Health

Saving Newborn Lives in Rural Communities: Learning from the BRAC Experience

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BRAC Research Report

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SUMMARY

Issue

SNL study is a pilot project of BRAC to improve the health of the newborn in two sub-districts in Bangladesh. Neonatal mortality -- major health crisis in the poor countries -- has gripped poor countries for many years. This problem has been compounded by a lack of health care resources and poverty. The neonatal mortality has been very high in Bangladesh. Policy makers are therefore seeking ways to reduce illness and prevent deaths by improving neonatal care in the home and at local health facilities.

Method

SNL project has two service delivery strategies to improve the health of the neonates. The operations research (OR) design includes a comparison area for each of the two delivery strategies. All women living in the study areas, who gave birth were identified and included in this study. The data were collection for this study continued from March 2004 – March 2005. The data collection includes several steps: identification of pregnant women, antenatal interview before two weeks of the delivery, interview at 48 hours after delivery and follow-up interviews after four weeks of delivery.

Outcomes

The outcome measures include changes in patterns of home care, health practices and referral. Other outcomes included estimates of neonatal mortality and illness. The study also generated a body of information on the process of introducing such an intervention in communities, and on the programme experiences with planning and participation.

Lessons Learned

The SNL initiative demonstrates that safe delivery and essential newborn care can be strengthened at the community level. Short duration of programme implementation is unlikely to produce visible changes and, thereby, to reach to any credible conclusions. Not all improvements are likely to sustain in the absence of continuity of the efforts. The programme design and implementation plan could have been more realistic than it has been.

INTRODUCTION

BACKGROUND

It has been estimated that out of 8 million infant deaths, about 5 million die in the neonatal period each year (Stoll, 1997). Virtually, all of them die in the developing countries (Save the Children, 2001). WHO (1996) reported that the majority of deaths occurred during the newborn period from infections, asphyxia and birth injuries, and complications of premature birth. UNICEF and WHO highlighted to promote maternal knowledge about the prevention of neonatal illnesses at the community level (Aung et al., 1994). Simple case management procedures have been designed for diagnosis and treatment of many neonatal illnesses (Weber et al., 1997). Studies reported that the child mortality due to ARI could be reduced to a half if early detection and appropriate treatment could be provided (Sazawal and Black, 1992; Mull et al., 1994). It was found that if only the fast breathing and chest in-drawing were timely recognized, most neonatal deaths could be averted where appropriate services were available (Gupta, Mishra and Chaturvedi, 1996). In a recent study in India, it has been found that home-based neonatal care was not only acceptable and feasible but reduced neonatal and infant mortality by nearly 50% among malnourished, illiterate rural population (Bang et al., 1999).

Although the reduction of unwanted deaths has long been cherished as a desired social goal, Bangladesh has remained among the countries with the lowest life expectancy and high maternal and neonatal mortality. A considerable amount of resources has already been spent to improve the situation. Unfortunately, Bangladesh has achieved very little in reducing unwanted mortality during childhood. In spite of poor showing of its economy, the government and a number of non-government organizations have been providing essential and reproductive health services for the poor since 1990s. Such programmes are expected to improve safe motherhood and reduce child and maternal deaths.

SNL PROGRAMME

Saving Newborn Lives (SNL) project of BRAC intends to develop an approach to improve neonatal health status in rural Bangladesh (Hadi and Ahmed, 2002). The project was implemented in areas where BRAC or other NGOs have nutrition supplementation programme. There are other relevant interventions such as national nutrition programme, usual government health services, NGO-led health services and Health services by the private providers. BRAC developed and implemented two service packages. These were:

Behavioral Change Communication (BCC)

The thrust of this approach was to raise awareness among mothers and other family members about the need of antenatal care, promote to have at least four antenatal visits, plan and preparation to manage complicated pregnancy, prepare for safe home delivery, preventing pneumonia and ARIs, promoting colostrums and breastfeeding, and signs of the illnesses of the neonates and the sources of treatment. Several BCC approaches were employed to deliver the services. These are grassroots women were the front runners, identify the pregnant women to promote BCC, inter-personal communication (IPC) at home, community meetings (uthan baithak), workshops advocacy and popular theatres. The purpose has been to ensure that the pregnant women receive adequate antenatal health services, promotion of safe delivery, able to manage complications and ensure post-natal care.

