RESEARCH BRIEF

Manoshi

September 2010 Issue 4

CONTENTS

Referral delays in seeking emergency obstetric care in Dhaka slums
PAGE ONE

Snapshots from the Manoshi midline survey of Dhaka slums
PAGE FIVE

Trends in utilization of safe motherhood services and management of diarrhea and ARI 2009-2010
PAGE FOURTEEN

Bangladesh is a country of 56,977 square miles with 150 million people, 25% of whom currently live in urban slums. Despite success in population control, the size of the population is expected to stabilize at 250 million by 2085. One of the very striking features of the future population of the country is that nearly 60% of the population will live in urban slums by 2030. In the absence of appropriate health services, the health of the newborn, infants and their mothers is likely to suffer. This makes urban health issues, especially of the slum dwellers, of high priority. Keeping this in mind BRAC has started a Maternal, Newborn and Child Health (MNCH) programme, known as Manoshi (*Ma O Nobajatak Shishu*), in 2007 in Dhaka slums which may gradually be extended to all the slums of Bangladesh by 2011. The major goals of Manoshi are to ensure safe motherhood by way of safe delivery and newborn and child care. Various researches are being carried out in support of Manoshi since its inception. Manoshi Research Briefs are a fast track mechanism devoted to sharing the findings to various stakeholders interested in the health of the urban population especially of the poor.

Referral Delays in Seeking Emergency Obstetric Care in Dhaka Slums

A child carrying an infant in a Dhaka slum

In the urban slums of Bangladesh where maternal health status is very poor, although women are living in close proximity to facilities with skilled care, 70% of them give birth at home with no medically trained providers. Reduction in the number of maternal deaths requires timely access to effective, affordable and appropriate emergency obstetric care (EmOC) services when complications arise. Delay in accessing EmOC facilities during a life-threatening condition is one of the contributing factors of high maternal mortality in developing countries. This delay has been well described as it has been occurring at three levels: delay in making decision to seek care, delay in arriving at a health facility and delay in receiving adequate treatment. Consequently, great gains can be made in maternal health by ensuring that women with pregnancy related complications can be quickly referred to a facility where they can receive high-quality obstetric care. The present study, carried out in the slums of Dhaka city, aimed to know the number of issues relating to the effective functioning of the MANOSHI referral system, including whether this referral system is reducing delays in availing of EmOC services.

brac icddr,b
KNOWLEDGE FOR GLOBAL LIFESAVING SOLUTIONS

The study was carried out in all twelve slum areas of Dhaka city, where BRAC has 238 delivery centres. The study targeted the women who had history of obstetric complications during pregnancy and child birth. The obstetric complications referred from delivery centres of MANOSHI working area were the study group, and cases referred from the community/home to the referral hospitals during October to December 2008 were the comparison group. The study examined the socio demographic status of respondents, reproductive and birth history, obstetric complications, the three delays in the referral system and factors associated with these delays, cost of delivery and outcomes of delays, and the role of MANOSHI referral system in reducing the three delays.

The three delays examined in this study are the times required for:
Making the decision to refer = First delay
Reaching the referral facility = Second delay
Getting treatment at the referral centre = Third delay

Life threatening complications of pregnancy and its median time were taken as cut-off points in the study. A median time of greater than one hour was considered as a delay and less than one hour was taken as no delay in referral.

Maternal/obstetric complications that can be classified as life-threatening or high-risk according to the Bangladesh Institute of Research for Promotion of Essential and Reproductive Health and Technologies were adopted in the study. These included:

- Haemorrhage, eclampsia, and retained placenta with haemorrhage as life threatening complications.
- Prolonged/obstructed labour, pre-eclampsia, pregnancy-induced hyper-tension (PIH), and sepsis as high-risk obstetric complications.

Referral is a process by which a health worker transfers the responsibility of care either temporarily or permanently to another health professional or social worker.

An effective referral system ensures a close relationship among all levels of the health system and helps to ensure that people receive the best possible care closest to home.

In the Manoshi referral structure, community health workers (CHWs), Urban Birth Attendants (UBAs), Shasthya Sebikas (SSs) and Shasthya Kormis (SKs) are responsible for detecting problems in the field, arranging transport and referring maternal complications both from the delivery centres at the slum, and directly from the community with a referral slip, as soon as a complication is diagnosed. During a referral incident, the referral programme organizer (PO) waits at the tertiary facility to receive the referred women and CHWs remain in touch with the referral PO by cell phone. The PO directly supervises the process and CHWs at the community. The Manoshi programme also provides an economic incentive to encourage women and families who are faced with maternal complications to use hospital facilities. For this purpose, referred women are given full or partial reimbursement according to their economic status.

