habiganj	9	136	65	14,238	6652	1,751	880	1,590	795
Kustia	9	128	65	12,803	7405	1,389	900	1,301	802
Laksmipur	7	119	65	11,914	6722	1,333	843	1,253	765
Madaripur	4	122	65	12,232	7121	1,201	896	1,117	767
Manikganj	6	126	65	13,255	6742	1,164	784	1,025	689
Noakhali	8	145	65	14,559	6703	1,876	842	1,745	780
Total	**71**	**1,333**	**650**	**13,674 0**	**68,81 0**	**14,928**	**8413**	**13,695**	**7,510**

**RDWs: Women whose pregnancy ended within the last 15 months from the interview date.*

Probability proportional to size (PPS) sampling was used for selection of clusters and respondents within the district. PPS sampling identified from which villages the clusters of 100 households were to be selected during endline. All districts were added in one sampling frame. Using PPS, 870 clusters were chosen randomly from that sampling frame. This method ensured a better distribution of clusters since more clusters tend to be selected from districts with higher populations, and less clusters tend to be selected from districts with lower populations.

Data collection/management and survey tools

The survey consisted of mapping villages, listing households, and interviewing identified RDWs. Eligible couple registers maintained by Family Welfare Assistants (FWAs) were used to randomly select the first household (index household) to demarcate a cluster boundary. The listing started from that index household and ended when the data collectors listed all 100 households in a cluster. For the villages that

had more than one cluster, the eligible couple register was divided in accordance with the number of clusters to be selected from that village, then the index household was randomly selected from each of the sections. If any village had no FWA register, an existing health service delivery point was identified in that village and the 21st household north or south from the health service delivery point was selected as the index household. In areas where FWAs were not assigned, the geographical midpoint of the village was identified and the 21st household from the midpoint was selected as the index household.

For the baseline household survey, training was conducted from 23 February to 7 March 2019. Training for the endline survey was conducted from 10-23 December 2022. The training for both baseline and endline included lectures on how to complete the questionnaires and mock interviews between participants, followed by field practice.

For baseline data collection, districts were divided into five zones depending on their geographical distribution. Each zone was supervised by field research officers (FROs) and by a field research manager (FRM). There were five survey teams, each led by a FRO. Each team had two field research assistants (FRAs) and 10 data collectors (DCs). All data collection was tablet-based. Data collection was conducted between 13 March and 30 September 2019.

Endline household survey data collection required a team of two FROs, six FRAs, and 56 field assistants for listing households and conducting RDW interviews, plus 3-5% re-interviews for data quality assurance over a period of three months. Data collection started on 26 December 2022 and was completed by 23 March 2023. Data was collected using custom data collection apps on Android-based tablets. The data management system (DMS) of the Maternal and Child Health Division (MCHD), designed and maintained by icddr,b, was responsible for capturing and transmitting data.

A structured questionnaire was used for both the baseline and endline survey. The questionnaires were developed in English and then translated into in Bangla. The questionnaire had three sections: 1) household listing, 2) household socioeconomic information, and 3) RDW questionnaire.

There were minor changes between the baseline and endline questionnaire, which are reported below:

1. The birth history module was dropped in the endline survey as evaluation of neonatal mortality was no longer an objective of the survey. Rather, a short module asking for number of births in the last three years was included in the endline questionnaire.

2. In the household socio-economic information section, there was an additional question included in the endline survey which intended to explore if any of the women within their family became pregnant and opted for any health facility for delivery. Additionally, the question aimed to capture the underlying reasons for not selecting a public health facility for delivery.

3. In the ANC section, D4I introduced a set of additional questions intended to explore whether participants had received any recommendations to seek healthcare services at a health facility for

their delivery. These questions also asked about who made the recommendation and which health facility in particular they recommended.

4. In the delivery care section, some questions were added in the case of participants who used home or private facilities for delivery. These questions also asked if these participants would recommend visiting a public health facility for delivery. Moreover, this section explored more about cesarean section, including if the delivery was a C-section, when they decided to have the C-section, who proposed the C-Section first, whether the family was informed about why a C-section was required, the reasons that influenced them for a C-section, and whether the participant had another C-section before the most recent delivery.

5. D4I also added questions to the experience of care section. These additional questions related to satisfaction with the service received during delivery for both the participant and relatives/neighbors/others, if the participant had already recommended any of her relatives/neighbors/others to delivery at that facility, and if she would recommend any of her relatives/neighbors/others to delivery at that facility in future.

Data analysis

A frequency distribution of all variables was completed first to check and clean data for out-of-range errors and missing values. Once the data was cleaned, it was screened and recoded, as per necessity, to match with the subsequent analysis. Household asset scores were computed using the Principal Components Analysis method. Our analysis is restricted for the RDWs with live births. We conducted comparative descriptive analysis of baseline and endline MNC indicators for intervention districts. Facility-level disaggregation of some indicators were made per requirements. We also conducted difference in difference (DID) analysis of all coverage-level key performance indicators to quantify the project-level impact. The entire analysis was done using Stata 15.

ETHICAL CONSIDERATIONS

Ethical approval was obtained from the ERC (Ethics Review Committee) of the IRB (Institutional Review Board) of both icddr,b and Save the Children. It was ensured that ethical requirements were met to protect participants' privacy. Informed written consent was obtained from each respondent before the commencement of interviews. Data collectors, on arrival at a household, sought permission from either the head of the household (if present) or an adult above 18 years of age who was in charge of the household. In the event of a minor participant (ages 15 to 17 years), consent was provided by an adult in the household and assent from the minor was obtained. All interviews were conducted at the respondents' homes in a private location. During the informed consent process, data collectors ensured that privacy during interviews and confidentiality of the identified participants were maintained. All consent forms were collected and compiled in hard copy and stored independently of the survey data, using web-linked tablets, where the individual data was coded without individual identifiers. Two

separately maintained databases were prepared: one for participant identifiers and the other for the de-identified dataset. The study team ensured that consent forms with personal identifiers were stored in a safe and locked cabinet. The database with identifiers was password protected and no personnel on the study team were able to re-link data to the participant identifiers.

RESULTS

Background Characteristics of survey respondents (Table 2)

- There have been significant changes in the age and education. However, for other indicators, such as religion and wealth quintile distribution of RDWs, there were no significant changes.
- The proportion of RDWs having a secondary degree or higher education increased by 8.5% from baseline to endline, whereas women having a primary degree decreased by 4.5%.
- The percentage distribution with regard to religious status and wealth quintiles also had almost no change, showing an overall state of homogeneity among the baseline and endline study population.

Table 2: Background characteristics of RDWs in the 10 original MaMoni intervention districts

Background characteristic	Baseline		Endline		Change
	%	N	%	N	
Mother's age					
<20	14.8	13,695	16.2	7,510	1.4
20-29	59.6	13,695	62.0	7,510	2.4
30-39	24.2	13,695	21.1	7,510	-3.1
40-49	1.3	13,695	0.8	7,510	-0.5
Education					
No education	7.2	13,695	3.9	7,510	-3.3
Primary incomplete	11.5	13,695	10.5	7,510	-1.0
Primary complete	14.8	13,695	10.3	7,510	-4.5
Secondary incomplete	45.3	13,695	45.6	7,510	0.3
Secondary complete or higher	21.2	13,695	29.7	7,510	8.5
Religion					
Islam	94.3	13,695	94.1	7,510	-0.2
Hinduism	5.6	13,695	5.9	7,510	0.3
Others	0.1	13,695	0.0	7,510	-0.1
Wealth quintile					
Lowest	17.9	13,695	16.5	7,510	-1.4
Second	18.1	13,695	18.6	7,510	0.5
Middle	20.5	13,695	21.3	7,510	0.8
Fourth	21.5	13,695	20.9	7,510	-0.6
Highest	21.9	13,695	22.8	7,510	0.9

Key Project Performance Indicator and Selected Maternal and Newborn Health Indicator Results

Table 3 show the result of key project performance indicators and other selected maternal and newborn health indictor results at baseline and endline in 10 districts of MaMoni MNCSP. As can be seen, there is substantial increase in indicator from baseline to endline. The indicators are described in the following sections.

Table 3: Key findings of ten original intervention districts (indicators with number prefix are project's performance indicators)

MATERNAL CARE	Baseline		Endline		Change
	%	*N*	*%*	*N*	
Antenatal care					
Percentage of women with a live birth who received at least one ANC from a medically trained provider for the most recent birth	71.2	13,695	88.5	7,510	17.3
Percentage of women with a live birth who received 4 or more ANC for the most recent birth	28.1	13,695	43.7	7,510	15.6
Percentage of women with a live birth who received 4 or more ANC and at least one ANC from a medically trained provider for the most recent birth	26.4	13,695	43.1	7,510	16.7
Percentage of women with a live birth who received at least once all five components of ANC for the most recent birth	26.6	13,695	31.8	7,510	5.2
6. Percentage of women aged 15-49 years receiving quality ANC 4+ visits during their last pregnancy (at least one visit from medically trained provider, with blood pressure checked, weight taken, blood and urine checked and counselling for danger signs) in the 10 original MaMoni MNCSP districts.	13.3	13,695	20.4	7,510	7.1
Delivery care					
Percentage of deliveries in health facilities for the most recent live birth	52.6	13,695	66.4	7,510	13.8
5. Percentage of women aged 15-49 years who reported delivering in a public sector health facility in the 10 original MaMoni MNCSP districts	14.9	13,695	16.1	7,510	1.2
Percentage of deliveries in private sector health facilities for the most recent live birth	36.7	13,695	49.1	7,510	12.4
Percentage of deliveries by a skilled birth attendant for the most recent live birth	55.4	13,695	70.1	7,510	14.7
7. Ratio of coverage for facility delivery between richest and the poorest wealth quintiles in the 10 original MaMoni MNCSP districts	2.45		1.85		-0.6?
Percentage difference in facility births among women in the highest 2 quintiles and the lowest 2 quintiles	31.2		25.4		-5.8