Essential Newborn Care (ENC)

The ENC package, on the other hand, focused on promotion of clean and safe birth practices, immediate newborn care, early identification of danger signs of sick newborn, raise institutional delivery, manage complications at home and referral and early treatment. The approach adopted were community volunteers (CNPs and SSs) identify the pregnant women, awareness among caregivers on safe delivery and immediate newborn care, community paramedics train TBAs, physician provide refresher training to paramedics and trained TBAs, establish a referral system for sick newborns and Severely sick newborns are referred to health facilities. The BCC components of the project were tested in 395 villages in Chowddagram sub-district and ENC components in 53 villages in Dimla sub-district in Bangladesh.

The following table shows the services provided by different agencies in the study areas.

Approach	Intervention	
	SNL	Government, NGOs and private
BCC	Promote ANC and PNC services, awareness of complications, early and exclusive breastfeeding, promoting institutional delivery, nutrition supplement and education, care for LBW neonates and refer severe children to hospitals.	Antenatal and postnatal care, maternal immunization, iron tablets. Other/private sector providers such as rural practitioners, TBA, pharmacies, NGOs offer services as needed.
ENC	Safe home deliveries, knowledge of signs of sick neonates, manage complications at home, promote antenatal care, early and exclusive breastfeeding, referral of the sick newborns to clinics, nutrition supplementation.	As stated above.

THE PROVIDERS

The two types of providers were in operation. In BCC area, a group of ENC facilitators and trained TBAs were the grassroots workers. In ENC area, they were the physicians, community midwives and trained traditional birth attendants (TBAs). Traditional birth attendants (TBAs) have remained an integral part of the birthing process in the rural communities in Bangladesh. They also provide advice and practical help in cleaning and caring for the households of pregnant women and new mothers. Given that TBAs hold a position of respect and influence within their communities, BRAC logically considered them to be in the project as they are uniquely equipped to inform and assist women and their families in preparing for birth.

OBJECTIVES OF THE STUDY

This operations research study assesses the newborn care approaches of BRAC. The specific objectives of the study are to assess the effectiveness of programme components in strengthening the essential newborn care. This study has provided an opportunity to examine the best practices and successful experiences in raising awareness, modifying behavior and changing practices.

RESEARCH METHOD

SNL project of BRAC has developed two service delivery strategies to improve the health of the neonates. The operations research (OR) design includes a comparison area for each of the two delivery strategies. Three unions from each of the four study areas were purposively selected for this research. A set of comparison unions was also selected from the adjacent sub-districts. Thus, there were a total of four study areas consisting of two intervention and two comparison areas. The baseline survey was carried out in selected unions in four (two SNL and two comparison) sub-districts in the country. These were 44 villages in Chowddagram and 58 villages in Laksam sub-districts in Comilla district and 13 villages in Dimla and 11 villages in Jaldhaka sub-districts in Nilphamari district. All women living in the study areas, who gave birth were identified and included in this study.

The SNL has been in operation since June 2003 – August 2004. On the other hand, the data were collection for this study continued from March 2004 – March 2005. The OR activities include a series of activities which began by an extensive benchmark census of pregnancy and birth outcome. The data collection includes several steps: identification of pregnant women, antenatal interview before two weeks of the delivery, interview at 48 hours after delivery and follow-up interviews after four weeks of delivery. It should be recognized that information of all cases were not collected due to unavoidable circumstances.

PROJECT OUTCOMES AND LESSONS LEARNED

PROMOTION OF AWARENESS AND KNOWLEDGE

Knowledge about complications in pregnancy and delivery has improved

Overall, the knowledge about the physical complications during pregnancy and delivery has increased among women in the project villages (Table 1). Among the two approaches, BCC worked better than ENC in raising awareness and knowledge. It should be noted, however, that most women have remained unaware of such complications at the end of the project *indicating the need of continuity of such programme for longer period in the communities.*

Table 1. Change of knowledge of complications among mothers

Complications	BCC		ENC	
	Baseline	End-line	Baseline	End-line
Pregnancy				
Fever	12.3	32.3	13.3	14.0
Oedema	13.3	21.2	18.7	21.7
Pain in abdomen	28.8	22.0	14.7	23.5
Dizziness	33.3	35.8	24.7	20.0
Delivery				
Excessive bleeding	3.6	27.0	4.0	16.8
Longer delivery	39.5	51.2	54.3	52.2
Convulsion	3.9	14.3	42.0	43.5