Background of respondents

The majority (74%) of the respondents were aged 20-35 years and women who were referred from home were more than two years older than the comparison group. Of the women who were referred from the delivery centre, more were able to read and write. However, the mean years of schooling in both the groups were the same. Around 12% of the women were involved in income generation. Women referred from the home group had twice as many women involved in income generation compared to those who were referred from the delivery centres. A significantly higher mean year of schooling was observed among women referred from home. 67% of the husbands in this study could read and write and one-fourth had no schooling.

Reproductive and obstetric history of women

Around 50% of the women were pregnant for the first time. The mean number of children ever born among both the groups was two. More women who had had five or more previous pregnancies were referred from home (21%) compared to the delivery centre (16%). The mean birth interval was significantly lower (4.6%) in the group referred from the delivery centres compared to those referred from home (6.4%).

Approximately one-fourth of women had experienced child death and 13% had history of stillbirths. The proportion of stillbirth and infant deaths were similar in both groups. Around 26% had previous history of abortion or pregnancy loss. Of women referred from the delivery centre who had experienced abortion, around 14% had an induced abortion and 12% had a spontaneous abortion. Both abortion rates were slightly higher for women delivering from home. All women in both groups received antenatal care (ANC).

Obstetric complications

Health complications experienced by the referred women had the following characteristics:

- Most respondents (82%) experienced obstetric complications during delivery with 11% during ante partum and 7% during postpartum periods.

Distribution (%) of respondents by reported number of complications

No. of obstetric complications	Referred from DC	Referred from home	Total
1 complication	84.4	85.3	84.9
2-3 complications	15.6	14.6	15.1
Mean compliations per woman	1.15	1.15	-
N	225	225	450

- Almost a quarter of the women had life-threatening complications and the remaining women had high-risk complications.
- More women delivering at home were referred for life-threatening complications compared to women referred from the delivery centres.

Referral process

At the delivery centres, most (59%) of the complications were first recognized by the urban birth attendants, which indicates that deliveries were mainly attended by them. A few complications were identified by a MANOSHI Midwife (MMW) during supervision in the community. Of those delivering at home, a major (62%) portion of complications were self-recognized. The majority of referral patients used CNG[1] auto-rickshaw (62%) and rickshaw (36%) to reach the facility. Only a few (2%) used an ambulance as transport.

The findings revealed that 80% of the women referred from delivery centres were accompanied by BRAC health

Interviewing a mother with child in a Manoshi area programme

providers. Approximately 61% of the referral cases from home were accompanied by relatives only. It was also observed that most women were accompanied by relatives instead of their husbands, mother, or mother-in-law at the time of referral.

The Three Delays

The three delays in the study were defined as:

- 1st delay (time in decision-making) was the interval between recognition of the complication to starting for the facility to seek care.
- 2nd delay (time to arrive at the facility) was the interval between starting for the facility and reaching it (time needed for acquiring transport included).
- 3rd delay (time in receiving treatment) was the interval between reaching the facility and the time the treatment was received.

More women referred from home experienced the first delay (73.3%) than women who had been referred from delivery centres (66.2%). The median times for making decisions among women referred from delivery centres for life-threatening and high-risk conditions were significantly shorter than that of those who were referred from home. The findings showed that of women who were referred from the community/home, the respondent's family members took a significantly longer time to make decisions in seeking care. In both groups, husbands were the prime decision-makers (48% and 51%).

More women who had the second and the third delays were referred from delivery centres, compared to women referred from home (65.3% vs. 19.1%; 58.7% vs 15.1%). The median times to reach the facility and receive treatment were almost same in both groups.

The main causes of delay in decision-making were:

- Fear of medical intervention
- Inability to judge the graveness of complications
- Lack of money
- Complications arising at midnight.
- Traditional beliefs or conservativeness

Factors associated with the delays

For the first delay, age of the mother and multi-parity were significantly associated with the place from where women were referred. Income generating activities of women had a significant impact on decision-making. Among women who were involved in income generating activities, a few of them delayed in making the decision to go to referral centres. Other distal factors such as education, ANC visits, history of death of children, period of complication, and decision maker had no significant influences on the first delay. It was found that in cases of the second and the third delays no factor except age of mother was associated with place from which they were referred, with more women in the older age group being referred from home compared to the younger women which contributed to more delays among older women.

