FWA's New Role in Antenatal Care and Use of a Pictorial Card for Creating Awareness of Obstetric Emergencies

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ABSTRACT

An intervention was initiated in April 1994 in Abhoynagar to test a new approach in antenatal care provided by the field workers (FWAs). The intervention aimed at creating awareness about signs of obstetric complications among pregnant women.

Instead of performing verbal screening for detecting high-risk pregnancies as before, the FWAs inform the pregnant women about the signs of obstetric complications and motivate them to go to the hospital when such signs appear. FWAs give the women a card depicting the symptoms of the major complications in order to enhance comprehension and convey the message to their decision makers. FWAs also issue an antenatal card and motivate their clients for check-ups at the clinic.

This intervention was monitored for 12 months. FWAs' and pregnant women's attitudes, knowledge and practices were evaluated through qualitative and quantitative methods in the intervention area and compared to a non-intervention area.

FWAs have gained credibility in the community by giving concrete services. The pictorial card is appreciated by the providers and the clients. All pregnant women retained their home-based cards. Three-quarters of them understood the purpose of the pictorial card. However, comprehension of the illustrations of the card is related to the level of women's education. About 60% of the women had shown the pictorial card to their husbands and their mothers-in-law. There has been a significant increase in antenatal check-ups at the clinic level after the intervention started.

It is recommended to further study the impact of this intervention in terms of awareness and referrals to emergency obstetric care. Changes should be made on several pictures to enhance comprehension. The antenatal card should be issued by FWAs and retained by the clients.

BACKGROUND INFORMATION AND LITERATURE REVIEW

About half a million women die each year from complications related to pregnancy; 99% of these occur in developing countries. In Bangladesh, the maternal mortality level, ranging from 5.5 to 6.2 per one thousand live-births, is one of the highest in the world (1-3). The major causes of direct obstetric deaths are haemorrhage, eclampsia, puerperal sepsis, and prolonged labour (4-5). Deaths caused by unsafe abortion appear to be an important problem, but it is very difficult to assess their importance. In Matlab, between 1976 and 1989, deaths from induced abortions represented 16% of the total number of maternal deaths (6).

Few studies have investigated maternal morbidity in developing countries. One study in India reported 16 episodes of illness for every maternal death (7).

According to a study in China, 37% of the women experienced illness during pregnancy, 21% had delivery problems, and 6% had postpartum complications (8).

A recent study conducted in Bangladesh on 6,493 women reported that 57% of the respondents experienced antenatal morbidity, 28% intrapartum and 65% postpartum morbidity. Life-threatening complications, such as excessive bleeding and convulsions, were reported by 29% of the women interviewed in Dhaka, Khulna and Rajshahi Divisions (9).

A study was carried out by the Bangladesh Rural Advancement Committee (BRAC) in 1991-1993 in three unions of Manikganj district, Bangladesh. Of the 989 post-partum women, 33% reported serious complications at the time of delivery, including prolonged labour, delay in the delivery of the fetus and the placenta, premature rupture of the membranes, excessive bleeding, and malpresentation. Infection and secondary haemorrhage within two weeks after delivery were reported by 26% and 16% of the women respectively (10).

Although most women survive obstetric complications, the consequences of these morbidities may permanently affect their health.

The International Conference on Population and Development (ICPD), held in Cairo in 1994 (11), defined a programme of actions for reproductive health. The Conference recommended accessibility for all to reproductive health care, including, among other services, education and services for prenatal care, safe delivery and postnatal care, and management of the consequences of unsafe abortion.

The Government of Bangladesh has the objective of decreasing the maternal mortality ratio to 4 maternal deaths per 1,000 live-births by 1995 (12) and has expressed its commitment to ensuring safe motherhood (13).

Services Provided During Pregnancy, Delivery and Post-partum

The Ministry of Health and Family Welfare (MOHFW) of the Government of Bangladesh (GoB) provides preventive and curative care at various levels.

At the household level, the Family Welfare Assistant (FWA), who is primarily a Family Planning (FP) service provider, offers limited preventive care to pregnant women. She detects pregnancies, performs a verbal screening according to a check list, and provides advice on nutrition, immunization, personal hygiene, and preparation for delivery. FWA refers high-risk women to the Family Welfare Visitor (FWV) and advises other pregnant women to see FWV at least three times during pregnancy for antenatal check-ups. FWA also provides postnatal care, which includes advice on nutrition, breast feeding, family planning, child immunization, and treatment of diarrhoea with Oral Rehydration Solutions (ORS). FWA is required to visit every married woman of her assigned area once every two months.

At the union level, FWV, a paramedic with 18 months of training in MCH-FP, performs medical examinations for pregnant and post-partum women at the Family Welfare Centre (FWC) and Satellite Clinic (SC). FWV treats minor ailments and refers serious complications to the medical officers at the Thana Health Complex (THC). The Medical Assistant (MA) posted at FWC attends pregnant women when FWV is working at SC. Since he is male, MA does not perform obstetrical examinations.

At the thana level, THC includes a small maternity ward with a delivery room and an operating theatre, but, in most places, the facility is in poor condition and not adequately equipped. Among the nine medical officers posted at THCs, one may have received 6 months of training in obstetrics and gynaecology. As a consequence, obstetric care at THC is, in most places, limited to out-patient care and normal deliveries. The use of THC in-services is very low.

An evaluation of antenatal care provided by FWAs was conducted in 1992 in Abhoynagar thana, a field site of the MCH-FP Extension Project (Rural), ICDDR,B (14). The findings reveal that FWAs are able to detect pregnancies but have very limited ability to provide antenatal care. FWAs are not familiar with the concept of "high-risk pregnancy" and they do not use the screening checklist properly. Moreover, the current checklist includes many risk factors, some with inappropriate cut-off points. As a result, 60% of the pregnant women are identified as high-risk by FWAs. Data from the Sample Registration System (SRS), which is designed to provide independent information on MCH-FP services in the project area, indicate that, on an average, a pregnant woman is visited twice during her pregnancy.

Postnatal care is the most neglected duty of FWA. When provided, postnatal care is directed at the newborn, and nothing is done for the mother.

This report recommends that the risk screening of pregnant women should be discontinued; instead all mothers should be motivated to see FWV for complete antenatal check-ups. Furthermore, pregnant women should be

taught to recognize those alarming signs which require an appropriate care immediately. The main task of FWAs should, therefore, be to communicate and motivate mothers to use services at FWC and SC and advice them on safe birth practices.

In rural Bangladesh, more than 90% of the deliveries occur at home (15-16). Untrained traditional birth attendants and relatives attend about 75% of the women in labour. Six per cent of the deliveries are attended by the trained traditional birth attendants, and another six per cent by doctors and paramedics (17).

For the majority of women experiencing serious problems during pregnancy or delivery, proper services are either delayed or never provided due to various reasons: non-recognition of the problems at their onset, family and relatives do not allow to seek medical help, fund constraints, non-availability of transportation, reluctance to move at night, and lack of confidence in services provided at the hospital (18-20). In a case study of 24 women admitted at Abhoynagar THC hospital with serious complications, it was found that most women had received some type of care (allopathic, homeopathic, traditional or religious) prior to their admission to the hospital. Many women went to the hospital when the situation was aggravated or resources in the neighbourhood were no longer helpful (18).

