Community Responsive Antenatal, Delivery and Life Essential

(CRADLE)

Support for Mothers and Newborns in Doti & Kailali, Nepal

CS XXIII Standard Category

Cooperative Agreement No: M/OAA/GH-07-003

STUDY ON UTILIZATION AND FEASIBILITY OF MISOPROSTAL IN DOTI DISTRICT

September, 2011

ACRONYMS

ANC	Ante-natal Checkup
ANM	Auxiliary Nurse Mid-wife
CRADLE	Community Responsive Antenatal, Delivery and Life Essential
DiL	Daughter in Law
D(P)HO	District (Public) Health Office
FCHV	Female Community Health Volunteer
FHD	Family Health Division
HF	Health Facility
HP	Health Post
HW	Health Worker
NGO	Non Governmental Organization
MCHW	Maternal and Child Health Worker
MG	Mother's Group
MiL	Mother in Law
MMR	Maternal Mortality Ratio
MNH	Maternal and Neonatal Health
NDHS	Nepal Demographic Health Survey
NMR	Neonatal Mortality Rate
PHCC	Primary Health Care Center
PHC/ORC	Primary Health Care Out Reach Clinic
PNC	Post Natal Care
PW	Pregnant Woman
RDW	Recently Delivered Woman
SBA	Skilled Birth Attendant
SHP	Sub Health Post
SN	Staff Nurse
TBA	Trained Birth Attendant
TT	Tetanus Toxoid

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CHAPTER I: INTRODUCTION

1.1 Introduction and Rationale

Globally, about 500 000 women die annually from complications during pregnancy or childbirth. The most common cause of maternal mortality is postpartum haemorrhage, accounting for one-third of maternal deaths. 99% of these deaths occur in developing countries in women who rarely receive prophylaxis because they give birth outside of a hospital setting. (1)

Postpartum hemorrhage (PPH) due to atonics uterus (failure of the uterus to contract after delivery of the placenta) is the major cause of maternal mortality in Africa and Asia. Once hemorrhage occurs, the woman's condition can rapidly deteriorate, requiring rapid resuscitation, blood transfusion, and other costly and invasive measures. In low-resource settings, rapid referral/transport and emergency preparedness at the referral site are often suboptimal. The World Health Organization (WHO) indicates that coverage for effective prenatal care, skilled birth attendance (SBA), institutional delivery, and emergency obstetric care is less than 50% in 75 of the highest mortality countries. (2)

In Nepal, maternal mortality is high (281 per 100 000; 95% CI, 178–384). According to a 1998 study in Nepal, almost half of these deaths (46%) can be attributed to PPH. There is a consensus that active management of the third stage of labor (AMTSL) can prevent most PPH deaths due to atony, but despite serious efforts in Nepal to increase institutional deliveries, the proportion remains low (17.7%). Only 18.7% of deliveries are attended by skilled providers, many of whom do not practice AMTSL. Given geographic and resource constraints, high levels of AMTSL will only be achieved over the long term. To complement such efforts over the short to medium term, it is worth investigating simpler, less resource-intensive interventions with the potential to reach women who otherwise would not receive skilled care. (3)

An important contributor to lowering pregnancy-related health risks to mothers and children is increasing the proportion of babies delivered in a health facility and under the supervision of health professionals. An overwhelming majority of births in Nepal continue to take place at home and without the assistance of a skilled birth attendant (SBA), that is, a doctor, nurse or midwife. The percentage of births delivered under the supervision of a SBA has increased from 9 percent in

1996 to 11 percent in 2001 and to 19 percent in 2006. Similarly, the practice of delivering in a health facility has increased from 8 percent in 1996 to 18 percent in 2006. (4)

The overall MMR for the eight districts was found to be 229 per 100,000 live births, ranging from 153 in Okhaldhunga to 301 in Rasuwa. Maternal deaths accounted for 93% of pregnancy related deaths, so that the pregnancy related mortality ratio only slightly higher at 247 per 100,000\ live births, making this a good proxy indicator for maternal mortality. Just over one in ten deaths (11%) among women of reproductive age were due to maternal causes, making it the third major cause of death, an improvement on the 1998 study, in which maternal deaths were the leading cause of WRA deaths, accounting for one in five (21%). Despite a decline in the percentage of deaths due to haemorrhage, it remains a leading cause of hospital deaths, accounting for the largest percentage of hospital complications (27%, up from 25% in 1998). Almost all facilities report routinely giving oxytocic drugs to the mother after delivery and 55% of staff had received training in management of PPH. However, overall only 40% of providers were assessed as having correct knowledge about management of PPH, with first line providers, medical officers, staff nurses and Auxiliary Nurse Midwives (ANM), scoring 64%, 41% and 31% respectively. This suggests that all cadres need refresher training or additional support, and improvements are needed in the training to ensure they are able to manage this critical condition effectively. (5)

The reduction in percentage of deaths due to haemorrhage (to 24%, from 46% of all maternal deaths in 1998) suggests improvements in recognition and treatment of bleeding (in particular postpartum). Appropriate knowledge and routine use of oxytocics for third stage of labour, plus the relatively good stocks found at most facilities, reflect the success of efforts to improve management of PPH, partly as a result of its recognition as a leading cause of death in the 1998 study. In addition, the number of instances in which lack of access to blood was identified as a major contributory factor to death was found to be significantly lower. While there is still scope for improvement, government commitment through the 2006 revised safe blood policy appears to have made a difference. (5)

The leading cause of postpartum hemorrhage is uterine atony, most often preventable by conventional uterotonics, among which oxytocin is usually preferred. However, the use of

oxytocin is not yet feasible in much of the developing world where deliveries still take place in rural areas with untrained birth attendants. Injectable uterotonics, such as oxytocin are unstable in high temperatures, and require cold-chain storage and skills that birth attendants who do not practice active management of the third stage of labour might not possess. Misoprostol, an E1 prostaglandin analogue, has been suggested as an alternative to oxytocin since it could act as an effective uterotonic agent, is inexpensive ($1 per dose), can be taken orally, does not need refrigeration, and has a long shelf life. (6-9)

1.2 Objectives of the operational research

To determine feasibility, acceptability and safety of community-based distribution of misoprostol for preventing postpartum hemorrhage (PPH) to pregnant woman through community volunteers working under government health services.

Specifically, the study seeks to:

- To explore the utilization pattern of Misoprostal in Doti district
- To compare the socio–economic charactertics of women using Misoprostal with women not using Misoprostal
- To find out results of Miso-prostal used among delivered mother focusing its complications seen

CHAPTER II: METHODOLOGY

2.1 Study Settings

The study will be conducted in one remote rural district of Nepal. The primary measure of performance is uterotonic protection after childbirth, measured using post intervention surveys. Maternal deaths will ascertain through systematic health facility and community-based surveillance (pregnancy outcome surveillance system); causes of death will assign based on verbal autopsy.