ENC approach has helped identifying danger signs of the newborn

One of the project goals was to raise the ability of mothers to identify the danger signs of the newborn. This goal has only partially achieved as the knowledge in identifying poor suckling, fast and difficult breathing, skin lesions, etc. has remained very poor among mothers in the communities (Table 2). It appears that promotion of such issues would take longer time and more intensive efforts than initially envisioned. *The approach adopted to promote these danger signs in the communities should be revisited.*

Table 2. Danger signs of the newborn in the ENC area

Danger signs	ENC	
	Baseline	End-line
Poor suckling or feeding	10.0	10.5
Difficult or fast breathing	8.3	8.8
Yellow skin	30.3	41.6
Shivering/low temperature	7.0	79.8
Skin lesions or blisters	13.3	7.4
Not crying	1.3	2.1

PRACTICES OF ESSENTIAL NEWBORN CARE

Antenatal care has strengthened in the project villages

The use of antenatal health services has increased in both the BCC and ENC villages (Table 3). This has been reflected in the number of visits and the TT coverage. The rate of improvement was higher in the ENC than BCC areas. However, the target of making four visits has not been fulfilled for most of the pregnant women. *Special efforts are, therefore, needed to raise the antenatal health services particularly during the end of pregnancy.*

Table 3. Improvement in antenatal care

Antenatal care	BCC		ENC	
	Intervention	Comparison	Intervention	Comparison
Number of visit				
Never	28.7	71.6	12.4	30.4
1	26.0	16.1	16.7	17.7
2	22.1	7.0	20.0	19.0
3	12.2	2.9	19.7	15.1
4+	11.0	2.5	31.2	17.8
TT coverage				
Baseline	79.3	69.5	63.0	46.5
End-line	97.0	75.4	92.8	75.1

Preparation for safe delivery has been getting acceptance

Although a new concept, the promotional of delivery planning worked very well particularly in the BCC area. A significant proportion of pregnant women were able to identify trained TBAs and save money in case of emergencies (Table 4). The other suggestions such as selecting a health center or standby transport were difficult to implement because of the unavailability of these in the neighborhood. More emphasis should be given to identify a health center in

promoting this concept. *It is expected that the delivery plan concept should be kept alive by incorporating in MCH programmes.*

Table 4. Promotion of safe delivery plan

Delivery plan	BCC		ENC	
	Intervention	Comparison	Intervention	Comparison
Identify a trained TBA	59.7	4.7	38.2	3.4
Select health center	8.7	1.0	11.0	1.7
Standby transport	4.4	0.4	16.2	0.3
Select a companion	18.2	0.9	8.4	0.3
Save money	41.3	9.4	36.5	9.0
Identify blood donors	7.4	--	1.2	--

The practice of essential newborn care has improved dramatically

The ENC approach has significantly modified the practices of newborn care in the project villages. Among many others, the use of plastic sheet and soft cloth has improved dramatically (Table 5). The practice of newborn care, such as use of boiled cord, keeping the newborn in warm environment and the colostrums feeding has improved. Unlike using dirty floor, jute bag or the use of plastic has widely increased. The benefits of using disinfected boiled cord have better understood. *The programme has been able to promote the benefits of keeping babies warm environment, providing breastfeeding support and ensuring early management of complications in the early neonatal period.*

Table 5. Improvement of newborn care in ENC area

Newborn care	Intervention		Comparison	
	Baseline	End-line	Baseline	End-line
Type of delivery kit				
Plastic paper or sheet	3.9	25.2	5.2	5.7
Hand washing soap	25.2	27.0	11.4	9.7
New blade	66.3	67.0	26.0	9.3
Thread	62.8	67.1	23.4	9.2
Soft cloth	--	12.7	--	2.8
Delivery bed used				
Plastic paper	26.7	62.8	17.2	26.2
Cotton cloth	1.3	5.9	3.3	8.4
Jute bag	31.0	15.4	35.1	45.7
Only floor	14.7	5.1	16.2	13.7
Others	26.3	10.8	28.2	6.0
Cord used				
Boiled cord of delivery kits	28.7	73.3	20.8	40.5
Normal cord	56.0	24.0	53.5	53.9
Cannot remember	15.3	2.7	25.7	5.6
Early neonatal care				
Keep the baby warm	NA	56.1	NA	0.1
Colostrum/breast feeding	96.0	98.2	92.7	92.5
Bating practices	62.2	5.9	68.2	63.2
Breastfeeding	89.1	97.2	94.4	94.8