Verbal autopsies of 65 maternal deaths that occurred in Abhoynagar and Sirajganj indicate that 76% of the women died at home; 32% of the deceased women received medical attention from a qualified allopath before death; 43% from a "quack" allopath or traditional healer; and 20% did not receive any medical care at all (5).

In Matlab, despite an intensive community-based maternity care programme, 75% of the maternal death take place at home without any medical attendance prior to death.

Risk Approach and Emergency Obstetric Care

Several studies have demonstrated the limitations of the high-risk approach. Most obstetric complications cannot be predicted during pregnancy, despite regular antenatal care.

Studies in Kasongo, Zaire (21) showed that past obstetric history has a very poor sensitivity in defining the group of women at risk of obstructed labour. Rooks and Winikoff (22), in a review of several studies, showed that the validity of the risk assessment systems is poor with regard to pregnancy outcome. A study conducted in Matlab reveals that the tests currently used by field workers to detect high-risk pregnancies had low sensitivity and specificity and very poor predictive values, resulting in many false positive and false negative cases. This reduces the credibility of the programme (23). Maine (24), discussing studies conducted in various parts of the world, clearly points out the drawbacks of the risk approach: poor sensitivity and predictive value of the screening tests. Maine demonstrated that all pregnant women were at risk of serious obstetric complications, and the priority should be to ensure access to Emergency Obstetric Care (EOC).

Besides their unpredictability, many serious obstetric complications result, within a short time, in emergencies that have to be managed by the members of the experienced staff. Time is a critical factor in case of obstetric complications. Maine, 1993 (25) has pointed out three delays in the health-seeking process: one, delay in deciding to seek EOC; two, delay in reaching the EOC facility; and three, delay in receiving proper care at the health centre.

The Safe Motherhood Initiative, launched by WHO in 1987, stressed the need to establish EOC and develop strategies to reduce the delay in receiving care at the hospital. Winikoff, 1991 (26) points out that most maternal deaths are not avoidable by traditional preventive health care. To save a maximum number of mothers' lives, good quality services are to be

made available when emergencies leading to death are most likely to occur. Walsh *et al* (27) conclude, from various studies done in the developing world, that most of the complications of pregnancy and delivery can be averted by perinatal and obstetric care. Maternal mortality has declined substantially with the increasing use of hospitals for delivery.

The Mother-Baby Package, developed by the Safe Motherhood Programme of WHO (28), includes interventions at the community, health centre and hospital levels. Recognition and prompt effective treatment of the five most common obstetric emergencies are the key to a rapid reduction in maternal mortality. In Bangladesh, several EOC projects have recently been developed in collaboration with the government. These projects, aiming at providing comprehensive obstetric care at the district level and, in some places, at the thana level, have been implemented in different districts of the country.

INTERVENTION

Rationale

The risk approach has not proved to bring about a dramatic change in maternal morbidity and mortality. As shown by the literature review, risk screening, even with appropriate tools, is a poor predictor of who will develop obstetric problems. Moreover, FWAs are not trained to perform any medical examinations in the field, and they are not qualified to detect and manage obstetric complications. Therefore, a more efficient approach should be sought in providing services to the pregnant women.

Since one of the delays in seeking obstetric care when a problem arises is due to the non-recognition of the obstetric complications by the pregnant women and/or their relatives, FWA can play a new role in informing the pregnant women about the early signs of complications that require immediate medical attention.

Objectives

A new intervention was designed to reduce maternal and neonatal mortality and morbidity by early recognition of obstetric complications and timely provision of EOC.

The specific objectives of the intervention are:

- to increase knowledge and awareness among the pregnant women and their families/relatives of the signs of obstetric complications;
- to increase the use of antenatal and postnatal services provided by FWVs, and the use of EOC services;
- to test the retention of a home-based antenatal and pictorial card.

Intervention Design

The FWA's new role in antenatal care emphasizes information and communication.

FWA will no longer perform antenatal screening in the presence of a pregnant woman. Instead, she will educate the women about the early signs of obstetric complications and the need to seek care from the hospital without delay if and when such signs appear. FWA will provide the pregnant women with a card depicting the signs of the most serious complications that can occur during the antenatal, delivery and postnatal period (**Fig. 1**).

The conditions presented on the card are: ante, intra and postpartum haemorrhage; swollen legs (oedema) with severe headache; discharge of water (amniotic fluid); high fever for more than three days during pregnancy or after delivery; labour for more than 24 hours; and abnormal presentations during labour. A picture of a hospital is shown at the bottom of the card, and the caption stresses that, in case of these complications, one must urgently get to the hospital.

The pictures on the card have been designed to be easily understood even by illiterate women. A brief explanation in local language has been added as someone in the family may be able to read.

FWA will explain each picture on the card to the pregnant women and to their close relatives if they are present at the time of the visit. She will also recommend that the woman show the card to her husband and mother-in-law. FWA will issue the government antenatal card that is normally used by FWV during the antenatal checkup. FWA has to fill in the identification part of the card. The antenatal and the pictorial cards are retained by the client and should be presented to FWV when services are required. The cards are provided in a plastic bag.

HIGH RISK ANTE-NATAL AND POST-NATAL CONDITIONS

If any of the symptoms shown in the following pictures appear, please get to the nearest FWV or Hospital immediately