The target of the study will be the 100% of the population of the district (249,146 total population, census 2001). Doti has a public sector hospital and a private hospital. Both of these provide 24-hour delivery service with the capacity to perform cesarean deliveries. There are also two primary health centers (PHCs), ten health posts, and 39 subhealth posts staffed by trained health workers some of whom have limited maternity-related skills but few could be called "skilled birth attendants." In addition, there are 665 rural Female Community Health Volunteers (FCHVs) who work as health promoters and also serve as community-based distributors.

2.2 Study Design

The case control design was adopted to achieve the objective of the study.

Cases: the mothers who had faced the excessive bleeding after their home delivery. The cases were traced out from the record and with the help of FCHVs. The excessive bleeding in community setting is defined as fully soaked two or more pieces of clothes or pad (half meter each) within half an hour.

Control: the mother who hadn't faced the excessive bleeding after their home deliveries. The controls were taken to match the age group of cases from the same localities. Home delivery was the common characteristics in both cases and control.

The ratio of cases and control will be maintained at 1:5 since the occurrence of incidence is low in the community.

2.3 The intervention

The Community Responsive Antenatal Delivery and Life Essential (CRADLE) support project, CARE Nepal provided support to selected health facilities, including: training to key staff (Training on CBNCP, MNH update, use of partogram, management of eclampsia, care and Misoprostal); equipment supports in health facility (delivery-related instruments); and minor repair and renovations of newly approved birthing center in Doti district.

The main intervention was support and training to peripheral health workers and FCHVs to enable them to: identify pregnant women in their area, provide prenatal health education, and dispense misoprostol (three 200-µg tablets) late in pregnancy (8th month), and make early postnatal home visits. We aimed to reach all pregnant women with misoprostol. The FCHVs were also required to document their work. Prenatal health education by FCHVs was done in the home. It included advice on: seeking prenatal care and planning for institutional delivery, recognition of and timely response to danger symptoms, self-care during pregnancy, and essential newborn care. Information on misoprostol was also given. It included the importance of taking the 3 pills only after delivery and the dangers of taking them earlier, and the expected side effects and how to manage them.

2.4 Study Population

Women who had delivered baby within one year in study area and as selected by sampling techniques.

2.5 Sample Size for the study

The 15 VDCs out of 50 VDCs were randomly selected. Among the selected 15 VDCs all the FCHVs of those VDC were interviewed to find the cases and total of 56 cases of excessive bleeding were traced out.

To maintain the ratio of 1:5 cases versus control we have taken the 290 control who had delivered in the home. The controls were taken from the same 15 VDCs.

2.6 Tools

The study questionnaires with open and close end will be used for the study. The feasibility related matters will be explored with the help of the qualitative tools i.e. indepth interview guideline and FGD guidelines. There were one semi structrured questionnaire to interview the mothers and FGD guidelines to interview the health workers and FCHVs.

2.7 Techniques of Data Collection

Quantitative data were collected from the interview. Interview was carried out by the well oriented enumerators; field mobilizers of SOURCE Nepal. Three days orientation program was organized to enumerators. Close monitoring and supervision was provided by Project Officers, Data Management Consultant and Community Health, Monitoring and Evaluation Specialist.

Focus group discussion was conducted with 4 groups of FCHVs and 2 groups of Health Incharges and 2 groups of MCHWs and ANM separately. FGD were carried out by the Project Officers and Data Management Consultant.

2.8 Pretesting of the Tools

Questionnaires were pretested in Khrisain VDC of Doti district which was out of sampled VDCs. The pretesting was done with the 2 cases and 10 controls which were traced out from the record of FCHVs. the tools were refined based on the findings of pretesting. The tools were improved in the escape and sequence of the questions were made easier based on the feedback from pretesting.

2.9 Data processing and analysis

To make the data entry easier, coding was be done in the data collection tools. Collected questionnaires were verified in the field for completeness and consistency, and data were edited accordingly. Quantitative information was entered and analyzed in SPSS version 17 for windows. Similarly, FGD was noted, transcribed and analyzed using content analysis approach.

2.10 Duration of Data Collection

The duration of the data collection was the month of August 2011 for both qualitative and quantitative data.

CHAPTER III: FINDINGS

3.1 Descriptive findings of case and controls

3.1.1 Socio-demographic characteristics

Table 1 presents the socio demographic characteristics of the respondents. A total of 345 women who had home delivery in last 3 months were interviewed for the study. Among them 55 women had excessive bleeding within 24fhours of birth while 290 women didn't have the bleeding. The women with the excessive bleeding were considered as case and other were control for the study. The study showed some major social differences between case and controls. The majority of the cases were older women with higher illiteracy. However, higher percentages of controls were Dalits. The mean age of the respondents was 26.11 years with the standard deviation 4.51. The age range of the mother was 15 to 42 years.

Table 1: Socio-demographic characteristics of respondents

Socio demographic characteristics	**Case % (n=55)**	**Control % (n=290)**
Age groups		
15-19	5.5	5.2
20-24	21.8	34.1
25-29	38.2	39.7
30-34	25.5	15.7
35-39	9.1	4.9
40-44	0.0	0.3
Educational Status		
Illiterate	63.6	51.9
Able to read and write	25.5	25.1
Primary	5.5	15.0
Lower secondary	1.8	2.1
Secondary	0.0	4.9
Higher secondary	3.6	1.0
Caste		

Dalits	35.2	41.8
Janajatis	7.4	3.3
Others	57.4	54.9
Total	**100.0**	**100.0**

3.1.2 Antenatal Care

3.1.2.1 Antenatal check-up

Majority (96.9%) of the controls had taken ANC check-up during their last pregnancy. However, 10.9% of cases didn't have gone for ANC-check up. Among the services users, more than 70.0% of cases had 4 or more number of ANC check-up visit while the percentages of mothers with at least one and two visits were high among controls. The pattern of visiting community level health facilities (PHCC/HP/SHP) was somewhat similar among both groups. However, the percentage of mothers visiting hospitals was higher among cases (6.1%) whereas more mothers of control groups (12.1%) visited FCHVs for ANC check-ups.

Table 2: Utilization of Antenatal Care service by respondents

ANC Check-up	**Case % (n=55)**	**Control % (n=290)**
Yes	89.1	96.9
No	10.9	3.1
Total	**100.0**	**100.0**
Frequency of ANC check-up	**(n=49)**	**(n=281)**
Once	2.0	4.6
Twice	6.1	11.0
Thrice	20.4	18.5
4 or more times	71.4	65.9
Total	**100.0**	**100.0**
Place of ANC check-up		
District Hospital	6.1	2.8
PHCC	2.0	1.4

HP	28.6	27.8
SHP	71.4	71.5
PHC/ORC	10.2	8.9
Private hospital/nursing home/clinics	4.1	3.2
FCHV	2.0	12.1
Other	0.0	1.1

3.1.2.2 Distance of FCHV house

Majority of mothers (more than 95.0%) were nearer of 30 or less than 30 minutes distance to the house of FCHVs. On the other hand, some of mothers from the control groups had home at 30-60 minutes (4.5%) and more than 60 minutes (0.4%) walking distance far from the FCHV.