Reasons for delay in making the decision to seek care and time (hours) taken to seek care

Reasons for delay in making decision	Median time (hrs) for making decision to seek care (first delay)	
	Referred from delivery centre	Referred from home
Midnight	5.8	11.0
Financial problem	5.7	7.5
Fear of medical intervention	3.5	6.0
Traditional thinking	2.8	3.5
Failed to recognize graveness of illness	2.8	3.0
Lack of accompanied person	2.2	3.0
N	225	225

[1] CNG = Compressed Natural Gas

There is a need to educate the community people, particularly decision-makers in the family, on 'pregnancy-related danger-signs' and emergency preparedness so that they can recognize the crisis early and can make promptly decision to transfer the patient to the appropriate level of facilities.

Although women and family members were informed about emergency preparedness and danger-signs of pregnancy, this study did not find such knowledge had an impact on reducing delays.

Conclusion

The first delay i.e. the time to make a decision to refer/go to a medical facility, appeared to be the most important barrier to accessing EmOC in both the groups. It was observed that the husband and other decision-makers played an enormous role in making the decision to seek care. Apprehensions regarding medical interventions were due to lack of money, traditional beliefs, and complications arising at midnight and failure to recognize the graveness of illnesses. The positive impact of delivery centres and financial assistance helped in reducing the first delay. Indeed, the appropriateness of the referral should also be studied. Since health workers received incentives for a successful referral, this may have a confounding effect on both demand-side and supply-side, i.e. demand for referral and actual referral. Therefore, the incentive programme should be monitored intensely to know their effectiveness.

Prepared by: Rumesa Rowen Aziz. Source: Banu M, Nahar S, Nasreen H. Assessing the MANOSHI Referral System: Addressing Delays in Seeking Emergency Obstetric Care in Dhaka's Slums (2010). Manoshi Working Paper Series No. 10, Dhaka: ICDDR,B and BRAC.

Snapshots from the Manoshi Midline Survey of Dhaka Slums

Surveying households in a Dhaka slum

The MANOSHI Midline Survey 2009 is the second community based cross sectional survey of 3,048 (1,524 women having infants and 1,524 women with children aged 1-4 years) women residing in 100 sample slums in Dhaka metropolitan area (DMA). The major slum concentrations in the DMA where the Manoshi programme has been implemented are in the Eastern fringe of Dhaka city, along the border of the city corporation, in Khilket, Badda-Satarkul area, and between Meradia and the Kamalapur Railway Station, and in the Western fringe of the city, in Kamrangir Char, Hazaribagh and west Mohammadpur. The single largest concentration of slums is Kamrangir Char, which has a slum population of 265,000. The largest single slum in Dhaka city is Karail in Mohakhali near Gulshan, with more than 100,000 people. The comparison area for the Manoshi programme included the few non-programme slums (in Nikunja housing area, Dhaka Uddyan and Baraid) in the Dhaka metropolitan area and the slum-like clusters of impoverished households in Demra, Jingira, Keranigonj and Tongi. The midline survey 2009 collected data similar to the baseline survey 2007, on knowledge, perceptions and practices related to maternity care and newborn and child care of women having under-five child(ren) living in slums in the DMA. The overall objective of the 2009 midline survey was to estimate changes (improvements) in maternity, newborn and child care knowledge and practices.

The 2005 Slum Census of Urban Bangladesh carried out by the Centre for Urban Studies identified 4,966 slum clusters in the DMA with a total slum population of 3.4 million (37.4 percent of the total population in DMA), more than double the slum population counted in 1996. Growth of slums has occurred conspicuously in the peripheral and suburban areas of Dhaka city. Slum concentrations in central areas of the city are relatively sparse compared with the periphery.

Demography and household characteristics

The age structure of the sample household population is predominantly young, with 43% of the population aged below 15 years in both midline and baseline surveys. For the 15 to 24 year age-groups, the female population in the slums of Dhaka Metropolitan area was markedly larger than the male population. The mean number of children ever born to the women was lower (2.2 and 2.3 respectively in the programme and the comparison slums) in 2009 than in 2007 (2.7 in the programme slums). Only 17% of the women in the programme slums were employed in 2009 compared to 25% in 2007. The major shift in the type of employment reported was the decrease in percent of domestic work and an increase in percent of skilled labour in 2009 compared to 2007.

The slum women of 2009 were less migratory than their counterparts in 2007. One in every five women were permanent residents in the slums in 2009 compared to one in every fourteen women in 2007. The most common reason for migration in 2009 was income/employment whereas familial was the most important reason in 2007. Educational attainment was higher in the programme slums in 2009 compared to the comparison slums. 31.5% of the population aged 5 years or older in programme slums and 42.3% of the population in comparison slums in 2009 had no schooling. Educational attainment in terms of ever attending schools/madrasas was 68% in the programme slums in 2009, compared to the 56% found in 2007, and was higher than the 58% in comparison slums in 2009. An education level of class 8 or more in programme slums in 2009 was more than double (24%) that in programme slums in 2007 (11%) and the comparison slums in 2009 (12%).