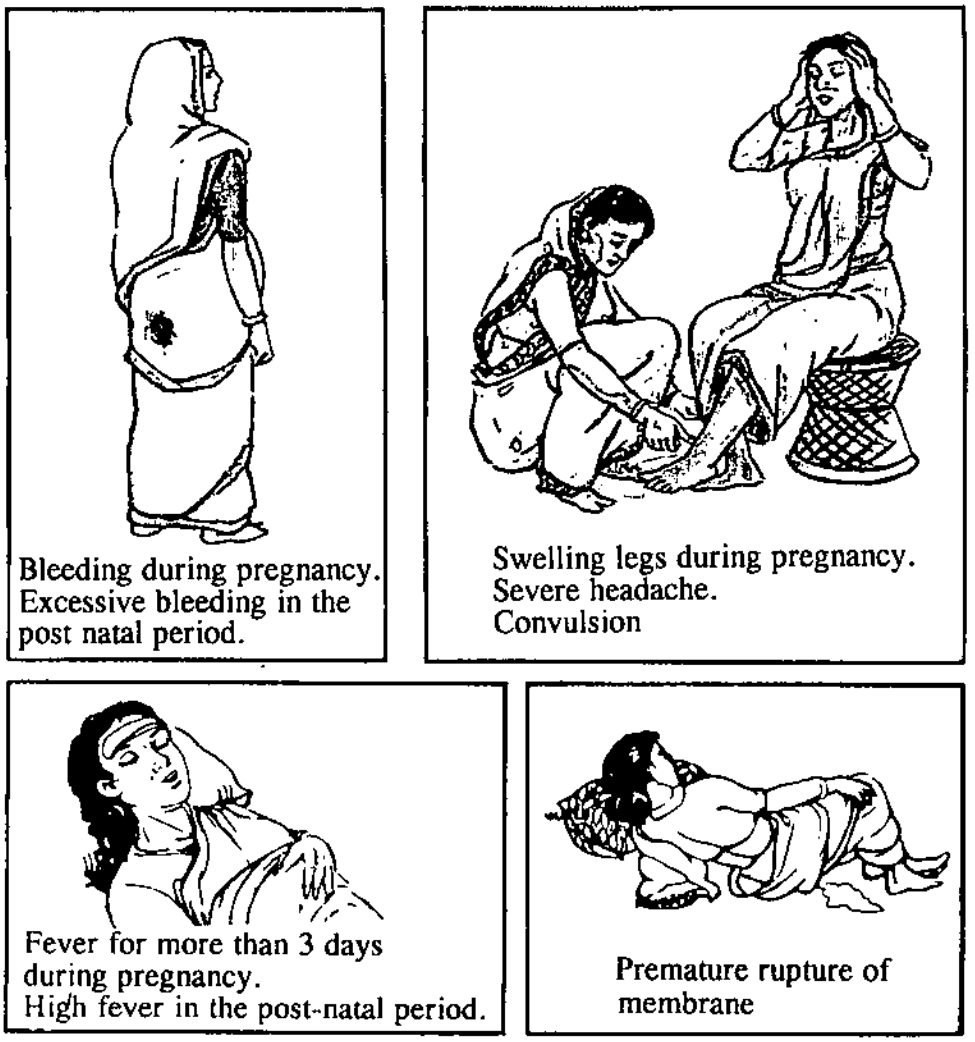


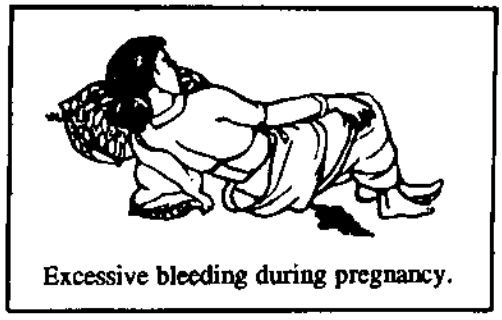
Fig. 1. Pictorial card used for creating awareness about obstetric emergencies

Fig. 1. *(contd..)*

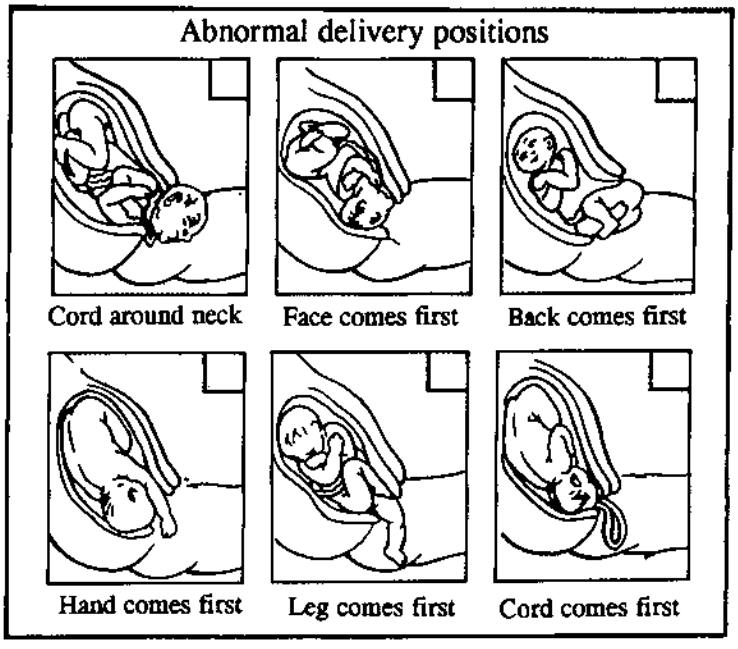
HIGH RISK ANTE-NATAL AND POST-NATAL CONDITIONS

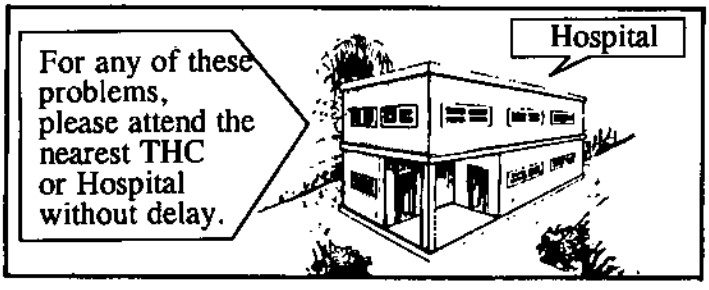
If any of the symptoms shown in the following pictures appear, please get to the nearest FWV or Hospital immediately

Labour pain for more than a day.



Excessive bleeding during pregnancy.





When FWA visits a postpartum woman, she has to check the antenatal card and fill in the part related to the delivery. FWA motivates the expectant mother to go to FWV for a postnatal check-up. At the subsequent visit, FWA collects the antenatal card.

In addition to the new activities described above, FWA performs her usual tasks in antenatal care, except the antenatal screening. These are:

- Confirmation of the pregnancy status in case of missed menstruation;
- Information about the location of FWCs and SCs;
- Motivation for tetanus immunization and antenatal check-up by FWV;
- Advice on nutrition, safe-delivery practices and use of a trained Traditional Birth Attendant (TBA) at the time of delivery;
- Recording of data in the record book and the pregnancy list.

FWV also plays a role in the intervention by reinforcing the message of the pictorial card when a woman comes for her antenatal check-up. When a woman consults FWV prior to the FWA's home visit, FWV issues the antenatal card and provides the pictorial card with the necessary information. When a mother forgets to bring her antenatal card to the clinic, FWV issues a new card and advises the client to keep both antenatal cards together.

Two columns have been added on the FWA's pregnancy list and in the FWV's register to record the following information:

- provider of the card (FWV or FWA);
- availability of the card (available, missing, or lost).

Before the intervention started, FWAs and their supervisors, FPIs received a one-day training, and FWVs and MAs received half a day's training. Another one-day refresher training course was organized three months after the beginning of the intervention. The training was designed by a medical doctor and a social science researcher who have extensive field experience. It included the following areas: importance of antenatal care; a brief revision of the components of the antenatal check-up; presentation and discussion of the new pictorial card and its messages; presentation of the antenatal card; and record-keeping related to the new intervention.

Site of Intervention

The intervention has been tried out in Abhoynagar thana (Jessore district), a field site of the MCH-FP Extension Project (Rural) of ICDDR,B. Abhoynagar thana, located in southwest Bangladesh, includes eight unions. In each union, MCH-FP services are provided by FWAs at the household level and by paramedics at FWCs and SCs.