Table 3: Distance of FCHV in minutes from the house of respondents

Distance to FCHV house	**Case % (n=55)**	**Control % (n=290)**
<=30 minutes	98.0	95.2
(30-60) minutes	2.0	4.5
>60 minutes	0.0	0.4
Total	**100.0**	**100.0**

3.1.2.3 Receipt of BPP action care, TT vaccination and Iron tablets

According to the revised BPP guideline, FCHVs distributes pictorial card with messages on birth preparedness to mother during their pregnancy. When asked about receipt of BPP action card during last pregnancy, around 59.3% of cases told that they didn't receive the card while 58.3% of controls told that they had received the action card. Government of Nepal has made provision of free TT injection at health facilities and free distribution of iron tablets to pregnant and recently delivered women from its health institutions and even through FCHVs. The use of TT vaccination during the last pregnancy was found higher in control than case by 6.3%. The survey found that majority (around 95.0%) of mothers had received irons tablets during their pregnancy. Only few percentages of cases (5.5%) and controls (3.8%) hadn't received the tablets. Regarding the consumption of iron tablets among those who received, the compliance was found higher in

control than cases. Only 69.2% of cases had taken complete 180 tablets while more than 80.0% of controls had taken 180 tablets.

Table 4: Receipt of BPP action card, TT vaccination and Iron tablets during last pregnancy by respondents

ANC service	**Case % (n=55)**	**Control % (n=290)**
Received BPP card		
Yes	40.7	58.3
No	59.3	41.7
Took TT injection		
Yes	90.9	97.2
No	9.1	2.8
Received Iron tablets		
Yes	94.5	96.2
No	5.5	3.8
Total	**100.0**	**100.0**
Number of iron tablet taken	**Case % (n=52)**	**Control % (n=246)**
<100 tablets	9.6	9.8
100-180 tablets	21.2	8.5
180	69.2	81.7

3.1.3 Delivery practices

3.1.3.1 Place and person assisting delivery

All of the cases (100.0%) had delivered at home. However, about 98.6% of controls had given birth at home while rest (1.4%) had given birth at cowshed and on road. Nearly half of the deliveries (47.1%) of cases were assisted by their family members followed by FCHVs (19.6%) and neighbors (9.8%), whereas most of the deliveries of controls were assisted by FCHVs (30.0%) followed by family members (29.6%), neighbors (15.9%) and traditional birth attendants

(14.4%). The percentage of health workers (Nurse/ANM and HA/AHW) assisting deliveries was higher in cases than controls.

Table 5: Place and person assisting delivery

Place of delivery	**Case % (n=55)**	**Control % (n=289)**
Home	100.0	98.6
Cow Shed	0.0	0.7
Road	0.0	0.7
Total	**100.0**	**100.0**
Persons assisting delivery	**Case % (n=51)**	**Control % (n=270)**
Nurse/ANM	3.9	0.4
HA/AHW	3.9	0.7
MCHW	2.0	5.2
TBA	5.9	14.4
FCHV	19.6	30.0
Family members	47.1	29.6
Others (Neighbors)	9.8	15.9
No one	7.8	3.7
Total	**100.0**	**100.0**

3.1.3.2 Person present outside the delivery place

Most (59.6%) of mothers from control group mentioned that friends/neighbors were present outside the place of delivery followed by their husbands (38.5%), mother in laws (32.1%), father in laws (22.1%) and relatives (13.4%). Where as one third (34.5%) of mother from case group mentioned husband followed by friends/neighbor (32.8%), mother in laws (25.5%) and father in laws (14.5%) and FCHVs (9.1%). About one quarter (27.3%) of mothers from the case group and only 6.6% of mothers from the control group said no one was present outside the delivery place.

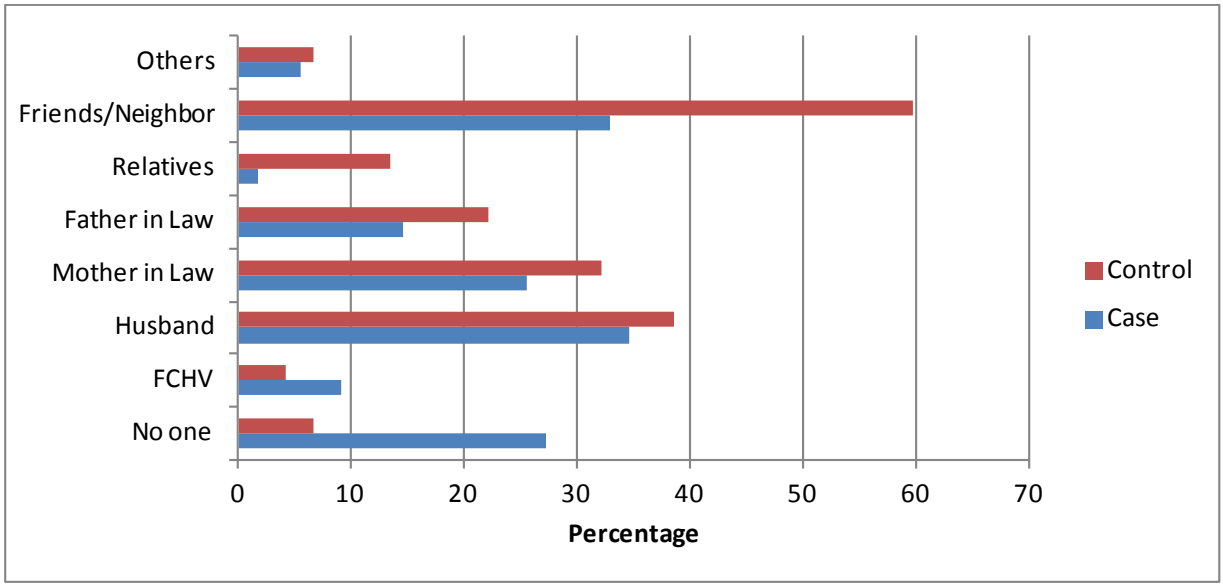

Figure 1: Person present outside the delivery place

3.1.3.3 Complication seen within 6 hours of delivery

When recalled on other complication seen within 6 hours of delivery, higher percentages of cases told that they had other complication besides excessive bleeding within 6 hours of delivery than controls. The controls recalling other complication were below 5.0% while about one quarter (34.5%) of cases told that they feel of getting faint, a quarter (33.3%) told they had nausea. Fever and faint was seen also in 18.2% and 12.7% of cases respectively. Of the 55 cases getting complication including excessive bleeding within 6 hours of bleeding, only 10.9% consulted for health check-up. Similarly, only 7.1% of controls consulted for check-up for complication after delivery.

Table 6: Complication seen within 6 hours of delivery

Complication seen within 6 hrs of delivery	Case % (n=55)	Control % (n=290)
Feeling of getting faint	34.5	3.8
Faint	12.7	1.0
Nausea	33.3	5.9
Fever	18.2	4.1
Diarrhea	3.6	0.7

Check-up for complication after delivery	Case % (n=55)	Control % (n=42)
Yes	10.9	7.1
No	89.1	92.9
Total	**100.0**	**100.0**

3.1.3.4 Heard about importance of institutional delivery

When asked about importance of institutional delivery, almost two thirds of mothers from both case (67.3%) and control (68.6%) said they had heard the importance of institutional delivery.