MATERNAL CARE	Baseline		Endline		Change
	%	*N*	*%*	*N*	
34. Percentage of women aged 15-49 years who delivered at home who reported consuming misoprostol tablets immediately after delivery for PPH prevention in the 10 original MaMoni MNCSP districts	15.3	6,235	17.8	2,450	2.5
Percentage of households reporting intention to use public sector for delivery care services, among women who had delivery at public facility	94.0	2,040	97.0	1210	3.0
37. Percentage of women aged 15-49 years who delivered in past 15 months who expressed their intention to deliver at a public facility and/or who would recommend others to deliver at a public facility in the 10 original MaMoni MNCSP districts.	81.4	2,363	85.3	7,510	3.9
PNC and care-seeking for maternal complications					
Percentage of women with a live birth who received postnatal checkup from a medically trained provider within 2 days of delivery after the most recent birth	43.8	13,695	65.9	7,510	22.1
Percentage of women with a live birth who reported having a complication at any stage (pregnancy, delivery, after delivery) for the most recent birth	43.7	13,695	45.3	7,510	1.6
Percentage of women with a live birth who sought care for a complication at any stage (pregnancy, delivery, after delivery) for the most recent birth	61.0	6,135	61.7	3,492	0.7
Newborn care					
35. Percentage of infants born to women aged 15-49 years who were put to the breast within the first hour after birth in the 10 original MaMoni MNCSP districts	57.4	13,695	54.6	7,510	-2.8
Percentage of women with a live birth delivered at home reporting the newborn received essential newborn care	9.2	6,417	11.8	2,521	2.6
Percentage of infants who received a postnatal checkup from a medically trained provider within 2 days of delivery	42.2	13,695	67.1	7,510	24.9
Family planning					
33. Percentage of women aged 15-49 years initiating modern method of FP in the	40.4	11,190	41.0	6,063	0.6

MATERNAL CARE	Baseline		Endline		Change
	%	*N*	*%*	*N*	
postpartum period (PPFP) in the 10 original MaMoni MNCSP districts					

Antenatal Care (Table 4)

- The percentage of women aged 15-49 with a live birth within 15 months who received ANC during the last pregnancy from any provider, has increased by 13.6 percentage points, from 77.0% at baseline to 90.6% at endline.
- Receiving ANC from public sector facilities increased by 8.2 percentage points, from 30.3% at baseline to 38.5% endline, and a majority of this increase was made by union level public facilities (UH&FWC/CC) (7.2%).
- The percentage of women with a live birth who received ANC from a medically trained provider has increased 17.3 percentage points from 71.2% at baseline to 88.5% at endline.
- The percentage of women who received four or more ANCs also increased, by 15.6 percentage points from 28.1% at baseline to 43.7% at endline.
- Women receiving different ANC components has increased by 6.8 to 10.1 percentage points from baseline to endline, except for counselling on danger signs which has decreased by 4.1% point.
- The percentage of women with a live birth who at least once received all five ANC components increased 5.2 percentage points, from 26.6% at baseline to 31.8% at endline.
- The percentage of women with a live birth receiving 4+ ANC visits with at least one from a skilled provider with all five components, increased 7.1 percentage points, from 13.3% at baseline to 20.4% at endline.

Table 4: Antenatal care practices of RDWs in the 10 original MaMoni intervention districts

Antenatal care practices	Baseline		Endline		Change
	%	*N*	*%*	*N*	
Percentage of women aged 15-49 with a live birth in 15 months preceding the survey who received ANC*fro	77.0	13,695	90.6	7,510	13.6
Place of ANC for the women aged 15-49 with a live birth in 15 months preceding the survey who received ANC (multiple answers possible)					
Home	11.1	10,591	9.5	6,833	-1.6

Antenatal care practices	Baseline		Endline		Change
	%	*N*	*%*	*N*	
Public Sector	30.3	10,591	38.5	6,833	8.2
District level (MC/SH/DH/MCWC)**	9.0	10,591	8.1	6,833	-0.9
Upazila level (UHC)***	8.7	10,591	11.6	6,833	2.9
Union level (UH&FWC/CC)****	12.3	10,591	19.5	6,833	7.2
Private Sector	73.1	10,591	83.2	6,833	10.1
NGO Sector	3.0	10,591	3.4	6,833	0.4
Other/Missing	0.4	10,591	0.2	6,833	-0.2
Percentage of women with a live birth who received ANC from a medically trained provider for the most recent birth	71.2	13,695	88.5	7,510	17.3
Percentage of women with a live birth who received 4 or more ANC for the most recent birth	28.1	13,695	43.7	7,510	15.6
Women who received different ANC service component during ANC					
Weighed	83.1	10,591	90.2	6,833	7.1
BP measured	85.3	10,591	92.1	6,833	6.8
Urine test	71.4	10,591	79.5	6,833	8.1
Blood test	70.9	10,591	81.0	6,833	10.1
Counselled on danger signs	45.4	10,591	41.3	6,833	-4.1
Percentage of women aged 15-49 years old with a live birth in 15 months prior to survey date who reported having five components of ANC at least once at any of the ANC visits	26.6	13,695	31.8	7,510	5.2
Percentage of women aged 15-49 years receiving quality ANC 4+ visits during their last pregnancy (at least one visit from medically trained provider, with blood pressure checked, weight taken, blood and urine checked and counselling for danger signs) in the 10 original MaMoni MNCSP districts.	13.3	13,695	20.4	7,510	7.1

*Any ANC irrespective of the provider type

**Medical College/Specialized Hospital/District Hospital/ Maternal & Child Welfare Centre

*** Upazila Health Complex

**** Family Welfare Centre/Community clinic

Delivery Care (Table 5)

- The nearest facility with delivery services being public increased by 10.6 percentage points, from 71.3% at baseline to 81.9% at endline. This increase is primarily due to increase in union level facility being the nearest facility (18.3 percentage points increase). The private sector facility was the nearest delivery facility for only 16.6% of people in the endline. This indicates that availability and accessibility of public sector facilities for delivery care has increased.

- The percentage of deliveries in health facilities for the most recent birth increased 13.8 percentage points, from 52.6% at baseline to 66.4% at endline, but the private sector facilities account for the biggest contribution (12.4 percentage points) by increasing from 36.7% at baseline to 49.1% at endline.

- Deliveries in public sector facilities increased by only 1.2 percentage points. The delivery in union level facilities increased by 2.2 percentage points, from 2.3% at baseline to 4.5% at endline. However, there was about one percentage point decline in district hospital delivery and no change for upazila hospitals. MaMoni has invested substantial project support in improving and upgrading union level facilities to provide 24/7 delivery service, which has contributed to the increase in the overall public sector facility delivery and union level facility delivery.

- Wealth quintile-wise facility delivery increased in all quintile groups, with similar increased among the poorest (14.2 percentage points), second (17.1 percentage points) and third quintiles (16.4 percentage points), but a lower increase in the richest quintile (8.4 percentage points). The ratio of delivery between the richest and poorest quintile has reduced by 0.6 from 2.45 at baseline to 1.85 at endline, suggesting a reduction in inequality between the richest and poorest. Similarly, public facility delivery increased in the poorest (3.9%), second (2.6%) and third wealth quintiles (2.3%), whereas it decreased in the richest quintile from baseline to endline.

- Caesarean section for most recent live birth has increased 10.6 percentage points, from 35.9% at baseline to 47.5% at endline, whereas normal delivery has faced a decline by 10.3 percentage points. Out of all facility deliveries, over two thirds (67.8% at baseline and 70% at endline) are by C-section. Out of c-section deliveries, public facility accounted for 6.1% at endline which is a reduction of 5 percentage points from the baseline while the private facility's share increased to 92.9% at endline.

- Of all normal deliveries, the percentage that was delivery at home declined, and delivery in a public facility increased by 7.9 percentage points, from 16.9% at baseline to 24.8% in the endline. This indicates that the delivery in public facility has indeed increased from baseline to endline in terms of normal deliveries, which are more likely to occur in the public facilities than in private facilities.

- Deliveries by a skilled birth attendant (medically trained provider) have increased 14.7 percentage points, from 55.4% at baseline to 70.1% at endline, and this increase has happened particularly in union level public facilities (2.9%) and private sector facilities (4.5%).

- The percentage of women who delivered at home and received misoprostol tablet for prevention of PPH had a slight increase of 1.7 percentage points, from 16.1% at baseline to 17.8% at endline. Similarly, the consumption of misoprostol by women delivering at home for PPH prevention had a slight increase of 2.5 percentage points, from 15.3% at baseline to 17.8% at endline

Table 5: Delivery care practices of RDWs in the 10 original MaMoni intervention districts

Delivery care practices	Baseline		Endline		Change
	%	*N*	*%*	*N*	
Place of nearest health facility where delivery service is available					
Public Sector	71.3	13,695	81.9	7,510	10.6
District level (MC/SH/DH/MCWC)	22.5	13,695	15.2	7,510	-7.3
Upazila level (UHC)	32.3	13,695	32.5	7,510	0.2
Union level (UH&FWC/CC)	15.9	13,695	34.2	7,510	18.3
Private Sector	23.1	13,695	16.6	7,510	-6.5
NGO Sector	1.0	13,695	1.0	7,510	0.0
Other/Missing/Don't know	4.5	13,695	0.5	7,510	-4.0
Percentage of deliveries in health facilities for the most recent live birth	52.6	13,695	66.4	7,510	13.8
Place of delivery for the most recent live birth					
Home	46.9	13,695	33.6	7,510	-13.3
Public Sector	14.9	13,695	16.1	7,510	1.2
District level (MC/SH/DH/MCWC)	7.7	13,695	6.8	7,510	-0.9
Upazila level (UHC)	4.5	13,695	4.7	7,510	0.2
Union level (UH&FWC/CC)	2.3	13,695	4.5	7,510	2.2
Private Sector	36.7	13,695	49.1	7,510	12.4
NGO Sector	1.0	13,695	1.2	7,510	0.2
Other/Missing/Don't know	0.6	13,695	0.0	7,510	-0.6
Percentage of deliveries in health facilities, by wealth quintile, for the most recent live birth					
Poorest quintile	29.6	2,457	43.8	1,242	14.2
Second quintile	42.1	2,481	59.2	1,393	17.1
Third quintile	51.2	2,813	67.6	1,597	16.4
Fourth quintile	61.6	2,949	73.6	1,567	12.0
Richest quintile	72.5	2,995	80.9	1,711	8.4
Percentage of women aged 15-49 years who reported delivering in a public sector health facility in the 10 original MaMoni MNCSP districts	14.9	13,695	16.1	7,510	1.2
Percentage of deliveries in public health facilities, by wealth					