THC is the referral centre for obstetric complications. A long-term intervention was initiated in early 1993 to provide basic EOC at Abhoynagar THC. The THC maternity unit was rehabilitated and equipments were provided for non-surgical treatment. A partograph was introduced in 1994 to monitor the progress of labour. The quality of care improved considerably, and many complications could be handled at the THC level. However, cases requiring blood transfusion or caesarian section had to be referred to a comprehensive EOC unit located in Khulna or Jessore, about fifty kilometers away from Abhoynagar. Communications between THC and comprehensive EOC facilities are very good.

Three unions of the thana -- Mohakal, Shreedarpur and Rajghat union -- were selected as the intervention area and three unions -- Siddipasa, Paira, and Bagutia union -- served as the comparison area. There are about 25,000 inhabitants in each union.

The socioeconomic status of the population is similar in the intervention and in the comparison areas. Accessibility to the hospital is comparable in both areas.

The intervention started in April 1994 and was monitored until the end of March 1995.

Evaluation

The impact of the intervention on maternal mortality and morbidity cannot be evaluated after a one-year intervention in a limited area. Therefore, the present evaluation includes process indicators that contribute to the success of the intervention.

Procedures and instruments for data collection

Several methods and instruments were used for collecting qualitative and quantitative information related to the intervention.

Service providers' knowledge was assessed through a written test before and after an initial training and three months later. The number of personnel trained in the intervention unions is presented in Table 1.

Table 1. Personnel trained in the intervention unions

Union	FWAs	FWVs	MAs	FPIs
Mohakal	7	1	1	1
Shreedarpur*	5	1	-	1
Rajghat	8	1	1	1

* There was no Medical Assistant (MA) posted in Shreedarpur

Women's understanding of the pictorial card was investigated through interviews. A total of 590 pregnant and postpartum (delivered within the last three months) women were interviewed between January and July 1995 (Table 2). The respondents were randomly selected. The interviewers were trained to conduct interviews with the support of a structured questionnaire (Annex-1).

Table 2. Number of interviews in the intervention and comparison unions

Union	Antenatal women	Postnatal women	Total
Intervention:			
Rajghat	60	40	100
Shreedarpur	62	33	95
Mohakal	76	24	100
Total	**198**	**97**	**295**
Comparison:			
Siddhipasa	106	52	158
Paira	71	27	98
Bagutia	28	11	39
Total	**205**	**90**	**295**

Distribution of age, parity, and education are similar in the intervention and comparison unions (Table 3).

In the intervention unions, interaction between FWAs and pregnant women was observed during the role play. Each FWA, except one, acted out three home visits: the first antenatal visit, a re-visit, and a post-delivery visit.

The FWAs' opinions about their new role and tasks in maternal care were collected through focus group discussions. Three focus group discussions were conducted by an experienced social science researcher with

19 FWAs from the intervention unions. The role plays and the focus group discussions were conducted in April 1995.

Table 3. Characteristics of the women interviewed

	Intervention unions (n=295)	Comparison unions (n=295)
Age (years)		
<20	89	76
20-29	148	165
>29	54	52
Missing	4	2
Previous pregnancies		
0	112	100
1-3	145	160
>3	34	33
Missing	4	2
Education (years)		
0	124	133
1-5	105	90
>5	62	70
Missing	4	2

Interaction between FWVs and pregnant women was observed in the intervention unions by an independent Lady Family Planning Visitor of ICDDR,B who is experienced in supervision and data collection. One hundred and six observations were recorded between February and April 1995. An observation checklist was designed for that purpose.

Data on antenatal and postnatal coverage by FWAs and FWVs before and after the intervention originated from SRS and MIS.

Card presentation by the patients at FWC/SC was recorded in the FWV's and the MA's General Patients Register. Two columns were added in the register to collect the required information.

Biases and limitations

Since serious obstetric complications are relatively uncommon events and the sample limited, it was not possible to measure the impact of the card in terms of reduction of maternal mortality and morbidity.

The intervention has been conducted in three unions only. Therefore, due to a small number of service providers, some limitations in evaluating the providers' knowledge and performance appeared, especially that of FWVs.

Data have been collected from different sources, allowing cross-check and minimizing biases.

RESULTS

Results presented in this chapter are related to:

- the service providers' knowledge, practices and attitudes;
- the clients' knowledge and practices;
- the use of FWA, FWV and hospital services.

Service Providers' Knowledge

A one-day training was provided to FWAs, FWVs, MAs, and FPIs before the intervention and once again after three months.

The training included the following:

- Purpose of antenatal care;
- Components of antenatal check-up;
- Pictorial card: detailed explanation of each picture and its message;
- Antenatal card: presentation of the various sections of the card, how to fill it up properly; and
- Management and recording system of the intervention.

The service providers' knowledge was tested before and after the initial and the refresher training. The test included questions about the diagnosis of pregnancy, components of antenatal care, signs of complications during pregnancy and delivery and advice to be given to the pregnant women.

Among all categories of service providers, knowledge was poor before the training (they scored between 41% and 57%). It improved substantially after the initial and the refresher training, and the average score was over 80%. The average scores after the first and refresher training were 76% and 86% respectively for FWAs (**Fig.2**) and 86% and 93% respectively for FWVs.

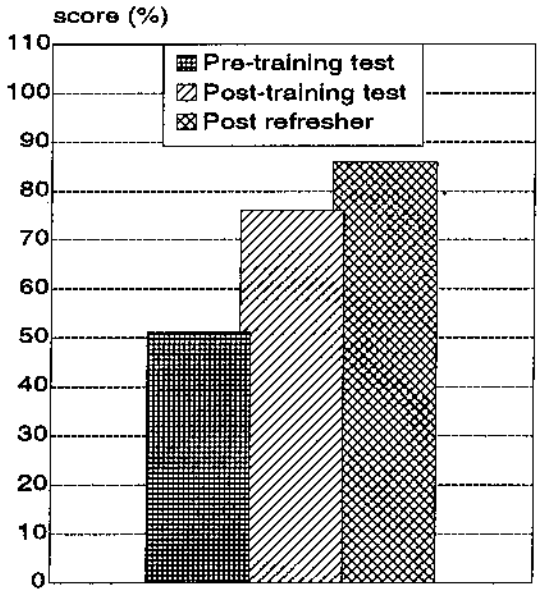


Fig. 2. FWAs' knowledge

Provision of Cards

Among the 295 women interviewed in the intervention area, 172 had received both the cards, and 8 had received the pictorial card only at the time of the interview. The rest of the women did not have any card, because they had not seen FWA or FWV since the beginning of their pregnancy. Seventy-six per cent of the women got their cards from FWAs, 21% from FWVs, 1% from MAs, and 2% from other sources.

About two-thirds of the women interviewed had received a full explanation of the pictorial card as presented in Table 4.

Table 4. Explanation of the pictorial card by the service provider

Activity	% of women (n=180)
Card fully explained	65
Card partly explained	23
No explanation	12

Services Provided by FWAs

The new services provided by FWAs were observed during the role play. Each of the 19 FWAs from the intervention area acted out three visits to community women: the first antenatal visit, a re-visit and a postnatal visit. Findings are presented in Tables 5-7.