Table 7: Heard about importance of institutional delivery

Heard about importance of institutional delivery	Case % (n=55)	Control % (n=290)
Yes	67.3	68.6
No	32.7	31.4
Total	**100.0**	**100.0**

3.1.3.5 Media for information on importance of institutional delivery

The percentage of mothers telling different media for the source of information for importance of institutional delivery was found higher among controls than cases. It seems that cases had low access to the media for getting these sorts of information. The major media for the information on importance of institutional delivery were FCHVs and their flip charts followed by health workers and radio. The mothers had limited access to TV and FM.

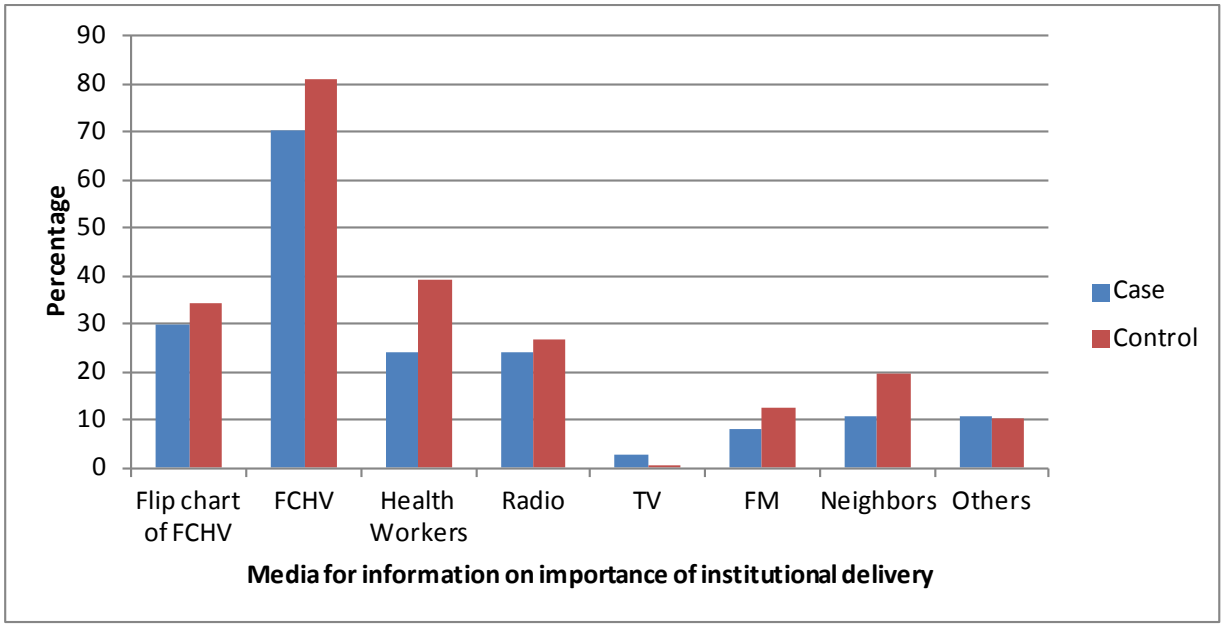

Figure 2: Media for information on importance of institutional delivery

3.1.3.6 Reasons for not giving birth at HF

When asked about the reasons for not giving birth at HF, about one third of women from both case and control group mentioned HF being far away from their house. Similar percentage (31.2%) of controls and about one quarter (24.1%) of cases mentioned that complication wasn't seen so as to visit HF. Few mothers mentioned non availability of health workers (11.1% of cases), lack of transportation services (6.0% of controls) and unknown about the need to delivery at HF (7.4% of cases) as some other reasons for not giving birth at HF. (Table 8)

Table 8: Reasons for not giving birth at HF

Reasons for not giving birth at HF	Case % (n=54)	Control % (n=282)
Family members didn't give permission	3.7	0.4
Complication wasn't seen	24.1	31.2
Got delivered at home/road while on the way to HF	5.6	2.1
HF being far away	31.5	33.3
HW were not available at HF	11.1	7.8
Lack of transportation services	1.9	6.0

Unknown about the need to delivery at HF	7.4	3.5
Others	14.8	15.6
Total	**100.0**	**100.0**

3.1.4 Knowledge on Misoprostol tablets

Only half (49.1) of the cases and two third (64.1%) of the controls had heard about MSC. Among them one third of the cases (33.3%) and the controls (32.8%) had heard during 8 months of pregnancy. While more than one third (37.0%) of cases had during their 9 months of pregnancy and one quarter (25.3%) of controls had heard during first four months of their last pregnancy. FCHVs were the major source (70.4%) of the information followed by health workers. The mothers who had heard of MSC were also asked about time to take the tablets, majority of them (more than 95.0%) were aware on its use that immediately after child comes out but before expulsion of placenta. Similarly, 96.3 % of cases were also aware on the appropriate number i.e 3 tablets to be taken. About 89.2% of controls mentioned 3 tablets whereas 10.2% of them were unaware of the numbers.

Table 9: Knowledge on Misoprostol tablets

Heard of MSC tablets	**Case % (n=55)**	**Control % (n=290)**
Yes	49.1	64.1
Heard of MSC tablets during the month	**Case % (n=27)**	**Control % (n=186)**
1-4 months	18.5	25.3
5-7 months	11.1	21.5
8 month	33.3	32.8
9 month	37.0	20.4
Heard of MSC tablets from	**Case % (n=27)**	**Control % (n=186)**
FCHV	70.4	70.4
VHW/MCHW/ANM	11.1	15.6
Doctors/HA/AHW	14.8	11.3
Others	3.7	2.7

Total	**100.0**	**100.0**
Time to take MSC	**Case % (n=27)**	**Control % (n=186)**
Immediately after child comes out and before expulsion of placenta	96.3	97.3
Immediately after child and placenta come out	0.0	0.5
Don't know	0.0	2.2
Others	3.7	0.0
Number of MSC to be taken		
1 tablet	3.7	0.0
2 tablets	0.0	0.5
3 tablets	96.3	89.2
Don't know	0.0	10.2
Total	**100.0**	**100.0**

Among the known mother about MSC tablets, majority (81.4% of 27 cases and 91.4% of 186 controls) could tell the use of MSC to stop post partum hemorrhage (PPH) followed by to expel placenta (70.4% of cases and 67.2% of controls). About one third (33.3%) of cases and one fifth (18.8%) of controls told that MSC is use to contract uterus. Less than 10.0% of mothers also told the use of MSC tablets saves the life of the mother.