Delivery care practices	Baseline		Endline		Change
	%	*N*	*%*	*N*	
quintile, for the most recent live birth					
Poorest quintile	12.2	2,457	16.1	1,242	3.9
Second quintile	14.6	2,481	17.2	1,393	2.6
Third quintile	15.4	2,813	17.7	1,597	2.3
Fourth quintile	16.5	2,949	15.5	1,567	-1.0
Richest quintile	15.3	2,995	14.3	1,711	-1.0
Mode of delivery for the most recent live birth					
Normal	63.7	13,695	52.5	7,510	-10.3
Cesarean	35.9	13,695	47.5	7,510	10.6
Instrumental/Other	0.4	13,695	0.1	7,510	-0.4
Mode of delivery among facility delivery					
Normal	31.6	7,348	29.9	5,089	-1.7
Cesarean	67.8	7,348	70.0	5,089	2.2
Instrument/Other	0.6	7,348	0.1	5,089	-0.5
Place of delivery of normal delivery					
Home	73.2	8,725	62.8	4,014	-10.4
Public	16.9	8,725	24.8	4,014	7.9
District level (MC/SH/DH/MCWC)	7.4	8,725	8.7	4,014	1.3
Upazila level (UHC)	5.6	8,725	7.5	4,014	1.9
Union level (UH&FWC/CC)	3.4	8,725	8.5	4,014	5.1
Private	8.4	8,725	11.0	4,014	2.6
NGO	0.8	8,725	1.4	4,014	0.6
Other/Missing	0.8	8,725	0.0	4,014	-0.8
Place of delivery of c-section delivery					
Public	11.1	4,893	6.1	3,491	-5.0
District level (MC/SH/DH/MCWC)	8.0	4,893	4.6	3,491	-3.4
Upazila level (UHC)	2.6	4,893	1.4	3,491	-1.2
Union level (UH&FWC/CC)	0	4,893	0.0	3,491	-0.0
Private	87.5	4,893	92.9	3,491	5.4
NGO	1.2	4,893	0.9	3,491	-0.3
Other/Missing	0.3	4,893	0.0	3,491	-0.3
Percentage of deliveries in public sector health facilities for the most recent live birth	14.9	13,695	16.1	7,510	1.2

Delivery care practices	Baseline		Endline		Change
	%	*N*	*%*	*N*	
Percentage of deliveries by medically trained provider for the most recent live birth	55.4	13,695	70.1	7,510	14.7
Place of delivery for the women who delivered by medically trained provider for the most recent live birth					
Home	7.1	7,728	5.8	5,358	-1.3
Public Sector	25.3	7,728	22.7	5,358	-2.6
District level (MC/SH/DH/MCWC)	13.3	7,728	9.7	5,358	-3.6
Upazila level (UHC)	7.9	7,728	6.6	5,358	-1.3
Union level (UH&FWC/CC)	3.4	7,728	6.3	5,358	2.9
Private Sector	65.4	7,728	69.9	5,358	4.5
NGO Sector	1.5	7,728	1.5	5,358	0.0
Other/Missing	0.7	7,728	0.0	5,358	-0.7
Ratio of coverage for facility delivery between richest and the poorest wealth quintiles in the 10 original MaMoni MNCSP districts	2.45		1.85		-0.6
Percentage of women with a live birth who delivered at home who had received misoprostol tablets for use at PPH prevention for the most recent birth	16.1	6,235	17.8	2,450	1.7
Percentage of women aged 15-49 years who delivered at home who reported consuming misoprostol tablets immediately after delivery for PPH prevention in the 10 original MaMoni MNCSP districts	15.3	6,235	17.8	2,450	2.5

MaMoni MNCSP Impact on Normal Delivery in the Intervention Areas (Table 6)

- In intervention areas, % of all normal deliveries increased 8% points from 16.8% in baseline to 24.8% in endline while it increased only 3.7% points in comparison areas from 14.6% at baseline to 18.3% at endline. The net increase in normal delivery in intervention is 4.3% points which can be attributed to effect of MaMoni MNCSP in intervention areas. The difference in difference is statistically significant at 5% level of significance.
- Of the increase in normal delivery in public facility from baseline to endline in MaMoni area, the union level facility contributed the most, 5.1% points whereas the district health facility contributed 1.3% point and upazila health facilities contributed 1.9% points.

- Private sector facilities increased normal delivery by 2.7% point in MaMoni area from baseline of 8.3% to endline of 11%.
- C-section deliveries decreased 5.4 percentage points in public sector facilities in intervention districts, from 11.5% at baseline to 6.1% at endline. They also decreased in public facilities in comparison areas by 4.4 percentage points, from 11.5% at baseline to 6.9% at endline. In the private sector facilities in intervention areas, C-section delivery increased from 87.5% at baseline to 92.9% at endline. A similar level and increase were found in comparison areas as well. This suggests the private sector takes up over 90% of cesarian deliveries and trends in both intervention and comparison areas.

Table 6: Distribution of place of delivery by mode of delivery in MaMoni intervention areas at baseline and endline

Place of delivery	Baseline						Endline					
	Normal		C-section		Instrumental		Normal		C-section		Instrumental	
	Interventions (%)	Comparison (%)	Interventions (%)	Comparison (%)	Interventions (%)	Comparison (%)	Interventions (%)	Comparison (%)	Interventions (%)	Comparison (%)	Interventions (%)	Comparison (%)
Home	73.3	75.4	0.0	0.0	0.0	0.0	62.8	70.1	0.0	0.0	0.0	0.0
Public Sector	16.8	14.6	11.1	11.5	60.1	0.0	24.8	18.3	6.1	6.9	0.0	0.0
District level (MC/SH/DH/MCWC)	7.4	6.7	8.0	9.2	23.9	0.0	8.7	9.4	4.6	5.9	0.0	0.0
Upazila level (UHC)	5.6	6.5	2.6	2.0	29.2	0.0	7.5	7.2	1.4	0.7	0.0	0.0
Union level (UH&FWC/CC)	3.4	1.3	0.0	0.0	6.9	0.0	8.5	1.6	0.0	0.0	0.0	0.0
Private Sector	8.3	8.9	87.5	87.7	38.3	100.0	11.0	11.2	92.9	92.3	100.0	0.0
NGO Sector	0.8	0.6	1.2	0.5	0.0	0.0	1.4	0.4	0.9	0.8	0.0	0.0
Other/Missing	0.8	0.5	0.3	0.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total (N)	8,758	2,509	4,893	1,044	43	3	4,015	1,449	3,491	1,197	4	0

Intention to and/or recommendation for use of Public Facility for Delivery Care (Table 7)

In the baseline, the survey measured intention to use/recommend the public sector for delivery care only among those who delivered at public facility. However, in the midline and endline, the survey measured this indicator among all groups of women who delivered at home, in a public facility, or a private facility to capture the perception and attitude of all women toward using public facilities. This section reports the findings about the indicator comparing midline and endline findings.

- The percentage of households reporting intention to use public sector delivery services has reduced by 1.7 percentage points from 74.0% at baseline to 72.3% at endline.

- The percentage of women reporting intention to use public sector delivery services who delivered the last baby at public facility, increased by 3 percentage points, from 94.0% at baseline to 97.0% at endline. Likewise, among those who delivered at home, there was a 7.2-percentage points increase in intending or recommend delivering in public facilities.
- Even among the women who delivered in private facility, there was a 5.8-percentage points increase in intending or recommending delivering in public facilities.
- Among all women, irrespective of where they delivered the last baby, the percentage of women reporting intention to use public sector delivery services has increased by 3.9 percentage points, from 81.4% in midline to 85.3% at endline.

Table 7: RDWs' intention to deliver at a public facility in intervention districts by Baseline, Midline and Endline

Intention or recommendation to deliver at public facility	Baseline*/Midline**		Endline		Change
	%	*N*	*%*	*N*	
Percentage of households reporting intention to use public sector for delivery care services among the household surveyed during midline and endline**	74.0	7,016	72.3	30,326	-1.7
Percentage of women reporting intention to use public sector for delivery care services, among women who had delivery at public facility during baseline and endline*	94.0	2,111	97.0	1,210	3.0
Percentage of women reporting intention to use or recommend others to use public sector for delivery care services, among women who had delivery at home during midline and endline**	81.5	1,143	88.7	2,521	7.2
Percentage of women reporting intention to use or recommend others to use public sector for delivery care services, among women who had delivery at private sector during midline and endline **	73.3	817	79.1	3,688	5.8
37. Percentage of women aged 15-49 years who delivered in past 15 months who expressed their intention to deliver at a public facility and/or who would recommend others to deliver at a public facility in the 10 original MaMoni MNCSP districts during midline and endline**	81.4	2,363	85.3	7,510	3.9

Postnatal Care and Maternal Complication Care (Table 8)

- The percentage of women receiving a postnatal checkup by a medically trained provider within two days of delivery has increased by 22.1 percentage points, from 43.8% at baseline to 65.9% at endline. In public sector facilities, it increased by 18.9 percentage points, from 67.3% at baseline to 86.2% at endline, whereas in private sector facilities, it increased by 13.6% (82.9% to 96.5%) in private sector facilities.

- There was a substantial increase of PNC in upazila and union level facilities, by 23 and 21.3 percentage points, respectively.

- For PNC by mode of delivery, there were increases by 17.3% from 21.2% at baseline to 38.5% at endline in normal deliveries, and by 13.6% in cesarean deliveries and instrumental deliveries. PNC in

normal delivery is very low; only 38% of women with normal delivery at endline received PNC, while all women who had cesarean and instrumental delivery received it.

- The percentage of women with a live birth reporting a complication at any stage (pregnancy, delivery, after delivery) was almost unchanged from baseline (43.7%) to endline (45.3), and the subsequent care seeking for such complication was almost unchanged from baseline (61.0%) to endline (61.7%).