The card is checked as required by almost all FWAs, but a full explanation of the pictorial card has not been systematically provided on neither the first nor on the subsequent visit. At the first visit (19 role plays), five clients received a partial explanation and one client received no explanation at all. At the re-visit (19 role plays), two clients received partial explanation and seven had received none.

Table 5. FWAs' services related to the delivery of the pictorial card (role plays)

Type of service (No. of role plays)	No.	% of service provided
Delivery of cards	19	100
Inquiry about cards	38	95
Explanation about pictures of card	38	-
Each picture explained	-	61
Some pictures explained	-	18
No explanation	-	21
Delivery of correct message about pictures	30	90
Assessment of client's understanding	30	60
Information about the referral centre	57	89

In 90% of the cases, the message was provided correctly and delivered in a simple and appropriate way.

After providing the card, 60% of FWAs assessed the client's understanding by asking questions or requesting feedback from the women.

Table 6. FWAs' services related to the delivery of the antenatal card (role play)

Type of service (No. of role plays)	No.	% of service provided
Delivery of antenatal card	19	100
Checking antenatal card	38	95
Filling up card correctly during antenatal visits	38	95

The antenatal card is checked and filled up correctly by almost all FWAs.

A total of 588 antenatal cards from the three intervention unions were examined after pregnancy termination to check if information on delivery was recorded. This information is to be recorded by FWAs during the postnatal visit unless the woman was previously seen by the FWV. Delivery data, reported mostly by FWAs, were available in 89% of the cards.

Table 7. FWAs' services related to information and motivation (role plays)

Type of service (No. of role plays)	No.	% of service provided
Check or advise for tetanus immunization	57	93
Motivate client to go to FWV for checkup	57	95
Inform clients about the location of SC	57	91
Motivate clients to call the trained TBA for delivery	38	45
Fill up the pregnancy list	57	81

Most FWAs gave information and/or advice about immunization, antenatal check-up, and SC location. Only half of FWAs advised the women to use the service of the trained TBA at the time of delivery. Data from the interviews showed that only 30% of the women of the intervention area were motivated to call a trained TBA.

FWAs' Perception of Intervention

Three focus group sessions have been organized for FWAs of the intervention unions in order to know their opinions about the new intervention.

The aim of the interventions was understood well by the FWAs. They expressed: *"We are doing the work with the aim of reducing the death rate among children and mothers"*. and *"The objective ... of explaining*

pictures is to make the pregnant mothers conscious regarding the danger signs during ... pregnancy and child birth".

FWAs unanimously reported that this intervention increased their credibility to the mothers, because now they provide something concrete to the clients: *"Introduction of home-based ANC card has strengthened our work...[Before] we used to give lip service only". "The card gives value to our words".*

The pictorial card is found to be a very convenient and valuable support to convey the message and motivate the women: *"Visual method is more effective than audio method..Now they [the clients] are getting both".*

FWAs do not feel any hesitation to explain the card to the clients and their mothers-in-law, although some FWAs never explain the card before the husbands or male relatives.

Due to the new intervention, FWAs have not only been recognized as family planning workers but also as service providers for the pregnant women: *"Now we are not addressed as Poribar Porikolpona (Family Planning) workers by the community people. Now they [the community women] realize that we are also working for the welfare of the pregnant women".*

One FWA pointed out that this intervention gives equal importance to all pregnant women, whereas services were previously focussed only on high-risk women. Since all mothers were motivated for antenatal check-up, FWAs observed an increase in FWC and SC attendance. The increase in FWC/SC use is documented in Table 13.

Two FWAs expressed satisfaction because they gained new knowledge of obstetric problems. They indicated a sense of accomplishment at being able to explain these things to mothers.

Many FWAs said that if mothers realize the importance of obstetric problems, they may go to the hospital in time. However, it was also mentioned that the clients did not go to the hospital, because they feel that the THC doctors do not treat them as important. Some FWAs are reluctant to send clients to the hospital, because if doctors ask for money that they shouldn't, FWAs will lose their credibility in the community.

FWAs like mothers to keep the card at home. By checking the card, FWAs are informed of the number of antenatal check-ups and any eventual obstetrical problems.

Unfortunately, FWAs reported that some women were not checked properly by FWV: *"We motivate the mothers to go and see the FWV for blood test, urine test, etc. But in practice when FWV does not do that , the clients become demotivated to go there".*

Interestingly, the intervention has a positive impact on the FWAs' family planning activities: *"When mothers see that they get healthy babies and they also remain healthy by following our instructions, then they abide by our [FWAs'] suggestion for adopting FP methods".*

Overall, FWAs were positive about the intervention and strongly in favour of performing the new tasks, despite some increase in their workload.

Services Provided by FWVs

In the intervention unions, FWVs are requested to reinforce the message of the pictorial card. FWVs have to provide cards when a client has not received one at home or in case the cards are lost.

FWVs' services related to the pictorial card and its message were assessed through observations. A total of 106 observations were performed in the three intervention unions. Results are presented in Table 8.

Table 8. FWVs' services related to the intervention

Type of service	% of service provided (n=106)
Explanation of card	64
Delivery of correct message about pictures	64
Assessment of client's understanding	45
Motivation to go the hospital if problems arise	66
Information about the trained TBA	6

Data from the FWV's register indicate that FWVs provided cards to women who did not receive any at home.

Clients' Knowledge about the Message of the Pictorial Card

The 180 women who received the pictorial card were questioned about its purpose. Thirty-seven women gave two answers; therefore, a total of 217 responses were analyzed. Results are presented in Table 9.

Table 9. Purpose of the pictorial card as expressed by the women

Purpose of the pictorial card	% of women (n=217)
To go to hospital without delay when there is a problem	51
To recognize pregnancy and delivery problems	23
To save life, remain healthy	2
For better services	8
Other	4
Does not know	12

Similar percentages are found after excluding the second answer provided by 37 women.

Considering the first two answers as correct, it can be said that three-quarters of the women clearly understood the meaning of the card. Twelve per cent of the women did not have any idea about the purpose of the card.

To assess the comprehension of the pictorial card, women were asked to explain which obstetrical problems are illustrated in the pictures. Some women were shown all the pictures and, due to the time constraint, some women were only shown the picture of the hospital plus two or three other pictures selected at random. In the intervention unions, we present the results for two groups of women: the respondents who received a full explanation of the card, and rest of the respondents together (women who received a full or partial explanation plus women who did not) (Table 10).

Table 10. Correct understanding of the card's pictures

	Intervention area				Comparison area	
	Women with full explanation		All women			
Picture	No.	%	No.	%	No.	%
Antepartum haemorrhage	67	91	138	74**	126	53
Oedaema and headache	67	88	133	72**	111	47
Fever	53	66	82	49**	67	30
Water discharge	53	62	79	47**	59	26
Prolonged labour	53	56	77	48*	82	36
Intrapartum hemorrhage	66	78	114	59**	74	30
Malpresentation	55	85	99	57**	76	33
Hospital	109	82	183	62**	122	41

Significantly different from the comparison unions * $p=0.019$ ** $p<0.001$

For all pictures, the percentage of correct answers is significantly higher in the intervention than in the comparison unions. In the intervention area, the pictures are much better understood by women who received a full

explanation of the card compared to the rest of the group. The level of comprehension varies widely between the pictures. The illustrations of antepartum haemorrhage and oedaema with headache are the best understood. The pictures of prolonged labour and water discharge are the least understood.