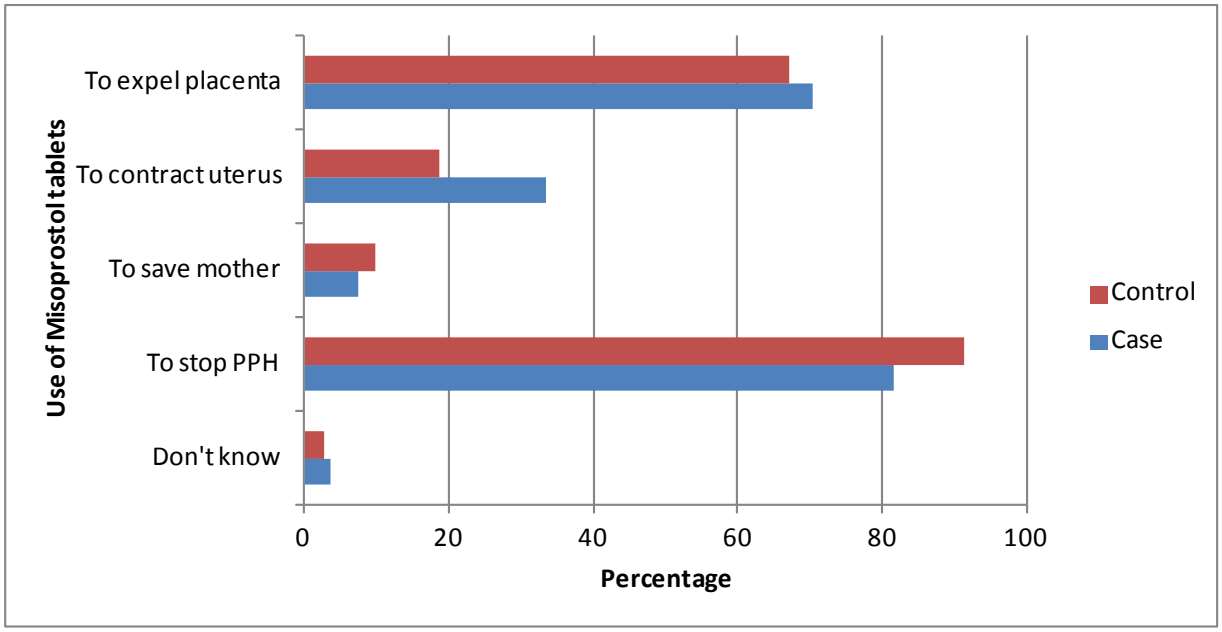

Figure 3: Use of Misoprostol tablets

Likewise, more than 85.0% of mothers mentioned that MSC shouldn't be taken during pregnancy. About 29.6% of controls and 18.5% of cases added not to take MSC if there is another baby in uterus.

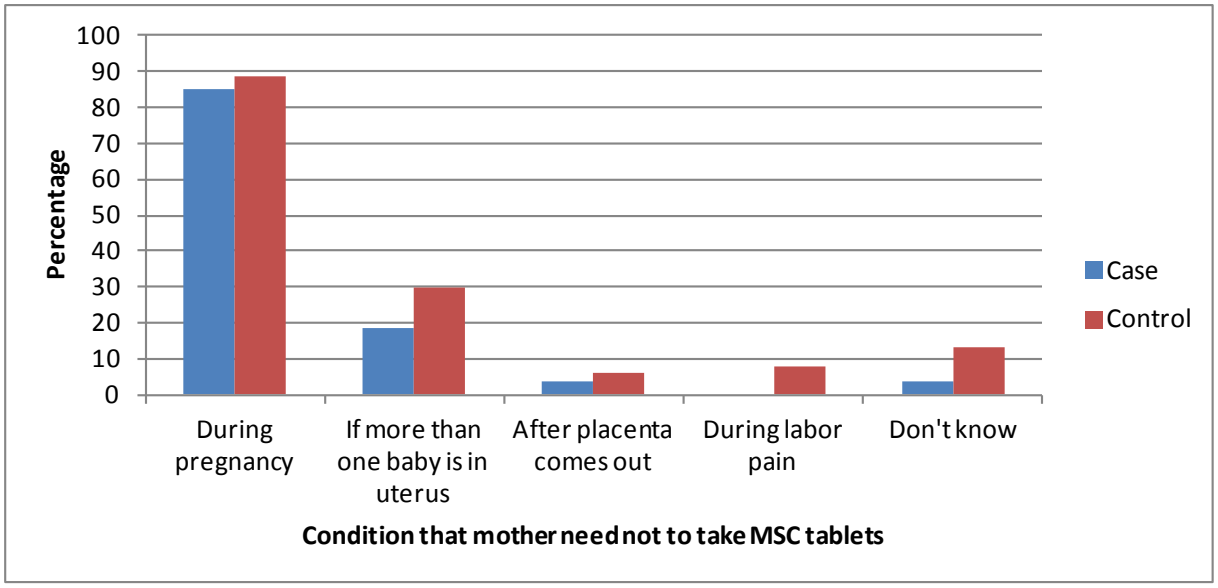

Figure 4: Knowledge on condition that mother need not to take MSC tablets

The percentage of controls knowing different side effects of MSC was found higher than that of the cases. However, about 44.4% of the cases and 38.7% of the controls told they didn't know the side effects. Vomiting and diarrhea were the major side effects told by the mothers. About 40.9% and 24.7% of the controls mentioned vomiting and diarrhea as the side effects of MSC use while one fourth (25.9%) and 18.5% of cases told diarrhea and vomiting respectively. Less than 15.0% of the cases mentioned convulsion, fever and headache as the side effects.