- The percentage of care seeking women with complication at any stage (pregnancy, delivery, after delivery) increased by 3 percentage points in private sector facilities, while showing a decrease in the public sector (2 percentage points).

Table 8: PNC and maternal complication care among RDWs in the 10 original MaMoni intervention districts

Maternal PNC and complication care	Baseline		Endline		Change
	%	N	%	N	
Percentage of women with a live birth who received postnatal checkup from a medically trained provider within 2 days of delivery after the most recent birth	43.8	13,695	65.9	7,510	22.1
Percentage of women with a live birth who received postnatal checkup from a medically trained provider, by place of delivery, within 2 days of delivery after the most recent birth					
Home	5.3	6,235	10.6	2,450	5.3
Public Sector	67.3	2,111	86.2	1,253	18.9
District level (MC/SH/DH/MCWC)	70.8	1,132	87.5	553	16.7
Upazila level (UHC)	65.6	619	88.6	349	23.0
Union level (UH&FWC/CC)	60.4	304	81.7	334	21.3
Private Sector	82.9	5,108	96.5	3,750	13.6
NGO Sector	65.2	130	84.7	85	19.5
Other/Missing	47.3	80	69.2	3	21.9
Percentage of women with a live birth who received postnatal checkup, by mode of delivery, from a medically trained provider within 2 days of delivery after the most recent birth					
Normal	21.2	8,609	38.5	3,961	17.3
Cesarean	83.7	5,012	97.3	3,562	13.6
Instrumental/Other	61.0	57	100.0	4	39.0
Percentage of women with a live birth who reported having a complication at any stage (pregnancy, delivery, after delivery) for the most recent birth	43.7	13,695	45.3	7,510	1.6

Maternal PNC and complication care	Baseline		Endline		Change
	%	N	%	N	
Percentage of women with a live birth who reported having a complication by maternity stage for the most recent birth					
During pregnancy	37.6	13,695	35.8	7,510	-1.8
During delivery	21.6	13,695	16.2	7,510	-5.4
After delivery	21.0	13,695	19.5	7,510	-1.5
Percentage of women with a live birth who sought care for a complication at any stage (pregnancy, delivery, after delivery) for the most recent birth	61.0	6,135	61.7	3,492	0.7
Place of care seeking by the women with complication at any stage (pregnancy, delivery, after delivery) for the most recent live birth					
Home	3.4	3,748	2.8	2,140	-0.6
Public Sector	22.2	3,748	20.2	2,140	-2.0
District level (MC/SH/DH/MCWC)	10.2	3,748	7.9	2,140	-2.3
Upazila level (UHC)	8.0	3,748	8.2	2,140	0.2
Union level (UH&FWC/CC)	3.7	3,748	4.1	2,140	0.4
Private Sector	72.0	3,748	75.0	2,140	3.0
NGO Sector	1.0	3,748	1.4	2,140	0.4
Other/Missing	1.4	3,748	0.6	2,140	-0.8

Postnatal Newborn Care (Table 9)

- The percentage of newborns receiving a postnatal checkup from a medically trained provider within 2 days of delivery has increased 24.9 percentage points, from 42.2% at baseline to 67.1% at endline.
- This increase has been observed in both public sector facilities (21.8%) and private sector facilities (19.7%).

The percentage of newborns receiving a postnatal checkup from a medically trained provider within 2 days of delivery, has increased among both cesarean and normally delivered newborns (19.9% and 18.8%, respectively). However, as observed in PNC for women, newborn born through normal vaginal delivery were less likely to receive PNC (41.2% at endline).

Table 9: Postnatal newborn care practices in the 10 original MaMoni intervention districts

Postnatal newborn care	Baseline		Endline		Change
	%	N	%	N	
Newborn Care					
Percentage of infants who received a postnatal checkup from a medically trained provider within 2 days of delivery	42.2	13,695	67.1	7,510	24.9
Percentage of infants who received a postnatal checkup, by place of delivery, from a medically trained provider within 2 days of delivery					
Home	6.5	6,235	12.5	2,450	6.0
Public Sector	67.0	2,111	88.8	1,253	21.8
District level (MC/SH/DH/MCWC)	69.6	1,132	90.2	553	20.6
Upazila level (UHC)	67.6	619	91.5	349	23.9
Union level (UH&FWC/CC)	60.6	304	83.7	334	23.1
Private Sector	77.1	5,108	96.8	3,750	19.7
NGO Sector	65.7	130	90.3	85	24.6
Other/Missing	38.4	80	35.5	3	-2.9
Percentage of infants who received a postnatal checkup, by mode of delivery, from a medically trained provider within 2 days of delivery					
Normal	22.4	8,609	41.2	3,961	18.8
Cesarean	77.0	5,012	96.9	3,562	19.9
Instrumental/Other	58.7	57	100.0	4	41.3

Essential Newborn Care (Table 10)

- Among the home deliveries, instrument boiling before cord cutting or use of safe delivery kit slightly increased by 4.8% percentage points, from 81.4% at baseline to 86.2% at endline.
- For home deliveries, CHX alone or nothing applied to the umbilical cord reduced by 6.1 percentage points, from 37.3% at baseline to 31.2% at endline. CHX applied to the umbilical cord increased very slightly by 1.4 percentage points, from 17.4% at baseline to 18.8% at endline.
- Newborns dried within 0-4 minutes of birth increased 11 percentage points, from 60.7% at baseline to 71.7% at endline, among home deliveries.
- Delayed bathing (bathed 72+ hours after delivery) had a noteworthy increase among home deliveries – 8.2 percentage points, moving from 56.7% at baseline to 64.9% at endline.

- Among the home delivery, immediate breastfeeding (breastfed within 1 hour after birth) has increased by 6.9 percentage points from 71.7% at baseline to 78.6% at endline.

- Newborn receiving all ENC components among mothers who delivered at home increased slightly, by 2.6 percentage points, from 9.2% at baseline to 11.8% at endline.

- Among all newborns (home and facility delivery), the percentage of newborns put to the breast within the first hour of birth has decreased by 2.8 percentage points, from 57.4% at baseline to 54.6% at endline. A close look at the indicator by place of birth shows that there was an increase by 6.9 percentage points among those delivered at home, and by 7.3% among those delivered at public sector facilities, but there was a decrease of 4.5% among those delivered in private sector facilities. The decrease in the private sector has caused an overall decline in the country, given the number of deliveries in private sector facilities. Another factor is the large number of C-section deliveries in the private sector, in which case immediate breastfeeding is very unlikely (30.6%) due to health condition of the mother after the surgery.

- Immediate breastfeeding increased by 2% among the poorest wealth quintile and reduced by 4.3% among richest wealth quintile from baseline to endline, most probably due the C-section preference in the wealthier people.

Table 10: Comparison of baseline and endline essential newborn care (ENC) practices after childbirth in ten original intervention districts of MaMoni

Newborn Care	Baseline		Endline		Change
	%	N	%	N	
ENC after home birth					
Used safe delivery kit/bag or boiled blade during delivery	81.4	6,235	86.2	2,450	4.8
Chlorhexidine (CHX) alone or Nothing applied to the umbilical cord	37.3	6,235	31.2	2,450	-6.1
Applied CHX after umbilical cord was cut and tied	17.4	6,235	18.8	2,450	1.4
Dried within 0-4 minutes after birth	60.7	6,235	71.7	2,450	11
Delayed bathing (72+ hours after delivery)	56.7	6,235	64.9	2,450	8.2
Immediate breastfeeding (within 1 hour after birth)	71.7	6,235	78.6	2,450	6.9
Percentage of women with a live birth delivered at home reporting the newborn received ENC*	9.2	6,235	11.8	2,450	2.6
ENC for all birth (home and facility)					

Newborn Care	Baseline		Endline		Change
	%	N	%	N	
Percentage of infants born to women aged 15-49 years who were put to the breast within the first hour after birth in the 10 original MaMoni MNCSP districts	57.4	13,695	54.6	7,510	-2.8
Percentage of Immediate breastfeeding (breastfed within 1 hour after birth) by place of delivery					
Home	71.7	6,235	78.6	2,450	6.9
Public Sector	58.6	2,111	65.9	1,253	7.3
Private Sector	38.7	5,108	34.2	3,750	-4.5
NGO Sector	51.5	130	66.9	85	15.4
Other/Missing	63.1	80	30.8	3	-32.3
Percentage of Immediate breastfeeding (breastfed within 1 hour after birth) by mode of delivery					
Normal	69.4	8,609	75.5	3,961	6.1
Cesarean	36.2	5,012	30.6	3,562	-5.6
Instrumental/Other	47.4	57	15.8	4	-31.6
Percentage of Immediate breastfeeding (breastfed within 1 hour after birth) by wealth quintile					
Poorest quintile	65.6	2,457	67.6	1,242	2.0
Second quintile	61.1	2,481	59.5	1,393	-1.6
Third quintile	58.2	2,813	53.9	1,597	-4.3
Fourth quintile	53.4	2,949	49.5	1,567	-3.9
Richest quintile	50.8	2,995	46.5	1,711	-4.3

*ENC includes use of clean delivery kit/bag or boiled blade, nothing applied to cord or chlorhexidine alone, dried within five minutes after birth, bathing delayed until 72 hours or more, and immediate breastfeeding.

Family Planning Practices (Table 11)

- The percentage of women initiating any FP method during the postpartum period increased 2.9 percentage points, from 42.4% at baseline to 45.3% at endline. The increase in FP method among home delivery is 4.8 percentage points, 2.2 percentage points among public sector facility delivery and 3.4 percentage points among delivery in private facility.

- Use of PPFP methods improved over time among both normal and cesarian deliveries, reaching about 50% in both groups.

- Initiating a modern FP method in the postpartum period had little increase (0.6 percentage points), from 40.4% at baseline to 41.0% at endline.

- About 30% of women received PPFP from public sector facilities, compared to 65% from private facilities.