The comprehension of the pictures was analyzed after controlling for the women's education (Table 11). In both areas, there is a significant increase in the proportion of correct answers with the level of education. Around 80% of the women with more than five years of education understood the pictures very well in both areas, indicating that for this category of women the card is almost self-explanatory. It is not surprising since it is assumed that those women can read. Women with no education or less than six years of education understood the card better in the intervention area than in the comparison area. However, the level of comprehension by women with no education is low in the intervention area.

Table 11. Correct understanding of the pictures by level of education

Picture	No education		1-5 yr.education		> 5 yr. education	
	Inter[a] %	Comp[b] %	Inter %	Comp %	Inter %	Comp %
Antepartum haemor.	65*	42	80***	43	88	88
Oedaema and headache	57***	27	77	78	88	86
Fever	22*	9	53***	17	76*	82
Water discharge	17*	5	58***	18	76	74
Prolonged labour	20	15	52*	29	79	81
Intrapartum haemor.	44***	9	53**	21	80	80
Malpresentation	37*	17	64	25	79	75
Hospital	44***	17	73*	50	84	84

Significantly different from the comparison area * $p <= 0.05$; ** $p <= 0.001$; *** $p <= 0.0001$

[a] Intervention area
[b] Comparison area

Retention of the Cards

The retention of both the cards was found to be excellent: 96 per cent of the women had their cards available at the time of the interview, 3 per cent had returned their cards to the service provider after delivery, and 1 per cent left their cards at their parents' house. Therefore, none lost her cards.

The women were instructed to bring in their cards with them whenever they went to FWC or SC for services. Between April 1994 and March 1995, 99 per cent of the women who were provided cards prior to their FWC/SC visit presented them to FWV or MA.

Twenty-one per cent of the pregnant women who visited FWV or MA had not received cards at home. The cards were later provided by the paramedics. This situation does not necessarily reflect deficiencies in the FWAs' services. Other reasons have to be taken into account: the client might have concealed her pregnancy to FWA or she may have decided to go to FWC or SC before the FWA's visit.

Communication with Family Members about the Pictorial Card

Since a majority of women require permission from their husband and/or their mother-in-law to go out of the house to receive medical services, it is important to share the message of the card with the decision-makers. Whenever possible, FWA was requested to explain the card to the client in presence of her close relatives.

The client was advised to show the card and communicate its message to her husband and mother-in-law.

Sixty-six per cent of the women said that their husbands had seen the card and 56% said that their mothers-in-law knew about the card.

Women's Perception of Intervention

Women's perception of the intervention was reported by FWAs during focus group discussions.

A majority of the community women appreciate receiving the antenatal and the pictorial card. Since the antenatal card remains with them, the women feel responsible and motivated to go to FWV for antenatal check-up. As mentioned earlier, FWAs reported an increase in FWC and SC attendance. The number of antenatal and postnatal services provided by FWV is presented in Table 13.

Some women, especially the newly married, felt shy when the pictorial card was explained to them. Some women were afraid when they were shown some of the obstetric problems, but FWAs said that fear would make the mothers aware of the gravity of the situation: *"...fear is a good sign which makes mothers conscious. Fear induces a mother to go for treatment".*

Regarding the comprehension of the pictures, FWAs said that the pictures representing fever, water discharge, prolonged labour and abnormal presentation were not well understood by the community women. FWAs reported some common beliefs in the community about certain pathological signs that can occur during pregnancy. For example, women consider haemorrhage a sign of great danger: *"They think that the womb may be spoiled by bleeding, they become very panicky".*

Women do not worry about fever, because it is considered a normal condition during pregnancy. Face presentation and the umbilical cord around the baby's neck is not perceived as a risky situation. It is believed that babies who are delivered with the cord around the neck will have a very fortunate future.

With the introduction of the pictorial card, awareness of obstetric problems has been created among the pregnant women and their relatives. Mothers-in-law and husbands are now interested in the antenatal and obstetrical care for the pregnant family member: *"They [the mothers-in-law] let their daughters-in-law go for checkup after the card has been explained to them". "They even requested our help for sending the pregnant women to the FWC or to the hospital".*

Coverage by FWAs' Services

FWAs' visitation to the pregnant women has been evaluated before and after the intervention through the SRS system. Rajghat and Shreedarpur unions in the intervention area; and Paira and Siddipasa unions in the comparison area are included in the SRS system. In 1993, the year before the intervention, 90% of the pregnant women were covered by FWAs' services in both areas. In 1994, 94 per cent and 84 per cent ($p < 0.0001$) of the pregnant women were visited in the intervention and the comparison unions respectively. The number of FWA's visits per pregnant woman in these four SRS unions is presented in Table 12.

Table 12. FWAs' visits per pregnant woman in 1994

No. of visits	Shreedarpur and Rajghat *(Intervention unions)* % of visits (n=294)	Paira and Siddipasa *(Comparison unions)* % of visits (n=190)
None	6	16
1 visit	11	14
2-3 visits	37	46
> 3 visits	46	24

Use of FWVs' Services

One of the new tasks of FWAs is to motivate all pregnant women to go to FWV for antenatal and postnatal check-ups. It was hypothesized that when women receive the antenatal card at home and are responsible for it, they will be more inclined to go to FWV.

The number of antenatal and postnatal visits recorded in the Management Information System (MIS) before and during the intervention is presented in Table 13. Twelve months before and twelve months after the beginning of the intervention were taken into account for the evaluation. However, a seven-month period was considered in Rajghat union where another intervention was started in January 1995.

Antenatal and postnatal care increased by 35% in the intervention unions, whereas antenatal care increased by 8% and postnatal care decreased by 22% in the comparison unions.

Table 13. ANC and PNC services provided before and after intervention

Union	Antenatal care		Postnatal Care	
	Pre-int.[a]	During int.[b]	Pre-int.	During int.
Intervention unions				
Mohakal	773	1159	123	148
Rajghat[c]	491	760	128	189
Shreedarpur	769	826	204	278
Total	**2033**	**2745**	**455**	**615**
Increase		**35%**		**35%**
Comparison unions				
Paira	665	740	267	220
Siddipasa	677	719	298	260
Bagutia	661	702	398	275
Total	**2003**	**2161**	**963**	**755**
Increase		**8%**		**-22%**

[a] Pre-intervention: April 1993-March 1994

b During intervention: June 1994-May 1995

[c] 7 months: June-December 1993 (pre-intervention); June-December 1994 (during intervention)

Use of Emergency Obstetric Care Services

In Abhoynagar, basic EOC services are provided at the thana hospital. Equipment and emergency drugs are available, and a medical officer is on duty round the clock. During the interviews, the women were asked if they experienced some of the problems pictured on the card and -- if they did -- whether they visited the hospital or not. Results are presented in Table 14.