The practice of unsafe bathing just after birth has dropped considerably (from 62.2 to 5.9%). Exclusive breastfeeding practice has improved even further (from 89 to 97%) in the project villages. *It is recommended that such positive improvements should be sustained by incorporating these lessons in the existing health care system.*

Use of trained provider during delivery has improved in ENC area

Most (77%) of the pregnant women had to depend on traditional birth attendants (TBA) or the family members - which has begun to change with SNL initiative (Table 6). *Nearly half of the pregnant women delivered under the supervision of trained health providers at the end of the project.* A significant proportion (nearly 15%) had access to nurse or community midwives.

Table 6. Provider of delivery care

Provider	Intervention		Comparison	
	Baseline	End-line	Baseline	End-line
Trained				
MBBS doctor	--	0.6	1.0	2.0
Nurse/Midwife	9.0	14.9	4.3	6.1
Trained TBA	14.0	35.2	18.2	24.5
Not trained				
Untrained TBA	40.7	36.1	43.1	46.7
Relatives/neighbors	36.3	13.2	24.4	20.7

Although the postnatal care has improved, the routine check-up needs to promote further

The BCC approach has been successful in raising the use of postnatal care (Table 7). Most of this improvement, however, has been due to the sickness of the newborn. The routine checkup has remained low as found elsewhere (Mitra et al., 2004) *which requires additional programme inputs to change.*

Table 7. Postnatal care in the BCC area

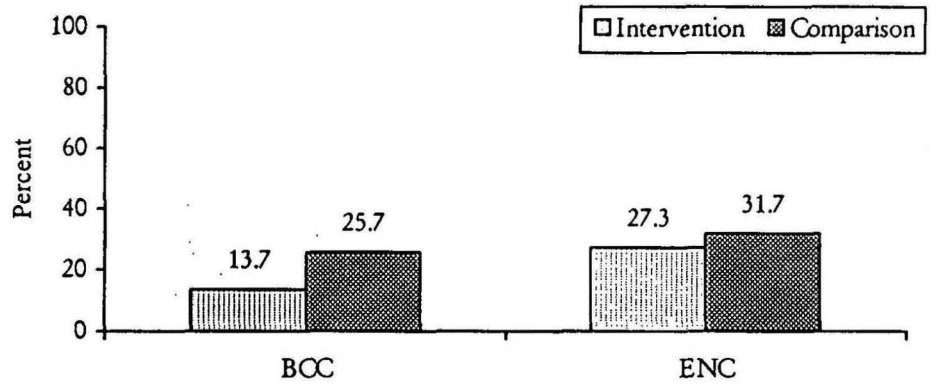
Postnatal care	Intervention		Comparison	
	Baseline	End-line	Baseline	End-line
Visited PNC	52.5	64.7	8.8	32.5
Reasons				
Sickness	45.0	55.8	7.2	31.1
Routine checkup	7.5	8.9	1.6	1.4

PROGRAMME HAS REDUCED THE RISKS OF MORTALITY

Although declined significantly, the prevalence of low birth weight (LBW) has remained a cause of concern

Measuring birth weight in appropriate time (<48 hours) has been possible for nearly 80% of the cases. Figure 1 shows a significant reduction of LBW particularly in the BCC area. *The nutrition supplementation programme needs to be reactivated to reduce the LBW and improve the health of the newborn.*

Figure 1. Percent of low birth weight newborn



Risk of mortality has not changed much

The SNL interventions had the potentials to reduce the risks of mortality particularly in the communities where the mortality was quite high (Figure 2). This has also been reflected in the reduction of neonatal mortality. It is, however, quite possible that the wider use of safe birthing care in the ENC villages by trained providers have played a role in those villages. A large proportion of neonates died within the first week of their birth. It also appears that stillbirth, early and peri-natal deaths were unusually high particularly in the ENC villages than expected. SNL project was able to reduce peri-natal mortality more successfully in the ENC than BCC areas. *It is, therefore, suggested that the programme design should be revisited and interventions should be focused to handle fatalities at the earlier stages.*