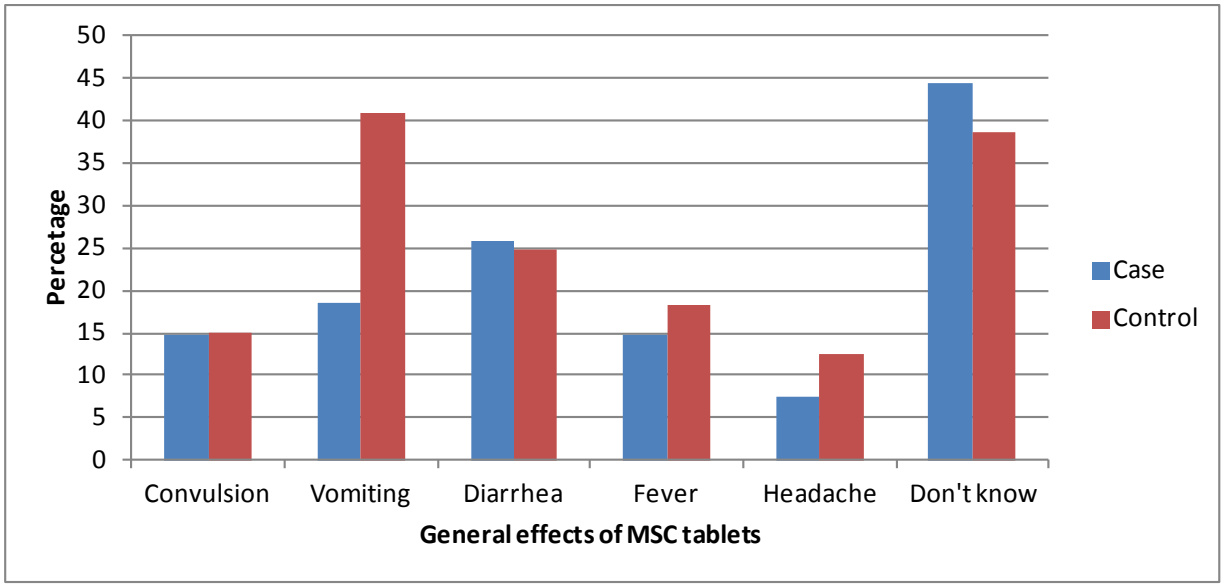

Figure 5: Knowledge on general side effects of MSC tablets

3.1.5 Postnatal Care

When asked about if anyone had checked for PNC after delivery, only 16.4% of the cases and about one fourth (23.4%) of the controls answered that they were checked for PNC. Check-up for two third (66.7%) of the cases were done by ANM/MCHW where as other one third were done by others who than qualified health workers. Concerning the check-up of the controls only one fourth (27.9%) was done by nursing staffs, about 16.2% by paramedics but more than half (54.4%) was done by other than health workers. All (100.0) of the cases visited within 24 hour of delivery, about 22.1% also visited on 3rd day while the visits decreased on 7th day to 11.1% and then nil after 7th day. On the other hand, more than half (54.4%) of the controls did 1st PNC (with 24 hours of delivery), though the percentage increased for 2nd visit to 77.9% and 3rd visit to 63.2%. Regarding use of Vitamin A capsule after delivery, majority (more than 90%) of mothers had taken the capsules. Similarly, about 83.6% of the cases and 87.9% of the controls had also taken

iron tablets after delivery. Among the iron tablets users more than half (54.5%) of the cases had taken the complete 45 tablets after delivery whereas about 71.0% of the controls had compliance of 45 tablets.

Table 10:Utilization of Postnatal Care service by respondents

Anyone check up health after delivery	**Case % (n=55)**	**Control % (n=290)**
Yes	16.4	23.4
No	83.6	76.6
Person involved in PNC check-up	**n=9**	**n=68**
ANM/MCHW	66.7	27.9
Doctor/HA/AHW	0.0	16.2
VHW	0.0	1.5
Others	33.3	54.4
PNC visit		
Within 24 hour	100.0	54.4
In 3rd day	22.2	77.9
In 7th day	11.1	63.2
After 7th day	0.0	63.5
Took Vitamin A tablets after delivery	**n=55**	**n=290**
Yes	92.7	95.9
No	7.3	4.1
Took Iron tablets after delivery		
Yes	83.6	87.9
No	16.4	12.1
Compliance of iron tablets	n = 46	n =255
45 tablets	54.5	71.0
Less than 45 tablets	45.5	29.0

3.2 Descriptive Findings of MSC using mother

3.2.1 Socio demographic characteristics

Among the mothers who use complete tablets of MSC, majority (40.7%) were of the age group 25-29 years and one third (33.5%) were of the age group 20-24 years. Nearly half (49.1%) of the mothers were illiterate. Dalits and Janjatis (the lower caste groups) represented 40.1% and 2.5%of the total mothers respectively while rest 57.4% belonged to higher caste.

Table 11: Socio demographic characteristics of MSC user

Socio demographic characteristics	Percent (n=169)
Age	
15-19	7.2
20-24	33.5
25-29	40.7
30-34	13.2
35-39	5.4
Education	
Illiterate	49.1
Literate	50.9
Caste/Ethnicity	
Dalits	40.1
Janajatis	2.5
Others	57.4
Total	**100.0**

3.2.2 Antenatal Care

3.2.2.1 Antenatal check-up

The survey found that all (100.0%) mothers had visited for antenatal care during their last pregnancy. As recommended by Safe Motherhood guideline, about 71.0% of the mothers had at least 4 visits while other 29.0 had visited less than 4times. Community health facilities (SHP and

HP) were the major places for ANC check-ups with visits of around three fourth (74.0%) of the mothers in SHP and one fourths (24.9%) of the mothers in HP. Few mothers had also visited PHC/ORC clinics (11.8%) and FCHVs for ANC check-up during their pregnancy period.

Table 12: Antenatal Care Practices by MSC users

ANC service utilization	Percent (n=169)
ANC check-up	100.0
Frequency of ANC check-up	
At least 4 times	71.0
Less than 4 times	29.0
Place of ANC check-up	
District hospital	3.6
PHCC	1.8
HP	24.9
SHP	74.0
PHC/ORC	11.8
Private hospital/nursing home/clinics	3.6
FCHV	10.1

3.2.2.2 Counseling on BPP and distribution of BPP card during pregnancy by FCHV

Regarding question on whether FCHV counsel them on BPP during their pregnancy or not, majority (80.8%) of the mothers told that they were counseled on BPP. Most (54.5%) of these counseling were given during 4 months of pregnancy , during 6 months (44.9%) and then immediately after knowing of pregnant (35.9%). There is a provision of distributing BPP action card (card with pictorial information on birth preparedness) by FCHVs to all pregnant mothers. The survey found that only around two third (63.3%) of the mothers had received the card.

Table 13: Counseling on BPP and receipt of BPP card during pregnancy from FCHV

Counseling and BPP Card	Percent (n=169)
FCHV counsel on BPP during pregnancy	
Yes	80.8

No	19.2
Timing of counseling	**n = 135**
Immediately after knowing of pregnancy	35.9
4 months	54.5
6 months	44.9
8 months	38.9
9 months	26.9
Received BPP card	
Yes	63.3
No	36.7

3.2.2.3 TT vaccination and intake of Iron tablets

A pregnant mother should take at least two TT vaccination and 180 iron tablets during pregnancy. It was found that almost all (98.8%) of mothers had taken TT vaccination. Similarly, 98.2% of the mothers had also received iron tablets. Among mothers who had received iron tablets, about 87.3% had compliance of 180 iron tablets.

Table 14:TT vaccination and intake of iron tablets by MSC users

TT vaccination and intake of Iron tablets	**Percent (n=169)**
TT vaccination	
Yes	98.8
No	1.2
Received iron tablets	
Yes	98.2
No	1.8
Intake of iron tablets	
<100 tablets	5.3
100-180 tablets	7.3
180	87.3

3.2.3 Delivery practices

As the respondents were the mothers who had home delivery during their last pregnancy, they were asked about the place of delivery. Majority (98.8%) of the mothers gave birth inside home where as other few had delivered on cow shed (0.6%) and on the way (0.6%). One third (34.9%) of deliveries were assisted by FCHVs followed by family members (26.6%), TBA (11.2%) and neighbors (8.9%). About 3.0% of the mothers had delivered without supports of anyone. Despite ANC visit by all, the mothers hadn't visited HF for delivery. When asked about the reasons for not visiting HF, one third (32.5%) of them told that HF was far from their house, about 27.1% of mothers didn't feel necessity to visit as complication wasn't seen during delivery and about 10.1% disclosed that HW weren't available at HF.