About 15 per cent of the women in both areas said that they experienced serious obstetric problems during their pregnancy. Those problems include abnormal delivery, antepartum haemorrhage, premature rupture of membranes, fever for more than three days, severe headache, and oedaema.

Table 14. Use of EOC for obstetric problems

	Intervention unions (n=295)	Comparison unions (n=295)
Obstetric problem	44	37
Went to the hospital	10 (23%)	4 (11%)

Twenty-three per cent of women with obstetric problems went to the hospital in the intervention unions as opposed to 11% in the comparison unions. However, no statistical difference was found due to the small number of cases.

Women who did not go to the hospital despite serious problems were questioned about the reasons for not using the hospital services (Table 15).

Table 15. Reasons for non-use of hospital services

Reasons listed	Intervention unions (n=35)*	Comparison unions (n=34)*
Need not felt	8	19
Poor accessibility	8	7
No permission	6	4
Poor quality of care	4	1
Other services used	3	2
Nobody to attend the children at home	2	1
Too expensive	2	-
Others	2	-

* More than one answer was accepted

"Need not felt" ranks first in both areas, but this reason accounts for 23% of all the responses in the intervention unions as opposed to 56% in the comparison unions. This may well indicate that the intervention had an effect in raising awareness of obstetric complications, however this should be evaluated on a larger scale.

CONCLUSIONS AND RECOMMENDATIONS

This intervention was launched in April 1994 in three unions of Abhoynagar thana to try out a new approach for antenatal care provided by FWAs.

Various studies have shown that risk screening during pregnancy is a poor predictor of obstetric complications. Emergency obstetric care is to be provided on time when problems arise. Therefore, it was decided that FWAs, instead of performing the usual antenatal screening, would create awareness about the signs and symptoms of obstetric complications and motivate women to go to the hospital without delay when complications arise. In this respect, a card depicting major complications was given and explained by FWAs to the pregnant women to enhance comprehension and convey the message to the decision-makers in the family.

Since the coverage of antenatal care by FWVs is fairly low, it was hypothesized that, if the pregnant women retain their antenatal card, they will feel more responsible for their health and will more readily visit FWV for antenatal and postnatal check-ups. Therefore, in the new approach, FWAs issue the antenatal card during their household visit and motivate the pregnant women for medical check-ups.

The FWV's role in this intervention is to reinforce the message of the pictorial card to the pregnant women and give the cards to women who do not have any. Besides these tasks, FWVs have to provide their usual antenatal and postnatal services.

Knowledge, attitudes and practices of the service providers and the pregnant women were assessed through the quantitative and qualitative methods. The use of EOC and antenatal, postnatal and EOC services was also evaluated.

Service Providers' Perspective

FWAs have a very good understanding of the purpose of the intervention are convinced and of the usefulness of the new approach.

The reasons of FWAs' satisfaction are many. Their credibility among the community has increased by providing something "concrete" (the cards) to women. Now FWAs are not perceived by the community only as "family limiters", but also as providers of maternal care services. FWAs have gained new knowledge of antenatal care and are now able to counsel the women about obstetric complications.

Seventy-six per cent of the women received their cards from FWAs, 21 per cent from FWVs, and 3 per cent from other sources. FWAs and FWVs do no systematically explain the pictorial card to their clients. The message that is delivered by the providers is correct, but the assessment of the clients' understanding is often lacking.

Other services provided by FWAs were found to be excellent during the role play. These included mainly information about referral centers; motivation for antenatal check-ups and immunization against tetanus; and provision of the antenatal card.

FWAs observed an increase in the number of pregnant women attending FWC and SC since the intervention started. On several occasions, FWAs were requested by husbands or mothers-in-law to help organize referrals in cases of complications. FWAs also reported better FP acceptance.

Observation showed that about two-thirds of FWVs provided explanations of the cards and motivated women to obtain EOC services if and when complications occurred.

CONCLUSIONS

- **Despite an increased workload, FWAs are willing to deliver the new type of antenatal services.**
- **FWAs and FWVs perform most of their new tasks correctly. However, it should be noted that one-third of the clients received only a partial or no explanation of the pictorial card.**
- **FWAs reported positive impacts of the intervention on maternity care and FP.**

Clients' Perspective

The new type of services provided by FWAs has been welcomed by clients.

Almost all women (99%) retained their cards and presented them when they attended FWC or SC for antenatal check-ups.

Comprehension of the pictures is related to the level of education. For women with more than 5 years of education, the card is almost self-explanatory. However, there is a significant difference between the intervention area and comparison area for women with no or only primary education.

Illustrations of fever, water discharge, and prolonged labour are the least understood pictures among groups of women, indicating that some changes have to be made to improve comprehension.

Two-thirds of the women showed the card to their husband and 56% to their mothers-in-law. It is very important to make husbands and mothers-in-law aware of timely referral, because their authorization is usually required when a woman needs medical services. Lack of family permission has been found in different studies to be an important barrier to medical care (19,18).

CONCLUSIONS

- **Pregnant women greatly appreciate receiving a pictorial card and keeping their antenatal card at home.**
- **Three-quarters of the clients who received the pictorial card clearly understand its purpose. However, the service provider needs to explain the pictures on the card.**
- **Women communicate with their decision-makers about the pictorial card.**

Use of Services

There is a significant difference in FWAs' coverage of the pregnant women between the intervention and comparison unions.

The number of antenatal and postnatal visits at FWC or SC has increased by 35% and 26% respectively in the intervention unions as opposed to a small increase in antenatal care and a decrease in postnatal care in the comparison unions.

Fifteen per cent of the women interviewed reported serious obstetric complications in the intervention and comparisons unions. The proportion of women who experienced problems and went to the hospital for EOC is 23% and 11% in the intervention and the comparison area respectively. However, the sample is too small to be significant.

"Need not felt" is the major reason for not going to the hospital in both areas. However this reason accounts for 23% in the intervention unions as opposed to 56% in the comparison unions.

CONCLUSIONS

- **After the beginning of the intervention:**
  - **FWAs' coverage of the pregnant women is significantly higher in the intervention unions than in the comparison unions.**
  - **Antenatal and postnatal services provided by FWVs have dramatically increased.**
  - **On a small sample, it was found that, in cases of complications, EOC services are used more by women from the intervention area than from the comparison area.**

Recommendations

In view of the many positive findings, the following recommendations are made:

1. **Some changes should be made to several pictures of the card for better understanding.**

2. **The pictorial card should be tested on a larger scale and its impact on awareness of obstetric complications and prompt referral to EOC should be further evaluated.**

3. **The pictorial card should be accompanied by a verbal explanation from the service providers.**

4. **FWAs and FWVs need to assess the client's understanding after explaining the pictures on the card.**

5. **Women should be advised to share the message of the card with their decision-makers, and families need to be prepared for an eventual referral.**

6. **During training and follow-up activities, more emphasis should be given to the FWVs' role in the intervention.**

7. **The antenatal card should be issued at home by FWAs and kept by the clients.**

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Annexure-1

QUESTIONNAIRE

Evaluation on the New Intervention on FWA's Alternative Role in Antenatal Care in Abhoynagar

Respondents: Pregnant women and women who delivered within the last 3 months.