Figure 2. Estimates of childhood mortality

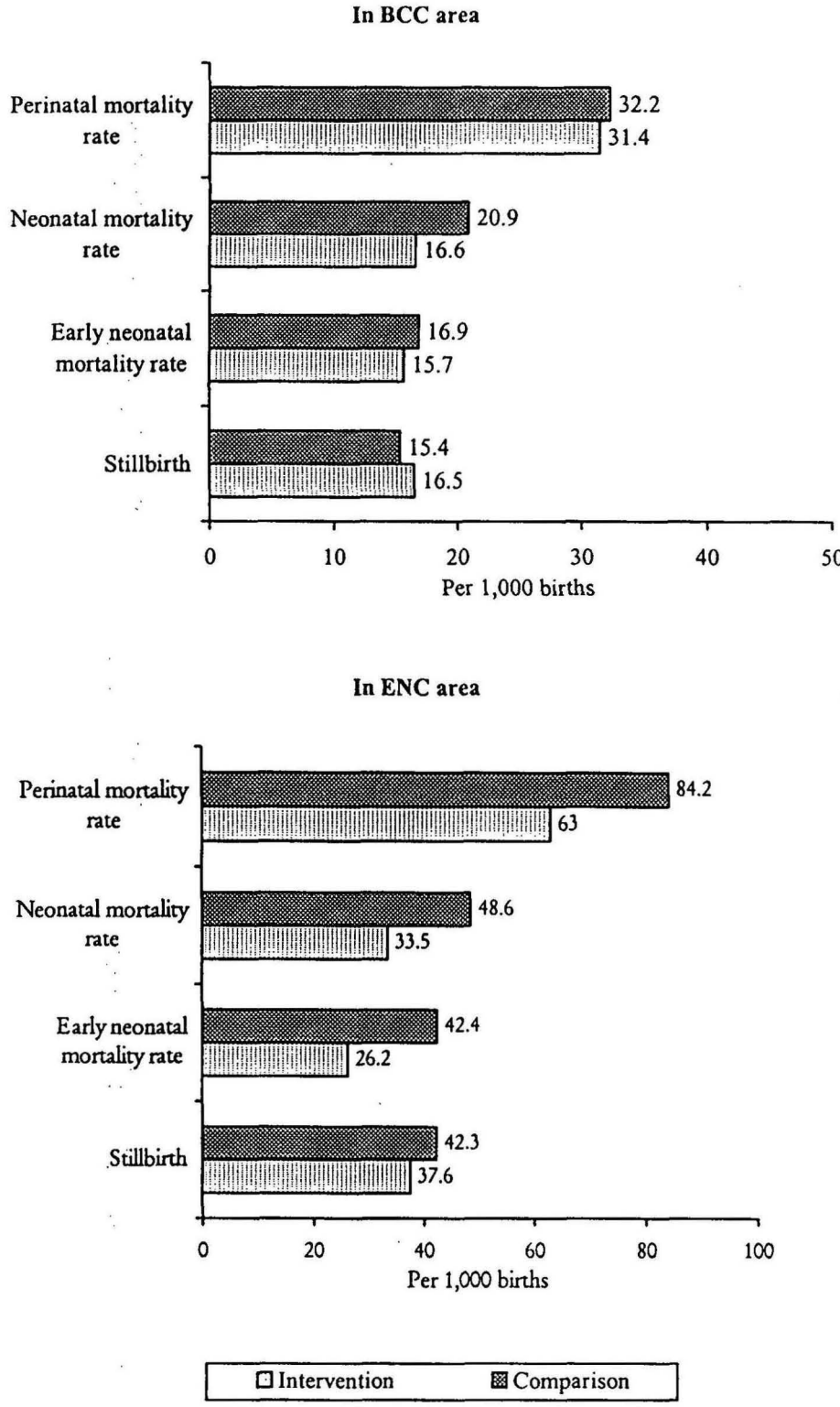
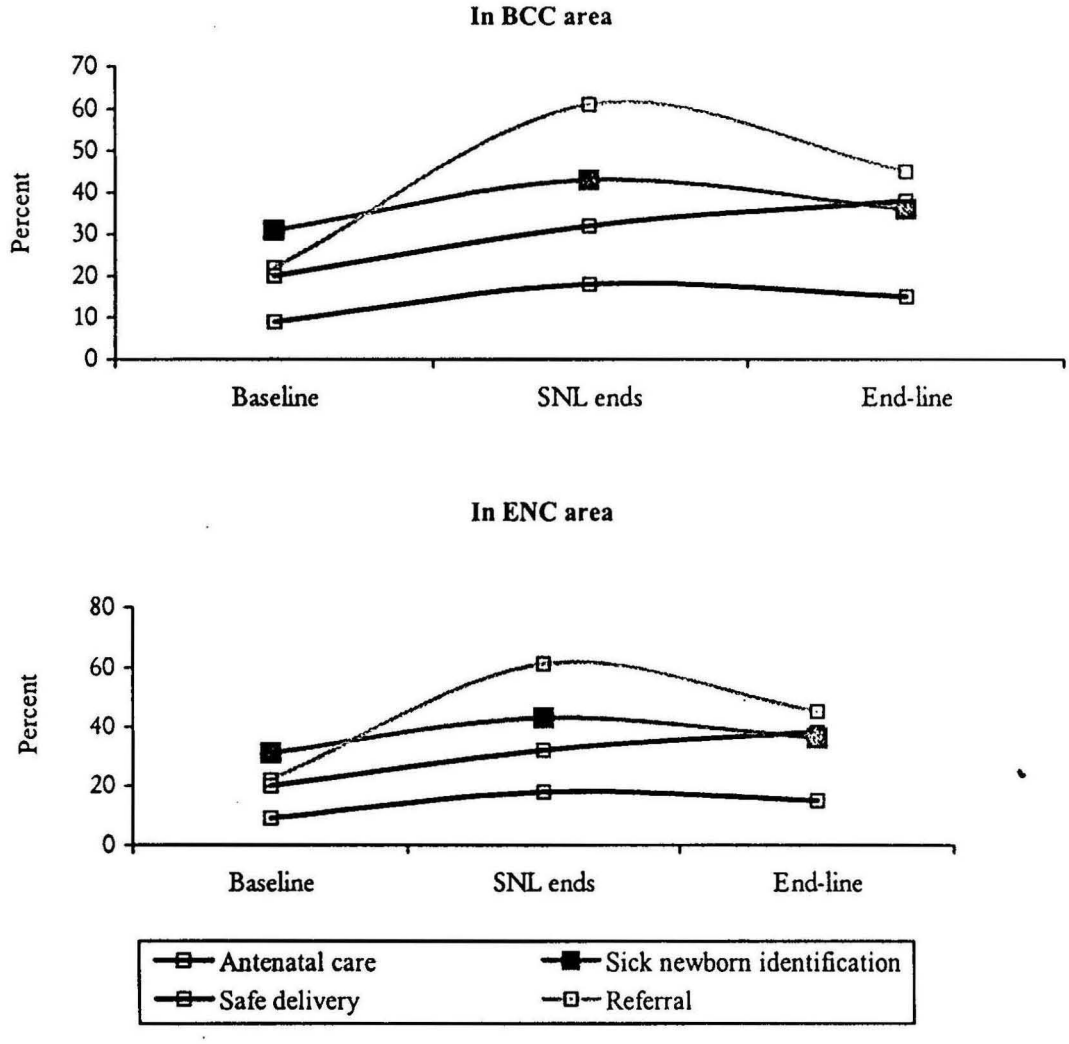