Table 15: Delivery practice by MSC users

Delivery care	**Percent (n=169)**
Place of Delivery	
Home	98.8
Cow Shed	0.6
Road	0.6
Person assisting delivery	
Nurse/ANM	0.6
HA/AHW	0.6
MCHW	6.5
TBA	11.2
FCHV	34.9
Family members	26.6
Neighbors	8.9
Others	7.7
No one	3.0
Total	**100.0**
Reasons for not visiting HF	
As complication wasn't seen	27.1

Got delivered at home/road while on the way to HF	3.6
HF being far away	32.5
HW were not available at HF	10.2
Lack of transportation services	6.0
Closure of HF	1.8
Unknown about the need of visiting HF	1.8
Others	16.9

3.2.4 Knowledge on MSC

Mothers were asked whether they had heard about MSC, all (100.0%) of them answered that they had heard about it. When asked further in which month of pregnancy they had heard of MSC, higher percentage (30.8%) of the mothers told during 8 months. But there was no significant difference regarding the months of hearing, about 27.8% of the mother had already heard during 1-4 months while 21.9% had heard during 5-7 months. As distribution of MSC was scaled up through community level, FCHV (72.2%) were the prime source for information on MSC followed by community health workers (17.8%). Majority (91.7%) of the mothers had knowledge on the use of MSC to stop excessive bleeding after delivery and more than two third (69.2%) of the mothers also knew that MSC helps to expel placenta. Regarding timing of its use, almost all (99.4%) answered to take immediately after child comes out and before placenta expel. About question on its contraindication about, most (88.8%) of the mothers told that it shouldn't be taken during pregnancy while another 31.4% said if there is another child in uterus. Higher percentage (39.6%) of the mothers didn't know side effects of the tablets while 36.7% told vomiting as the major side effects followed by diarrhea (21.9%) and fever (17.2%). Mothers were asked for the action to be taken if excessive bleeding occurs even after taking MSC, most (95.2%) of them replied to visit HF in that condition.

Table 16: Knowledge on MSC among MSC users

Knowledge on MSC	**Percent (n=169)**
Heard of MSC	
Yes	100.0

Heard about MSC during the month	
1-4 month	27.8
5-7 month	21.9
8 month	30.8
9 month	19.5
Heard about MSC from	
FCHV	72.2
VHW/MCHW/ANM	17.8
Doctors/HA/AHW	8.9
Others	1.2
Reasons for using MSC	
Stop excessive bleeding after delivery	91.7
Save maternal death	10.1
Compress uterus	20.1
Helps to expel placenta	69.2
Others	0.6
Don't know	0.6
Time to use MSC tablet	
Immediately after child comes out and before placenta expel	99.4
Immediately after child and placenta come out	0.6
Contraindication of MSC tablets	
During pregnancy	88.8
After placenta comes out	6.5
During labor pain	8.3
If another baby is in uterus	31.4
Side effects of MSC	
Convulsion	16.0
Vomiting	36.7
Diarrhea	21.9

Fever	17.2
Headache	13.0
Don't know	39.6
Action to take if excessive bleeding occur after taking MSC	
Visit HF	95.2
Don't know	4.8
Total	**100.0**

3.2.5 Use of MSC tablets

Out of 173 mothers who received 169 (97.7%) of mothers had used all the three tablets. Mothers were reminded on how they feel after taking MSC tablets, about 29.0% of the mothers said they got assure of less bleeding and 15.4% got frighten after its use. But about 39.1% couldn't recall their feelings just after taking it. Mothers were asked about complication seen within 6 hours of delivery, about 10.7% said they had excessive bleeding, about 8.9% experienced convulsion and 8.3% felt of getting faint. Almost, all (99.4%) of the mothers told that they would suggest other mothers to take MSC during home delivery.

Table 17: Usage of MSC tablets

Use of MSC tablets	Percent (n=169)
Perception after using MSC tablets	
Nervous	1.2
Assure of low bleeding	29.0
Frighten	15.4
Others	17.2
Don't remember	39.1
Complication seen within 6 hours of delivery	
Excessive bleeding	10.7
Symptoms like getting faint	8.3
Fainted	1.8
Convulsion	8.9

Nausea/vomiting	3.0
Fever	6.5
Diarrhea	0.6
Suggest other mother to take MSC in case of home delivery	
Yes	99.4
No	0.6
Total	**100.0**

3.2.6 Postnatal care

Mothers were asked whether they did PNC check-up, only one forth (23.7%) of them answered that they did where as other three fourth (76.3%) didn't. Among those who visited for PNC only 10.0% got check by nursing staffs while most (62.5%) were checked by persons than trained health workers. Higher (77.5%) percentage of the mothers had visited on 3rd day while 55.0% of them had visited within 24 hours of delivery and 67.5% visited on the 7th day. Regarding intake of vitamin A capsule and iron tablets, about 97.6% had taken vitamin A capsule and about 92.9% had t taken iron tablets. Among the iron users about 84.0% had the complete compliance of 45 iron tablets that postpartum mother need to take.

Table 18: Postnatal care by MSC users

PNC services	**Percent (n=169)**
PNC check-up	
Yes	23.7
No	76.3
Person assisting PNC	**n=40**
Nurse/ANM	10.0
HA/AHW	15.0
MCHW	12.5
Others	62.5
Day of PNC check-up	**n=40**
Within 24 hour	55.0

In 3rd day	77.5
In 7th day	67.5
After 7th day	60.0
Took Vit. A	97.6
Took Iron Tablets	92.9
Intake of Iron tablets	**n=131**
45	84.0
Less than 45	16.0

3.2.7 Effectiveness of Misoprostal

Among the women who had excessive bleeding within 24 hours, 63.5% were those who had not taken Misoprostal and rest 36.4% had taken Misoprostal still faced the excessive bleeding.

The difference among the women who had taken Misoprostal and faced excessive bleeding and women who hadn't taken Misoprostal and faced excessive bleeding is found to be statistically significant at 95% (less than 0.05).

Table 19: Effectiveness of MSC

Characteristics	Excessive bleeding with in 24 hour of delivery		Total	P value
	No	Yes		
MSC taken in home delivery	168 (57.9%)	20 (36.4%)	188 (54.5%)	0.003
MSC not taken in home delivery	122 (42.1%)	35 (63.6%)	157(45.5%)	
Total	290 (100.0%)	55 (100.0%)	345(100.0%)	

3.2.8 Safety of Misoprostol

No women had taken the Misoprotol before the delivery. The misoprostol was taken immediately after delivery of the baby and before the placenta was delivered by 96% of the women. Similarly, 99.4% had recalled the time of Misoprostol intake as immediately after child comes out and before placenta expel. Hardly 2% (3/169) of women did not take the full dose.

Among the users 10.7% had faced the excessive bleeding, 8.9% had convulsion, 8.3% got the symptoms of getting faint and 6.5% had got fever.

The FGD with health workers and midwives mentioned that no any mothers had come to health facility with major complication after taking the tablets and had also not found any evidence of its misuse or use for other purpose.

3.2.9 Acceptability

About 99.4% of women would like to advice to use Misoprostal to other mother who are going to deliver into the home. In addition, results from focus group discussions suggested that misoprostol was acceptable by the women's husbands and mothers-in-law.