SSR.HHNo. ( ) Union_____ Interviewer_____

1a. Pregnant Yes ( ) No ( ) 1b. LMPDT.....

2a. Delivered ( ) 2b. Date of delivery ____/_____/_____

3. How many times did you go to FWV/MA for examination during your pregnancy?

0 = no visit	1 = 1 visit
2 = 2 visits	3 = 3 visits
4 = more than	5 = don't know

4. Have you received the antenatal and the pictorial card ? Yes = 1; No = 2
(If "No" then skip to Q.10)

5. If yes, then, who provided you the card? FWA=1; FWV = 2; MA = 3; other = 4; NA =8

6. Do you still have the card? Antenatal card Yes = 1; No = 2; NA = 8
Pictorial card Yes = 1; No = 2; NA = 8
If "yes", please ask the lady where she has kept the card

7. If "No" where is the card?

a. **Antenatal card**
- 1 = returned to FWA
- 2 = returned to FWV
- 3 = lost
- 4 = under locked and key
- 5 = other_____
- 8 = NA

b. **Pictorial card**
- 1 = returned to FWA
- 2 = returned to FWV
- 3 = lost
- 4 = under locked and key
- 5 = other_____
- 8 = NA

8. Could you tell me why this pictorial card was given to you?
(without probe, maxim 2 answers)

1= to recognize the problems during pregnancy and delivery
2= to go to hospital without delay when any one of the problems occurs
3= to get better services
4= to save our life, to remain healthy, for my personal service
5= don't know
6= other_____
8= NA

9. Was the pictorial card explained to you when it was given?
Yes = 1; No = 2; partly = 3; don't know = 4; NA =8

10. Could you please explain what you understand by this picture?
(please ask about 2 pictures of the pictorial card)

a. P1. bleeding during pregnancy	correct=1	incor=2	unknown=3	NA=8
b. P2. swollen legs+ headache	correct=1	incor=2	unknown=3	NA=8
c. P3. fever	correct=1	incor=2	unknown=3	NA=8
d. P4. discharge of water	correct=1	incor=2	unknown=3	NA=8
e. P5. prolonged labour	correct=1	incor=2	unknown=3	NA=8
f. P6. bleeding	correct=1	incor=2	unknown=3	NA=8
g P7.wrong presentation	correct=1	incor=2	unknown=3	NA=8
f P8. hospital	correct=1	incor=2	unknown=3	NA=8

11. Did you have one of those problems during your pregnancy ?
(bleeding, fever, oedema+headache, rupt membranes, prolonged labor, malpresent)
Yes = 1; No = 2; (if "No" go to Q14)

12. If "Yes", did you go the hospital? Yes = 1; No = 2; NA = 8
(if yes go to Q14)

13. If "No", why you did not go to the hospital ? (without probe, more than one answer accepted)

1= too far	6 = no good services	11= Other
2= too expensive	7= no permission of husband	12= NA
3= bad communication	8= nobody to look after the children	
4= no medicines	9= went to FWV	
5= no doctor available	10 =not necessary	

14. Did the FWA or FWV informed you to call the Trained TBA in your area at the time delivery? Yes =1; No =2; Do not remember =3

15. Did the FWA or FWV inform you to consult with FWV/MA after delivery?
Yes = 1; No = 2; Do not remember = 3

16. Has your husband seen the card? Yes =1; No = 2; Do not remember = 3

17. Has your mother-in-law seen the card?
Yes = 1; No = 2; Don't remember = 3; not alive, not residing = 4

Annexure-2

Check List for FWV Observation

FWA'S ALTERNATIVE ROLE IN MCH SERVICES IN ABHOYANAGAR

Union:_____ Observed at: FWC/SC Date:_____

1. Does the FWV explain the cards in the group health education session ?
YES= ( ) NO= ( ) NA= ( )

(The following questions will be asked to each pregnant woman and one circle will be used for each woman)

2. Does FWV explain the pictorial card to the pregnant mothers?
Yes 0 0 0 0 0 0 0 0 0
No 0 0 0 0 0 0 0 0 0

3. Does FWV provide correct messages of the pictorial card?
Yes 0 0 0 0 0 0 0 0 0
No 0 0 0 0 0 0 0 0 0

4.Does FWV encourage pregnant woman to go to hospital if any of those problems occurs during pregnancy or delivery?
Yes 0 0 0 0 0 0 0 0 0
No 0 0 0 0 0 0 0 0 0

5.Does FWV assess the knowledge of pregnant woman about the pictorial card?
Yes 0 0 0 0 0 0 0 0 0
No 0 0 0 0 0 0 0 0 0

6.Does FWV ask the mother to see her again?
Yes 0 0 0 0 0 0 0 0 0
No 0 0 0 0 0 0 0 0 0

7.Does FWV inform the pregnant mother about the nearest TTBA?
Yes 0 0 0 0 0 0 0 0 0
No 0 0 0 0 0 0 0 0 0

8.Does FWV provide a new card to the pregnant woman in case of "lost card" ?
NA 0 0 0 0 0 0 0 0 0
Yes 0 0 0 0 0 0 0 0 0
No 0 0 0 0 0 0 0 0 0

Comments (if any):_____

Observed by:_____

A Brief History of ICDDR,B

1960	Cholera Research Laboratory established
1963	Matlab field station started
	First of a series of cholera vaccine trials launched
1966	Demographic Surveillance System established
1968	First successful clinical trials of Oral Rehydration Solution (ORS)
1969	Relationship between stopping breast-feeding and resumption of menstruation demonstrated
1971	Independence of Bangladesh
1973	Shift from Classical to El Tor cholera identified
1977	Maternal Child Health and Family Planning interventions began in Matlab
1978	Government of Bangladesh Ordinance establishing ICDDR,B signed
1981	New Dhaka hospital built
	Urban Volunteer Programme initiated
1982	Classical cholera returned
	Field testing of cereal Oral Rehydration Solution began
	Clinical sub-centres established in Matlab
	MCH-FP Extension Project began
1983	First issue of the Journal of Diarrhoeal Disease Research
	Epidemic Control Preparedness Programme initiated
1984	ICDDR,B received UNICEF's Maurice Pate award
1985	Full Expanded Programme of Immunization activities tested in Matlab
	WC/BS cholera vaccine trial launched
1987	ICDDR,B received USAID's "Science and Technology for Development" award
1988	Treatment of and research into Acute Respiratory Infection began
1989	The Matlab record keeping system, specially adapted for Government use, extended to the national family planning programme
1990	The new Matlab Health and Research Centre opened
1992	ICDDR,B-Bangladesh Rural Advancement Committee study commenced
1993	New laboratories built and equipped
	New *Vibrio cholerae* 0139 - Bengal identified and characterized, work on vaccine development began
1994	Twenty fifth anniversary of ORS celebrated
	ICDDR,B epidemic response team goes to Goma to assist cholera-stricken Rwandan refugees, identifies pathogens, and helps reduce mortality from as high as 48.7% to < 1%.
1995	Maternal immunization with pneumococcal polysaccharide vaccine shown to protect infants up to 22 weeks