Table 11: Comparison of baseline and endline family planning practices in the 10 original MaMoni intervention districts

Family planning practices	Baseline		Endline		Change
	%	*N*	*%*	*N*	
Percentage of women initiating any method of family planning in the postpartum period	42.4	11,190	45.3	6,063	2.9
Percentage of women initiating any method of family planning, by place of delivery, in the postpartum period					
Home	44.0	6,235	48.8	2,450	4.8
Public Sector	50.0	2,111	52.2	1,253	2.2
District level (MC/SH/DH/MCWC)	52.2	1,132	55.6	553	3.4
Upazila level (UHC)	48.2	619	50.1	349	1.9
Union level (UH&FWC/CC)	47.2	304	49.8	166	2.6
Private Sector	45.8	5,108	49.2	3,750	3.4
NGO Sector	49.7	130	49.9	85	0.2
Other/Missing	46.2	80	100.0	3	53.8
Percentage of women initiating any method of family planning, by mode of delivery, in the postpartum period					
Normal	45.0	8,609	49.2	3,961	4.2
Cesarean	46.9	5,012	50.0	3,562	3.1
Instrumental/Other	37.6	57	63.4	4	25.8
Percentage of women initiating a modern method of family planning in the postpartum period	40.4	11,190	41.0	6,063	0.6
Percentage of women initiating a modern method of family planning, by place of delivery, in the postpartum period					
Home	42.6	6,235	44.1	2,450	1.5
Public Sector	48.1	2,111	48.4	1,253	0.3
District level (MC/SH/DH/MCWC)	50.3	1,132	52.3	553	2.0
Upazila level (UHC)	46.6	619	45.3	349	-1.3
Union level (UH&FWC/CC)	44.9	304	46.5	334	1.6

Family planning practices	Baseline		Endline		Change
	%	*N*	*%*	*N*	
Private Sector	43.2	5,108	44.6	3,750	1.4
NGO Sector	46.8	130	45.2	85	-1.6
Other/Missing	43.3	80	64.5	3	21.2
Percentage of women initiating a modern method of family planning, by mode of delivery, in the postpartum period					
Normal	43.4	8,609	44.8	3,961	1.4
Cesarean	44.3	5,012	45.4	3,562	1.1
Instrumental/Other	34.8	57	63.4	4	28.6
Source of last modern method of family planning					
Public Sector	29.4	4556	29.6	2520	0.2
District level (MC/SH/DH/MCWC)	2.2	4556	2.2	2520	0.0
Upazila level (UHC)	3.2	4556	3.1	2520	-0.1
Union level (UH&FWC/CC)	24.1	4556	24.3	2520	0.2
Private Sector	61.0	4556	65.1	2520	4.1
NGO Sector	2.5	4556	1.3	2520	-1.2
Other/Missing	7.1	4556	3.9	2520	-3.2

DISCUSSION AND RECOMMENDATIONS

While about eight in 10 women received at least one ANC from medically trained provider, having four or more ANC was low at 44% at the endline, despite the increase over time. There could be two factors contributing to the lower ANC 4+ uptake. One is the late start of the first ANC, with only about one-third starting ANC in the first trimester of pregnancy. The second factor is MOH&FW's ANC visit message, which asks for women to come for four visits, with one visit in the first trimester, one in the second trimester, and two in the last trimester. Under this ANC visit guidance, many women will not be able to make the visits per the schedule and will then not make at least four visits during the pregnancy. The present WHO recommendation is a minimum of eight visits per the recommended schedule.

MaMoni MNCSP endline survey findings showed normal delivery in public facilities increased in all three levels of public health facilities. The major contribution to the increase was from increased utilization of union level health facilities, to which the project contributed through its efforts in strengthening union level health facilities to provide to 24/7 MNC, as well as establishing alternate health services in remote and hard-to-reach areas. We recommend that the government and development partners should continue this effort.

Access to public facilities for delivery care improved over time and the majority of the population had a positive attitude toward utilization of public facilities. The data from the survey shows that women used public facilities for normal delivery or preventive and minor illness and would in turn visit private facilities for C-section delivery and treatment of complications. The infrastructure and readiness of public sector facilities were sufficient to deliver MNC services. Early closure of services in a day, lack of adequate healthcare team (e.g., availability of a pair of obstetricians and anesthesiologist) are chronic problems of the government health system. The recommendation is ensuring full time availability of health services and deployment of healthcare providers per the essential service package at all levels of public facilities.

One of the major reasons for low utilization of in public facilities for delivery care is likely the availability of C-section in the private sector, and desire for delivery via that route by women. Data shows that over 90% of women who delivered in the private sector had a C-section. By contrast the use of C-section decreased by 50% to only 6.1% in public facilities. There is need to address this excessive use of C-section in the private sector, while making sure the public hospitals have the capacity to perform emergency C-section. The recommendation is for government and private health care providers and their association to take measures to optimize cesarean delivery by using Robson Ten Groups Classification.

Endline data showed that use of 7.1% CHX to the umbilical cord in case of home delivery declined. This may be due to several reasons, including high frontline worker vacancies, stockout of CHX and low turnout of pregnant women in their third trimester of pregnancy when the CHX should be distributed. Recommendations to increase use of 7.1% CHX to the umbilical cord include proper counselling during ANC visits, ensuring supply of 7.1% CHX by the government frontline health workers at household level, filling vacancies of frontline workers, strengthening field level monitoring, and encouraging the private sector to add 7.1% CHX in safe delivery kits.

The endline level of early initiation of breastfeeding within the first hour of delivery was low at 54.6%, and it in fact reduced from baseline level. This is due to the low level of immediate breastfeeding among newborns born with cesarian section. Given that majority of facility births occur in the private sector, it is essential to engage the private sector in quality improvement processes to ensure adherence to national newborn care standards. There is need to also strengthen community interventions for the continually high proportion of women who deliver at home.

Overall use of PPFP slightly increased irrespective of mode and place of delivery. Given that the majority of deliveries occur in the private sector, it is essential to engage them in the PPFP interventions. There is a need to assess what proportion of private facilities provide PPFP services directly or through referral to their clients. There is need to strengthen PPFP services in the private sector, including strengthening of referral of clients for PPFP services. Strengthening PPFP counseling during ANC and after delivery will also contribute to increasing the uptake of PPFP. Improving the frequency of postnatal home visits by frontline workers that includes counseling on PPFP will also contribute significantly to uptake of PPFP services.

Our baseline and endline data suggested the overall domination of private facilities as the preference of maternal and child healthcare seeking. So, we need to search the possible pathways to incorporate the

private sector in any nationwide MNCH scale up project for its better effectiveness. Moreover, there is also necessity of qualitative exploration to find out the root causes behind the private preference among the population and take some practical steps to design the intervention package accordingly.

LIMITATION

We followed the interview method with a cross sectional survey design to collect the data, which is sometimes prone to social desirability and recall bias. However, we tried to reduce these biases by reducing the length of postpartum period of 15 months. In addition, we have provided intensive training, frequent refresher training, quality control survey and other supervisory oversight to the data collectors to improve the data quality.

Another potential limitation of our survey approach could be women may under-report a pregnancy with an adverse outcome (abortion and stillbirth) during the household listing in the RDW selection phase. This could result some level of bias in coverage level. To minimize this error, we analyzed the coverage indicators considering the live births as denominator.

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ANNEX: IMPACT ANALYSIS

1. Impact of MaMoni MNCSP strengthening union health facilities to provide 24/7 delivery care

MaMoni MNCSP strategically focused on utilization of MNC, including delivery care, in union level health facilities. In the baseline only 18% of union level facilities were providing 24/7 maternal and newborn care, which through project's support increased to 61% of union level facilities. Given the project's strategic focus on this, the project conducted an impact analysis to determine the impact of 24/7 UH&FWCs on increased MNH services coverage compared to the coverage in unions without 24/7 union health facilities. The project used baseline and endline survey data to analyze the impact.

The survey had variables for identification of unions and the project had a list of unions that had 24/7 union facility by the end of the project. A variable was created to denote survey participants belonging to a union with 24/7 facility and or to a union with non 24/7 facility. The analysis excluded survey samples belonging to upazila and zila areas, as they are not comparable.

The analysis used difference in difference evaluation measure to determine the amount of net gain in intervention unions compared to control unions. Table 12 shows the results for selected maternal and newborn care indicators comparing baseline to endline and then difference from baseline to endline between intervention and comparison areas.

As with the ANC care indicators, there were positive net gains in all four indicators in the intervention area. The difference in difference in women receiving ANC from a medically trained provide was not significant, but there was a significant net gain of 3 percentage points, 2.8 percentage points, and 3.3 percentage points in women having 4+ antenatal care, women receiving at least once all five components of ANC and overall quality ANC, respectively, in intervention unions.

In terms of delivery care, impact on increased facility delivery (0.6 of a percentage point) was statistically significant. There was a significant impact on public facility delivery, with a net gain of 4.3 percentage points in intervention unions. The impact was attributed to 2.4 percentage points net gain in union level facilities where the project focused on making delivery care available locally round the clock. There was also significant net gain in utilization of delivery care from the district hospital among the population in the intervention area. The impact in delivery care in upazila hospitals was not statistically significant. The delivery in private facilities in the intervention area significantly reduced by net 4.5 percentage points, suggesting that the intervention was successful in providing the service in public facilities. As with overall skilled birth attendance coverage, the intervention achieved a positive impact of 2 percentage points. No significant impact was observed by poor and rich groups of the population. There was a reduction (net 4.4 percentage points) in use of misoprostol in the intervention area.

In terms of PNC, there was no significant impact on women's PNC or reporting of complication. However, there was a significant reduction of 8.1 percentage points in seeking care for maternal complications in

intervention area. Likewise, no significant impact was observed in selected three newborn care indicators such as PNC for newborn, newborn born at home receiving ENC and care seeking for newborn when ill.

The impact on use of PPFP, though positive by 1.9 percentage points, was not statistically significant.

In sum, strengthening union level facilities to provide 24/7 delivery care had significant impact in increasing delivery in public sector facilities and in union level facilities in particular. The results support the expected impact of the intervention in delivery in public facilities.