FCHV from Chatiwan SHP said, "One mother had some nausea and vomiting after taking the tablets but she got well after some minute. She later recommended her sister in law to receive MSC during her pregnancy from me. So, mothers easily accept the tablet as they are now aware on death associated with PPH."

3.2.10 Feasibility

Among the mothers who use complete tablets of MSC, nearly half (49.1%) of the mothers were illiterate and 40.1% of women were Dalits which showed that the Misoprostol approach to distribute from FCHVs has served women who were illiterate, living in more remote areas and from disadvantaged group.

The more than 95% respondents told that they had their FCHV less than half hour walking distance. So distribution of Misoprostol from them really increased the access to services to prevent PPH.

In-charge of Sanagaun SHP, Doti said*, "In context to the geographical difficulties of Doti and the fact that women have to give birth at home, MSC tablet is a good option to reduce maternal death due to PPH. Also several community based programs are successful and FCHV have received several training and orientation, the community level distribution of MSC is the right approach. FCHV can trace pregnant women more than health workers."*

The FGD with FCHVs found that they are happy to serve with Misoprostal in the community and most had shared that nowadays PPH has been reduced with the use of MSC.

3.3 Qualitative findings from in depth interviews

Initially the Misoprostol tablets were distributed through health facility. But later on all CHWs and FCHVs were provided one day training on use of MSC. FCHV were then provided with the tablets and oriented to distribute MSC tablets to pregnant mothers during 8 month of pregnancy and counsel mothers to use the tablets immediately after birth in case of home delivery. The community level distribution has been started from December 2010. But due to expiry date of the tablets from June and no supply from Government side, all HW and FCHV were advised to stop the distribution from April. A qualitative study was also held to know the perception of service providers regarding community level distribution of MSC. In-depth interview were done among three groups of service providers. The findings of the interviews are described below by respondent group.

3.3.1 FCHV

Regarding the time to distribute the tablets to pregnant mothers all of them mentioned to give during 8 months of pregnancy. The FCHVs were aware on the use of MSC that is to reduce PPH in case of home delivery. FCHV reported that they gave the tablets only after enough counseling on the dose, time and its general side effects to the mothers. They counseled to take MSC only in case of home delivery. Mothers were also counseled for institutional delivery and were also told on the advantages of institutional delivery and the incentive.

FCHVs mentioned that they discussed on MSC in their mothers' group meeting and the community people were aware on the MSC. But due to break in supply of the tablets, the distribution had been hampered in the community. Some of the aware mothers came to ask for the tablets at last months of the pregnancy. FCHV told that they can provide the tablets and enough counseling to mothers. According to them it would be effective, if it was regularly supplied to FCHV without any break. From the interview it was perceived that FCHV should get support for holding mother group meeting, as they were getting difficult for organizing MG meetings.

3.3.2 MCHW/ANM

Interview with nursing staffs revealed that FCHVs were capable for distribution of MSC and counseling on its usage to mothers. Some of the aged and illiterate FCHVs were weak on recording and reporting but they can remember the number of mothers, who receive, took and return the tablets. They mentioned that supervision was also being done during their field visits and further support was also provided in monthly meeting. The staffs mentioned that no any mothers had come to health facility with major complication after taking the tablets and had also not found any evidence of its misuse or use for other purpose. They stressed on the fact that community people were still not fully aware on MSC, only those mothers who had received or took the tablets were known about it.

"There is no difficulty in implementing the program. The only problem for now is the regular supply of drug. The distribution can be strengthened through FCHV with supports of field staffs like us, HF in-charge and DHO. We all are committed to reduce maternal and neonatal deaths in our VDC". (ANM Mudvara HP)

3.3.3 HF In-charge

When asked about status of MSC distribution through FCHV, HF in-charges mentioned that before the stoppage of MSC supply from DHO, its distribution from FCHVs was well. Because of near expiry date of tablets, they were not provided to FCHVs in some health facilities. HF in-charges were in no doubt about knowledge of FCHVs on MSC; dose, time to take, side effects and its return and their ability to distribute the tablets at community.

One of the in-charge also told that further support, distribution of tablets and receiving of reports on MSC were being done in FCHVs monthly meeting at health facility. Therefore, there were no any problems in implementing the program.

"Community level distribution of MSC can be effective, if there is proper monitoring, regular supply of the drug and incorporation of recording and reporting in HMIS" (In-charge Toleni HP).

CHAPTER V: DISCUSSION

All the respondents had high ANC first coverage ranging from 89% among cases and 97 % among control. Furthermore, there were 71% among cases and 66% among control had 4 times or more ANC visits. In spite of high ANC coverage, Still all the respondent women had home delivries while exploring the reason behind them were the too far health facility, no complication was seen, health workers were not present etc. Considering the fact of remoteness and access to health facility the study found the use of Misoprostal is one of the good strategy to prevent mother from PPH.

Among the mothers who use complete tablets of MSC, nearly half (49.1%) of the mothers were illiterate and 40.1% of women were Dalits which showed that the Misoprostol approach was especially effective in extending such uterotonic protection to the disadvantaged—women who were illiterate, living in more remote areas and from disadvantaged group. The findings is consistent with the feasibility study of Misoprostol in the Banke district(1).

Among the women who had excessive bleeding within 24 hours after the delivery, 63.5% had not taken Misoprostal and rest 36.4% had taken Misoprostal. The difference is statistically significant ($0.05<P$). This showed that exposure to Misoprotal had reduced the excessive bleeding among women delivered in home. The Indian study showed a larger reduction (RR 0.20; 95% CI, 0.04–0.91) than the other studies cited, in which the controls received other elements of AMTSL (10). The finding is consistent with other studies done in the Guinea and Afgansthan.

This study found that among the users of MSC, 10.7% had faced the excessive bleeding, 8.9% had shivering, 8.3% got the symptoms of getting faint and 6.5% had got fever. Since our measure of shivering and other side effects was by self-report from the respondents which may vary with other study measurement, still it can suggests that there are side effect associated with it which is consistent with other study.

Side-effects from misoprostol on the mothers were transient—being primarily shivering and fever—and there was no evidence of adverse eff ects on the neonates. Although more women in

the misoprostol group had shivering, in a low-resource setting, this may be acceptable and clearly preferable to excessive haemorrhage (11,12)

CHAPTER VI: CONCLUSION

Within the fact that difficult geographical terrain, too far health facility to travel, no means of transport, unavailability of 24 hour birthing services and lack of presence of health workers in the health facility the Misoprostol had been the effective intervention in Doti district.

This study has demonstrated that high coverage with a preventive dose of uterotonic can be achieved with community based distribution of Misoprostol through the FCHVs. They are in nearer to reach of the majority of women.

The service utilization pattern showed that significant propertion of illiterate and disadvantaged group were benefitted from the Misoprostol.

The awareness among mother is found to be high on the use of Misoprostol, timing to take it and side effect that may arise from it.

The use of Misoprotal had significantly reduced the excessive bleeding among women who delivered in home.

This study found the side effects like shivering, fever and bleeding which was consistent with the other study.

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