Figure 3. Change in selected indicators



SUSTAINABILITY OF THE PROGRAMME

Sustainability of the good practices of the SNL programme has remained an important issue to be debated and resolved for genuine reasons. Figure 3 shows the positive change of several indicators such as antenatal care, correct identification of sick newborn, use of safe delivery and the number of referrals till the end of the programme. Once the interventions were withdrawn, all these indicators except safe delivery showed a declining trend. This finding indicates that the knowledge gained may not likely to sustain in the absence of continuous facilitation of newborn care at least for some time. Short duration of programme implementation is unlikely to produce visible changes and, thereby, to reach to any credible conclusions. *The issue of sustainability and mainstreaming needs to be considered in designing the future programme.*

PROGRAMME DESIGN AND MANAGEMENT

Delay in ENC training has negative effects on programme performance which could have been avoided

Although SNL programme implementation was scheduled to begin in early 2003, it took several months to recruit and train the service providers at the grassroots to cover all project villages. The designing training modules and conducting training took much more time than what was initially envisaged. This delay has significantly cut down the actual duration of programme intervention from nearly 24 months to only 15 months in the field. *The programme design and implementation plan could have been more realistic than it has been.*

The programme coverage was not adequate and comprehensive

The delay in ENC training appears to have synergistic effects on several components of the project. One has been the inadequacy of the programme intervention to cover the project community. While the BCC approach included a large number of facilitators to reach the pregnant women, the ENC approach was based on trained TBAs who were supervised by a small number of community midwives. Thus, the effects of the dropout of midwives had much more negative consequences on the programme performance than the dropout of the facilitators as reflected in Table 8. As a result, *a large proportion of pregnant women was never reached by SNL workers particularly in the ENC area.*

Table 8. Proportion of pregnant women visited at home

Type of provider	Area	
	BCC	ENC
Never visited	21.3	11.9
Visited at least once	78.7	88.1
SNL staff	67.7	51.0
NNP field worker	4.8	69.3
Community health volunteer	1.5	10.1

Staff turnover in the ENC area was very high

The staff turnover, particularly among the community midwives, was quite high. The replacement was delayed and nearly impossible which created vacuum in some project villages. Moreover, the replaced midwives were not adequately trained to monitor and supervise TBAs in the ENC villages. *The efficiency of the project could have been better has there been the management and implementation of the project should be more professional.*

Capacity development of the providers should be an on-going process

SNL project attempted to train all traditional birth attendants (TBAs) working in the project villages with considerable success (75% in the BCC and 76.5% in the ENC) during the project period (Table 9). An evaluation study regarding the knowledge of TBAs shows that the training has improved their capacity to a certain level. Routine refresher training was a routine activity of the programme. *It is recommended that SNL programme should routinely monitor the performance of their staff particularly at the grassroots level.*

Table 9. Knowledge of the trained TBAs

Knowledge items	BCC		ENC	
	Intervention	Comparison	Intervention	Comparison
During delivery				
Excess bleeding	63.9	9.1	73.5	40.0
Placental abruption	66.7	6.1	38.2	20.2
Longer delivery	44.4	43.6	35.3	14.3
Convulsion	69.4	6.1	67.6	37.1
Among the newborn				
Difficult breathing	13.9	--	35.3	17.1
Convulsion	61.1	9.1	88.2	48.6
Low temperature	16.7	3.0	20.6	25.7
Yellow skin	50.0	--	76.5	48.6
Skin lesions or blisters	38.9	--	26.5	2.9

Acceptability of the providers in the community was not considered in designing the project

Not all traditional birth attendants (TBAs) and Shebikas had access to relatively better-off households in the project areas. The ENC facilitators were relatively better accepted than the other two (TBA and Shebika) categories of providers. Although the SNL project staff was well informed and motivated to achieve the goals of the project, the project had difficulties in reaching all households in the project villages. *Alternative approaches need to be identified to serve all households in the communities.*

Project area selection was not inappropriate

The basis of selecting the two project sub-districts was the presence of nutrition supplementation programme. The other considerations such as the socioeconomic status, access to health facilities, level of neonatal mortality or health status of the newborn were ignored. Thus, the project areas were not truly representative of rural communities in Bangladesh and, thus, the approaches tested in the SNL pilot project were not replicable in other areas of the country. *Selection of project areas should be done more carefully.*

CONCLUSIONS

The project has been able to make the caregivers aware about the safe and clean delivery. Overall, SNL initiative has made a difference by changing behavior of mothers about newborn care. Although BRAC experimented two approaches to draw lessons for its own programme, the experience gained from this pilot may be useful for other organizations as well. The key conclusions, emerged from this study, are as follows:

- Several issues need to be considered in designing child care projects. These are
  - the preventive measures of stillbirth and perinatal deaths should be duly incorporated during pregnancy,
  - the duration of the project to achieve targets must be realistic,
  - capacity of the providers and their acceptance in the community needs to be considered while assigning the tasks,
  - the quality of training should ensured, and
  - staff replacement and deployment plan should be in place.

- The blanket approach to reach all households is unlikely to succeed. Targeted approach would provide desired results.
- Impact sustainability requires longer presence of programme efforts than usually considered.
- The project performance would be better if the programme interventions are coordinated rather than the implemented as stand-alone activities in the field.

This operation research provided insights that helped understand newborn care in the rural communities. This project demonstrates that safe delivery and improved newborn care services can be introduced and delivered by the indigenous community health workers. The risk of neonatal mortality can be significantly lowered through relatively low-cost intervention in strengthening health systems.

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