Table 12: Differential impact on MaMoni Key indicators in the intervention unions having the 24/7 delivery health facility during Baseline and Endline evaluation

Maternal care	Unions having a 24/7 delivery health facility					Unions not having a 24/7 delivery health facility					Difference in difference (24/7-non 24/7)	P-value
	Baseline		*Endline*		Difference (Endline-Baseline)	*Baseline*		*Endline*		Difference (Endline-Baseline)		
	%	N	%	N		%	N	%	N			
Background Characteristics												
Mother's age												
<20	14.8	4757	15.7	2526	0.9	15.3	7428	16.5	4087	1.2		
20-29	59.8	4757	61.6	2526	1.8	58.7	7428	62.3	4087	3.6		
30-39	24.1	4757	21.7	2526	-2.4	24.6	7428	20.3	4087	-4.3		
40-49	1.3	4757	0.9	2526	-0.4	1.4	7428	0.8	4087	-0.6		
Education												
No education	7.5	4757	3.6	2526	-3.9	7.4	7428	3.7	4087	-3.7		
Primary incomplete	12.2	4757	10.8	2526	-1.4	11.5	7428	10.9	4087	-0.6		
Primary complete	15.6	4757	10.6	2526	-5.0	15.0	7428	10.5	4087	-4.5		
Secondary incomplete	45.4	4757	46.9	2526	1.5	45.4	7428	46.4	4087	1		
Secondary complete or higher	19.3	4757	28.1	2526	8.8	20.6	7428	28.4	4087	7.8		
Religion												
Islam	94.2	4757	95.7	2526	1.5	94.8	7428	93.7	4087	-1.1		

Maternal care	Unions having a 24/7 delivery health facility					Unions not having a 24/7 delivery health facility					Difference in difference (24/7-non 24/7)	P-value
	Baseline		*Endline*		Difference (Endline-Baseline)	*Baseline*		*Endline*		Difference (Endline-Baseline)		
	%	N	%	N		%	N	%	N			
Hinduism	5.7	4757	4.3	2526	-1.4	5.2	7428	6.2	4087	1		
Others	0.1	4757	0.0	2526	-0.1	0.1	7428	0.0	4087	-0.1		
Wealth quintile												
Lowest	21.4	4757	18.0	2526	-3.4	18.3	7428	17.7	4087	-0.6		
Second	19.2	4757	21.1	2526	1.9	19.0	7428	18.9	4087	-0.1		
Middle	21.2	4757	21.4	2526	0.2	21.5	7428	21.5	4087	0		
Fourth	19.2	4757	19.1	2526	-0.1	21.7	7428	21.7	4087	0		
Highest	19.1	4757	20.5	2526	1.4	19.5	7428	20.2	4087	0.7		
Antenatal care												
Percentage of women with a live birth who received ANC from a medically trained provider for the most recent birth	69.6	4757	88.2	2526	18.6	70.8	7428	88.2	4087	17.4	1.3	0.318
Percentage of women with a live birth who received 4 or more ANC for the most recent birth	25.9	4757	43.7	2526	17.8	27.4	7428	42.2	4087	14.8	3.0	0.038

Maternal care	Unions having a 24/7 delivery health facility					Unions not having a 24/7 delivery health facility					Difference in difference (24/7-non 24/7)	P-value
	Baseline		*Endline*		Difference (Endline-Baseline)	*Baseline*		*Endline*		Difference (Endline-Baseline)		
	%	N	%	N		%	N	%	N			
Percentage of women with a live birth who received at least once all five components of ANC for the most recent birth	24.4	4757	32.0	2526	7.6	26.2	7428	31.0	4087	4.8	2.8	0.048
Percentage of women with a live birth who received ANC 4+ visits with a least one from skilled provider and all five components of ANC for the most recent birth	11.1	4757	20.8	2526	9.7	13.2	7428	19.6	4087	6.4	3.3	0.004
Delivery care												
Percentage of deliveries in health facilities for the most recent live birth	48.7	4757	63.5	2526	14.8	52.6	7428	66.8	4087	14.2	0.6	0.675
Percentage of deliveries in public sector health facilities for the most recent live birth	14.7	4757	18.7	2526	4.0	14.5	7428	14.2	4087	-0.3	4.3	0.000
Percentage of deliveries in District level public health facilities for the most recent live birth	6.0	4757	6.5	2526	0.5	8.0	7428	6.4	4087	-1.6	2.1	0.008
Percentage of deliveries in Upazila level public health facilities for the most recent live birth	4.2	4757	3.9	2526	-0.3	4.6	7428	4.6	4087	0	-0.3	0.670

Maternal care	Unions having a 24/7 delivery health facility					Unions not having a 24/7 delivery health facility					Difference in difference (24/7-non 24/7)	P-value
	Baseline		*Endline*		Difference (Endline-Baseline)	*Baseline*		*Endline*		Difference (Endline-Baseline)		
	%	N	%	N		%	N	%	N			
Percentage of deliveries in Union level public health facilities for the most recent live birth	4.1	4757	8.2	2526	4.1	1.4	7428	3.1	4087	1.7	2.4	0.000
Percentage of deliveries in private sector health facilities for the most recent live birth	33.2	4757	43.2	2526	10.0	37.3	7428	51.8	4087	14.5	-4.5	0.003
Percentage of deliveries by a skilled birth attendant for the most recent live birth	51.1	4757	67.5	2526	16.4	55.6	7428	70.0	4087	14.5	2.0	0.198
Facility delivery among richest	12.3	4757	15.9	2526	3.6	13.4	7428	16.3	4087	2.9	0.6	0.561
Facility delivery among poorest	6.6	4757	7.3	2526	0.7	6.1	7428	8.1	4087	2	-1.2	0.133
Ratio for facility delivery between the richest and poorest wealth quintiles	2.46		1.90		-0.6	2.34		1.77		-0.57	0.0	
Percentage of women with a live birth who delivered at home who consumed misoprostol tablets for postpartum hemorrhage prevention for the most recent birth	15.5	2358	15.6	883	0.1	14.7	3399	19.2	1301	4.5	-4.4	0.017
Percentage of households reporting intention to use public sector for delivery care services,	94.2	725	98.2	486	4.0	94.5	1112	96.0	596	1.5	2.4	0.134

Maternal care	Unions having a 24/7 delivery health facility					Unions not having a 24/7 delivery health facility					Difference in difference (24/7-non 24/7)	P-value
	Baseline		*Endline*		Difference (Endline-Baseline)	*Baseline*		*Endline*		Difference (Endline-Baseline)		
	%	N	%	N		%	N	%	N			
among women who had delivery at public facility												
PNC and care-seeking for maternal complication												
Percentage of women with a live birth who received postnatal checkup from a medically trained provider within 2 days of delivery after the most recent birth	42.0	4757	63.1	2526	21.1	42.8	7428	66.0	4087	23.2	-2.2	0.158
Percentage of women with a live birth who reported having a complication at any stage (pregnancy, delivery, after delivery) for the most recent birth	42.0	4757	43.6	2526	1.6	44.6	7428	45.5	4087	0.9	0.6	0.691
Percentage of women with a live birth who sought care for a complication at any stage (pregnancy, delivery, after delivery) for the most recent birth	62.1	2034	58.3	1144	-3.8	59.5	3370	63.9	1933	4.4	-8.1	0.000
Newborn care												
Percentage of newborns who were put to the breast within the first hour after birth	59.1	4757	54.9	2526	-4.2	57.1	7428	55.8	4087	-1.3	-2.9	0.063

Maternal care	Unions having a 24/7 delivery health facility					Unions not having a 24/7 delivery health facility					Difference in difference (24/7-non 24/7)	P-value
	Baseline		*Endline*		Difference (Endline-Baseline)	*Baseline*		*Endline*		Difference (Endline-Baseline)		
	%	N	%	N		%	N	%	N			
Percentage of women with a live birth delivered at home reporting the newborn received ENC	8.3	2358	11.1	883	2.8	9.8	3399	12.3	1301	2.5	0.4	0.816
Percentage of infants who received a postnatal checkup from a medically trained provider within 2 days of delivery	40.1	4757	63.6	2526	23.5	41.7	7428	67.6	4087	25.9	-2.3	0.126
Family planning												
Percentage of women initiating a modern method of family planning in the postpartum period	39.5	3898	40.8	2041	1.3	40.2	6058	39.6	3305	-0.6	1.9	0.275

2. Differential impact by length of duration of project implementation – Phase 1 and Phase 2 implementation areas

MaMoni MNCSP was implemented in two time-phases. In Phase 1 from year 1, FYI 2019, the implementation began in 44 of 71 upazila in 10 districts. In FY2021, the remaining 27 upazilas were included in project support. Interest arose in examining if the number of project support years would result in differential performance of two groups of upazilas. For this, the project formulated an evaluation question to examine the differential impact of selected MNC indicators in Phase 1 and Phase 2 groups of upazila in 10 original project districts. The project hypothesis was that the Phase 1 implementation area would have far more positive changes in level of indicator coverage from baseline to endline than the Phase 2 implementation area. The net gain as measured by difference in difference would be in favor of Phase 1 implementation.

Table 13 below shows the results of baseline and endline key indicators for Phase 1 and Phase 2 implementation areas in the 10 original districts. In relation to ANC indicators, a small net increase in favor of Phase 1 was observed in women receiving ANC from medically trained provider, but it was not statistically significant. Similarly, there was no significant net increase in women receiving four or more ANC in Phase 1 areas. In terms of quality of ANC, the Phase 2 area significantly outperformed the Phase 1 area, with 10 percentage points net increase in women receiving at least once all five components of ANC and 5.25 percentage points in women receiving quality of ANC. This change is not as expected per hypothesis.

In terms of delivery care, there was not statistical difference in change in skilled birth attendance, delivery in facility as a whole, in public facility, as well as in private facilities. Interestingly, there was a 5.5 percentage points increase in facility delivery among richest, but a 1.8 percentage point decrease among the poorest population in Phase 1 areas, which was statistically significant. There was a 13.3 percentage points and 4.5 percentage points decrease in use of misoprostol and intention to use public facility for delivery, respectively, in Phase 1 areas.

A slight negative impact (0.9 of a percentage point) in PNC for mothers and slight positive impact (1.4 percentage points) for reporting of maternal complication in Phase 1 area were not statistically significant. Interestingly, there was a 13.6 percentage points net reduction in women's care seeking for complications in Phase 1 area.

In newborn care, there was a statistically significant net 5.3 percentage points and 3.8 percentage points increase in newborns put to the breast within first hour of birth and newborns born at home receiving ENC, respectively, in Phase 1 areas. However, there was a significant reduction by 3.5 percentage points in newborn PNC in Phase 1 districts. There was a slight net positive change (0.4%-point) in use of postpartum care in Phase 1, but it was not statistically significant.

In sum, we did not find that Phase 1 implementation areas outperformed the Phase 2 area.

Table 13: Differential impact on MaMoni key indicators in Phase 1 (44 intervention upazilas) and Phase 2 (27 intervention upazilas) implementation area of 10 original intervention districts

Maternal Care	Phase 2			Phase 1			Difference in Difference (DID) (Phase1-phase2)	p-value
	Baseline (N=3956)	Endline (N=2148)	Difference	Baseline (N=9739)	Endline (N=5362)	Difference		
Background Characteristics								
Mother's age								
<20	15.8	17.6	1.8	14.4	15.6	1.2		
20-29	59.5	62	2.5	59.7	61.9	2.2		
30-39	23.2	19.6	-3.6	24.6	21.7	-2.9		
40-49	1.5	0.7	-0.8	1.3	0.8	-0.5		
Education								
No education	8.3	3.9	-4.4	6.8	4.0	-2.8		
Primary incomplete	11.6	12.0	0.4	11.4	9.8	-1.6		
Primary complete	16.1	13.3	-2.8	14.2	9.0	-5.2		
Secondary incomplete	44.7	45.2	0.5	45.6	45.8	0.2		
Secondary complete or higher	19.4	25.6	6.2	22.0	31.4	9.4		
Religion								

Maternal Care	Phase 2			Phase 1			Difference in Difference (DID) (Phase1-phase2)	p-value
	Baseline (N=3956)	Endline (N=2148)	Difference	Baseline (N=9739)	Endline (N=5362)	Difference		
Islam	92.6	93.5	0.9	94.9	94.4	-0.5		
Hinduism	7.4	6.5	-0.9	4.9	5.6	0.7		
Others	0.0	0.0	0.0	0.1	0.0	-0.1		
Wealth quintile								
Lowest	15.9	17.3	1.4	18.8	16.2	-2.6		
Second	18.6	18.0	-0.6	17.9	18.8	0.9		
Middle	17.8	19.0	1.2	21.6	22.2	0.6		
Fourth	25.4	25.2	-0.2	20.0	19.0	-1.0		
Highest	22.3	20.5	-1.8	21.7	23.8	2.1		
Antenatal care								
Percentage of women with a live birth who received ANC from a medically trained provider for the most recent birth	72.7	89.8	17.1	70.5	88.0	17.5	0.3	0.787
Percentage of women with a live birth who received 4 or more ANC for the most recent birth	26.1	41.1	15.0	28.9	44.8	15.9	0.9	0.528
Percentage of women with a live birth who received at least once all five components of ANC for the most recent birth	23.4	35.9	12.5	27.8	30.0	2.2	-10.3	0.000

Maternal Care	Phase 2			Phase 1			Difference in Difference (DID) (Phase1-phase2)	p-value
	Baseline (N=3956)	Endline (N=2148)	Difference	Baseline (N=9739)	Endline (N=5362)	Difference		
Percentage of women with a live birth who received ANC 4+ visits with a least one from skilled provider and all five components of ANC for the most recent birth	11.8	22.6	10.8	13.9	19.5	5.6	-5.2	0.000
Delivery care								
Percentage of deliveries in health facilities for the most recent live birth	53.0	67.0	14.0	52.4	66.1	13.7	-0.1	0.926
Percentage of deliveries in public sector health facilities for the most recent live birth	8.9	11.4	2.5	17.3	18.2	0.9	-1.7	0.139
Percentage of deliveries in district level public health facilities for the most recent live birth	5.6	5.4	-0.2	8.5	7.4	-1.1	-0.8	0.328
Percentage of deliveries in upazila level public health facilities for the most recent live birth	2.3	3.3	1.0	5.4	5.2	-0.2	-1.2	0.058
Percentage of deliveries in union level public health facilities for the most recent live birth	0.5	2.7	2.2	3.0	5.4	2.4	0.2	0.700
Percentage of deliveries in private sector health facilities for the most recent live birth	43.5	54.3	10.8	33.9	46.9	13.0	2.2	0.154
Percentage of deliveries by a skilled birth attendant for the most recent live birth	54.4	69.7	15.3	55.8	70.2	14.4	-1.0	0.515
Facility delivery among richest	16.5	16.1	-0.4	14.3	19.4	5.1	5.5	0.000
Facility delivery among poorest	5.8	8.4	2.6	5.9	6.7	0.8	-1.8	0.021
Ratio for facility delivery between the richest and poorest wealth quintiles	2.8	1.9		2.4	2.9			

Maternal Care	Phase 2			Phase 1			Difference in Difference (DID) (Phase1-phase2)	p-value
	Baseline (N=3956)	Endline (N=2148)	Difference	Baseline (N=9739)	Endline (N=5362)	Difference		
Percentage of women with a live birth who delivered at home who consumed misoprostol tablets for PPH prevention for the most recent birth	9.7	21.7	12.0	17.5	16.2	-1.3	-13.3	0.000
Percentage of households reporting intention to use public sector for delivery care services, among women who had delivery at public facility	89.0	95.8	6.8	95.0	97.4	2.4	-4.5	0.020
PNC and care-seeking for maternal complication								
Percentage of women with a live birth who received postnatal checkup from a medically trained provider within 2 days of delivery after the most recent birth	43.9	66.5	22.6	43.8	65.6	21.8	-0.9	0.575
Percentage of women with a live birth who reported having a complication at any stage (pregnancy, delivery, after delivery) for the most recent birth	39.6	40.4	0.8	45.3	47.5	2.2	1.4	0.374
Percentage of women with a live birth who sought care for a complication at any stage (pregnancy, delivery, after delivery) for the most recent birth	54.5	65.1	10.6	63.3	60.4	-2.9	-13.6	0.000
Newborn care								
Percentage of newborns who were put to the breast within the first hour after birth	54.5	48.1	-6.4	58.5	57.4	-1.1	5.3	0.001
Percentage of women with a live birth delivered at home reporting the newborn received ENC	9.1	9.1	0.0	9.2	13.0	3.8	3.8	0.016
Percentage of infants who received a postnatal checkup from a medically trained provider within 2 days of delivery	40.9	68.3	27.4	42.7	66.6	23.9	-3.5	0.023
Family planning								

Maternal Care	Phase 2			Phase 1			Difference in Difference (DID) (Phase1-phase2)	p-value
	Baseline (N=3956)	Endline (N=2148)	Difference	Baseline (N=9739)	Endline (N=5362)	Difference		
Percentage of women initiating a modern method of family planning in the postpartum period	37.1	37.5	0.4	41.8	42.6	0.8	0.4	0.800

3. Effect of project scale down on maternal and newborn care in 4 districts

In 2021, USAID asked MaMoni to expand to additional districts from its originally approved 10 districts. Give the resource requirement to support expansion districts, project decided to scale down the project supports in four of districts – Habiganj, Noakhali, Lakshmipur and Kushtia are old districts where predecessor MaMoni HSS was also implemented for 2013-2018. The project believed that enough has been done in these four districts by the project that achievements in the districts would continue even with lesser inputs from the project. To test this assumption that the scale down district would continue making progress, the project included an evaluation question to examine it. Table 14 shows the key data on maternal and newborn care coverage from three surveys – baseline, midline and endline. We approached to evaluate the question by that if project assumption was valid, then endline indicator coverage should be better than midline and baseline, because if assumption was not valid, then there would be drop in coverage at endline.

In terms of antenatal care coverage, four districts aggregate coverage for ANC 1, ANC 4 as well as quality of antenatal care improved at endline compared midline and baseline. This shows that project scale down had no negative impact on performance of antenatal care delivery in four scale down districts.

In terms of delivery, improvement in overall facility delivery sustained but there appeared to have had some negative effect on the public delivery coverage. The overall public delivery albeit improved by 1% at endline compared from midline did not improve better than baseline. Moreover, the delivery coverage in district and upazila level health facilities improved slightly from midline did not increase more than baseline level. The delivery coverage in union facility did not improve from midline but is 2.1 percentage points more than baseline level. From this observation, we see that the scale down district could not maintain the performance level once achieved by midline. The level of project support decreased to maintaining 24/7 health facilities operation as a part of scale down. It looked like the project scale down had a negative impact on the performance indicator relating to delivery care in public facilities.

The PNC for mothers appeared to have sustained better at endline (80.6% from midline (45.6%) and baseline (42.35). However, care seeking of maternal complication declined at endline (59.5%) from midline and baseline. There is an increase in reported cases of maternal complication at endline. The PNC for newborns increased at endline compared to midline and baseline. Similarly, an increase in ENC among home births was also sustained. The proportion of newborns put to breast immediately after birth did not increase from baseline level. The indicator in fact declined overall in 10 districts as well. Interestingly, in scale down district, it is at least maintained as baseline.

In sum, the overall population coverage of selected maternal and newborn care indicators improved and sustained improvement showing that there was no negative impact of project support scale down. However, data showed that there was some negative impact on the sustaining of performance in public sector facilities.

Table 14: Are the 4 districts with scale down of project support able to sustain the improvements in selected MNH indicators?

Indicators	Total 4 districts		
	Baseline (N=5908)	Midline (N=1433)	Endline (N=3123)
Background Characteristics			
Mother's age			
<20	14.1	13.7	15 .6
20-29	59.2	55.2	62.5
30-39	25.4	29.5	21.1
40-49	1.3	1.6	0.8
Education			
No education	8.1	6.6	4.8
Primary incomplete	13	16.4	11.3
Primary complete	16.2	14.4	10.3
Secondary incomplete	43.3	41.4	45.3
Secondary complete or higher	19.4	21.2	28.3
Religion			
Islam	95.5	93.4	94.4
Hinduism	4.4	6.6	5.6
Others	0.2	0.1	0
Wealth quintile			
Lowest	22.8	22.5	20 .5
Second	19	19.8	19.5
Middle	19.8	20.3	20.5
Fourth	19.3	18.3	18.9
Highest	19.1	19.1	20.6
Antenatal care			
Percentage of women with a live birth who received ANC from a medically trained provider for the most recent birth	68	62.4	85.8
Percentage of women with a live birth who received 4 or more ANC for the most recent birth	28	20.5	41.2
Percentage of women with a live birth who received at least once all five components of ANC for the most recent birth	28.1	20.6	28.6
Percentage of women with a live birth who received ANC 4+ visits with a least one from skilled provider and all five components of ANC for the most recent birth	13.7	10	18
Delivery care			
Percentage of deliveries in health facilities for the most recent live birth	49.4	46	61.8

Indicators	Total 4 districts		
	Baseline (N=5908)	Midline (N=1433)	Endline (N=3123)
Percentage of deliveries in public sector health facilities for the most recent live birth	17.6	16.5	17.7
Percentage of deliveries in District level public health facilities for the most recent live birth	7.7	5.7	6.4
Percentage of deliveries in Upazila level public health facilities for the most recent live birth	5.5	4.4	5.1
Percentage of deliveries in Union level public health facilities for the most recent live birth	4	6.4	6.1
Percentage of deliveries in private sector health facilities for the most recent live birth	30.8	28.5	43.2
Percentage of deliveries by a skilled birth attendant for the most recent live birth	52.1	50.9	65.3
Facility delivery among richest	14	14.1	16.7
Facility delivery among poorest	5.1	4.9	7.9
Ratio for facility delivery between the richest and poorest wealth quintiles			
Percentage of women with a live birth who delivered at home who consumed misoprostol tablets for postpartum hemorrhage prevention for the most recent birth	19	16	17.3
Percentage of households reporting intention to use public sector for delivery care services, among women who had delivery at public facility	94.9	97.7	96.5
PNC and care-seeking for maternal complication			
Percentage of women with a live birth who received postnatal checkup from a medically trained provider within 2 days of delivery after the most recent birth	42.3	45.6	60.6
Percentage of women with a live birth who reported having a complication at any stage (pregnancy, delivery, after delivery) for the most recent birth	42.8	40.2	45.1
Percentage of women with a live birth who sought care for a complication at any stage (pregnancy, delivery, after delivery) for the most recent birth	64.9	64.5	59.5
Newborn care			
Percentage of newborns who were put to the breast within the first hour after birth	62.5	59.2	62.3
Percentage of women with a live birth delivered at home reporting the newborn received ENC	9.7	12.6	14.5
Percentage of infants who received a postnatal checkup from a medically trained provider within 2 days of delivery	41.3	46.6	61.3
Family planning			

Indicators	Total 4 districts		
	Baseline (N=5908)	Midline (N=1433)	Endline (N=3123)
Percentage of women initiating a modern method of family planning in the postpartum period	40.5	38.2	42.2

4. Impact of MaMoni MNCSP in comparison with comparison areas

MaMoni MNCSP planned for an impact evaluation and therefore a set of four comparison districts were selected during the planning of baseline surveys. They are Kishorganj, Nator, Rajbari and Bhola. They were selected with baseline comparability analysis using principal component analysis (PCA) on the relevant indicator data. The baseline and endline survey using the same methodology were conducted in those four comparison districts. Table 15 provides a comparative analysis of selected indicators for intervention and comparison districts from baseline and endline surveys.

The impact analysis employs difference in difference (DiD) method. It calculates the change in coverage from baseline to endline and then subtract change in intervention areas from the change in comparison area to get a difference in difference (DiD). The difference in difference measure is one of impact evaluation methods that help us measure net impact of program intervention in the intervention area by taking into account the change in comparison districts. It tells about how much additional gain the program intervention made in the program areas in comparison with a situation if there was no program interventions.

MaMoni MNCSP made as statistically significant 6%-point net increase in women receiving 4 or more antenatal care. Similarly, there was net statistically significant 3.1%-points net increase in quality of amental care received. However, a positive net effect in at least one ANC and a negative 0.4% point on receiving at least once all five components of ANC were not statistically significant.

In the delivery care, the change in skilled birth attendance, total facility delivery and delivery in public sector facility were not statistically significant. As expected, there was statistically significant net gain of 2.3% in deliveries in union level facilities which proved that project efforts in increasing accessibility and availability of delivery care in union level facilities and underserved unions have worked. In contrast, there was statistically significant decrease of 3.3%point in delivery in private sector which could be due to fact that project was able provide service in public facility to who could have received serviced from private sectors. This fact is also demonstrated by net gain in facility delivery among the poorest quintile and net loss in richest quintile. This demonstrated the public sector facilities was able to attract both poor and rich class for receive the delivery care. The negative change in use of misoprostol and as slight positive net change in intention to use public sector facility are not statistically significant.

On the postnatal care for mother, no impact was observed in the selected indictors. On the newborn care though, there are net gain of 7.2%- points in newborns put to the breast withing first hour after birth. This indicator in fact reduced in intervention district but because there was larger decrease in comparison districts the net change is net positive impact of program in the intervention areas. The change in newborn born at home receiving all components of essential newborn care was not statistically significant.

Women initiating a modern family planning method at postpartum period had a net gain of 2.9%- points but not statistically significant.

In sum, MaMoni MNCSP had positive impact on increased coverage of ANC 4, Quality of ANC, delivery in union level facility and facility delivery among poorest wealth quintile group and postnatal care for newborn.

Table 15: Impact MaMoni MNCSP on selected MNH indicators in comparison with the comparison area

MATERNAL CARE	Comparison			Intervention				
	Baseline (N=3556)	Endline (N=2647)	Difference	Baseline (N=13695)	Endline (N=7510)	Difference	Difference in Difference (DID)	p-value (0.05)
Antenatal care								
Percentage of women with a live birth who received ANC from a medically trained provider for the most recent birth	69.5	85.4	15.9	71.2	88.5	17.3	1.5	0.223
Percentage of women with a live birth who received 4 or more ANC for the most recent birth	29.8	39.4	9.6	28.1	43.7	15.6	6.0	0.000
Percentage of women with a live birth who received at least once all five components of ANC for the most recent birth	26.0	31.6	5.6	26.6	31.8	5.2	-0.4	0.769
Percentage of women with a live birth who received ANC 4+ visits with a least one from skilled provider and all five components of ANC for the most recent birth	14.1	18.2	4.1	13.3	20.4	7.1	3.1	0.004
Delivery care								
Percentage of deliveries in health facilities for the most recent live birth	46.4	61.6	15.2	52.6	66.4	13.8	-1.4	0.349
Percentage of deliveries in public sector health facilities for the most recent live birth	13.7	13.1	-0.6	14.9	16.1	1.2	1.7	0.097
Percentage of deliveries in District level public health facilities for the most recent live birth	7.4	7.8	0.4	7.7	6.8	-0.9	-1.2	0.108

MATERNAL CARE	Comparison			Intervention				
	Baseline (N=3556)	Endline (N=2647)	Difference	Baseline (N=13695)	Endline (N=7510)	Difference	Difference in Difference (DID)	p-value (0.05)
Percentage of deliveries in Upazila level public health facilities for the most recent live birth	5.2	4.3	-0.9	4.5	4.7	0.2	1.1	0.086
Percentage of deliveries in Union level public health facilities for the most recent live birth	0.9	0.9	0.0	2.3	4.5	2.2	2.3	0.000
Percentage of deliveries in private sector health facilities for the most recent live birth	32.1	47.9	15.8	36.7	49.1	12.4	-3.3	0.021
Percentage of deliveries by a skilled birth attendant for the most recent live birth	49.2	64.5	15.3	55.4	70.1	14.7	-0.6	0.659
Facility delivery among richest	13.8	12.4	-1.4	14.9	18.4	3.5	4.9	0.000
Facility delivery among poorest	5.9	11.2	5.3	5.9	7.2	1.3	-3.9	0.000
Ratio for facility delivery between the richest and poorest wealth quintiles	2.3	1.1		2.5	2.6			
Percentage of women with a live birth who delivered at home who consumed misoprostol tablets for post-partum hemorrhage prevention for the most recent birth	10.5	15.6	5.1	15.3	17.8	2.5	-2.6	0.117
Percentage of households reporting intention to use public sector for delivery care services, among women who had delivery at public facility	94.9	97.7	2.8	94.0	97.0	3.0	0.2	0.905
Postnatal care and care-seeking for maternal complication								

MATERNAL CARE	Comparison			Intervention				
	Baseline (N=3556)	Endline (N=2647)	Difference	Baseline (N=13695)	Endline (N=7510)	Difference	Difference in Difference (DID)	p-value (0.05)
Percentage of women with a live birth who received postnatal checkup from a medically trained provider within 2 days of delivery after the most recent birth	39.5	62.1	22.6	43.8	65.9	22.1	-0.6	0.702
Percentage of women with a live birth who reported having a complication at any stage (pregnancy, delivery, after delivery) for the most recent birth	40.8	43.5	2.7	43.7	45.3	1.6	-1.0	0.486
Percentage of women with a live birth who sought care for a complication at any stage (pregnancy, delivery, after delivery) for the most recent birth	57.8	62.6	4.8	61.0	61.7	0.7	-4.2	0.053
NEWBORN CARE								
Percentage of newborns who were put to the breast within the first hour after birth	65.6	55.6	-10.0	57.4	54.6	-2.8	7.2	0.000
Percentage of women with a live birth delivered at home reporting the newborn received essential newborn care	6.7	9.6	2.9	9.2	11.8	2.6	-0.2	0.854
Percentage of infants who received a postnatal checkup from a medically trained provider within 2 days of delivery	40.7	61.4	20.7	42.2	67.1	24.9	4.3	0.003
FAMILY PLANNING								

MATERNAL CARE	Comparison			Intervention				
	Baseline (N=3556)	Endline (N=2647)	Difference	Baseline (N=13695)	Endline (N=7510)	Difference	Difference in Difference (DID)	p-value (0.05)
Percentage of women initiating a modern method of family planning in the post-partum period	51.7	49.4	-2.3	40.4	41.0	0.6	2.9	0.069