The percentage of households with electricity connections was higher (98%) in 2009 than in 2007 (89%) in programme slums and comparison slums in 2009 (92%). In terms of the source of drinking water and modern sanitation facilities, the comparison slums in 2009 were better off than the programme slums in both 2007 and 2009. Access to a modern sanitation facility was higher (72% and 64% respectively) in the programme and the comparison slums in 2009 than (20%) in programme slums in 2007. In both the 2007 and 2009 surveys, most of the slum households had tin roofs, cement/concrete or tin walls, and cement floors in both programme and comparison slums. There were more better-off households in 2009 both in terms of household construction material and ownership of household durables and assets. In both 2007 and 2009 surveys, a very small proportion of households (1-2%) were living in jhupris or makeshift dwellings built with flimsy, temporary materials like polythene, board, etc.

Knowledge of safe motherhood

Antenatal care

Women's knowledge of the requirement for antenatal care (ANC) visits and TT vaccination were universal and near universal for iron supplementation in 2007 and 2009. However, less than half (42-47%) of the women knew that the required number of ANC visits was four or more. This value was a little higher (47%) in the programme slums in 2009 than in 2007 (45%).

Knowledge of services required during pregnancy

Knowledge on...	Programme area		Comparison area
	2007	2009	2009
Requirement of ANC visit during pegnancy			
Required	97.2	98.8	97.3
Not required	2.1	1.0	1.8
Don't know	0.6	0.2	1.0
No. of ANC visits required			
None	2.8	1.0	1.8
1	1.4	1.2	1.1
2	8.4	12.6	10.2
3	36.2	33.1	32.0
4 or more	44.7	47.1	42.5
Don't know	6.4	5.1	12.3
Requirement of TT[1] vaccination			
Required	99.3	99.3	98.8
Not required	0.1	0.3	0.7
Don't know	0.6	0.4	0.6
Requirement of Iron supplementation[2]			
Required	90.7	96.7	90.5
Not required	5.1	1.7	4.9
Don't know	4.2	1.6	4.6
Total	100.0	100.0	100.0
Number	1,256	2,172	1,054

[1] Tetanus Toxoid
[2] In form of tablet or syrup

Postnatal care

Women's knowledge of the requirement of postnatal care (PNC) was lower (84% in the programme slums and 83% in the comparison slums) in 2009 than in 2007 (94% in the programme slums). On the other hand, 73% of women had knowledge about the requirement of Vitamin-A and 76%

Entrance to a Manoshi delivery centre

had knowledge about the need for Iron supplementation after delivery in the after delivey in the programme slums in 2009. This level of knowedge was much higher in 2009 compared to 67% having knowledge on Vitamin A and 72% on Iron supplementation in the programme slums in 2007.

Knowledge of services required after delivery

Knowledge on...	Programme area		Comparison area
	2007	2009	2009
Requirement of PNC visit			
Required	93.7	84.3	83.0
Not required	4.7	13.5	12.9
Don't know	1.6	2.2	4.1
No. of PNC visits			
None	6.3	15.7	17.0
1	8.5	18.3	12.0
2	32.8	30.8	24.5
3	32.0	15.1	15.7
4 or more	20.4	8.9	9.4
Don't know	0.0	11.2	21.5
Requirement of Iron supplementation			
Required	72.1	76.0	71.7
Not required	17.3	17.2	18.0
Don't know	10.6	6.8	10.3
Requirement of vitamin A supplementation			
Required	66.6	72.6	69.1
Not required	11.7	14.5	15.1
Don't know	21.7	12.9	15.8
Total	100.0	100.0	100.0
Number	1,256	2,172	1,054

Institutional delivery accounted for half of the deliveries in programme slums in 2009 compared to 24% in the comparison slums in 2009 and 15% in the programme slums in 2007. The percentage of deliveries that took place in the Brac delivery huts was 19% in the programme slums in 2009 compared to 1% in 2007 and 3% in the comparison slums. The percentages of deliveries that took place in government hospitals and private clinics were also higher in the programme slums in 2009 compared to 2007. Half of the deliveries took place at home in the programme slums in 2009 compared to 85% in 2007. In the comparison slums, 76% of the deliveries took place at home. Use of untrained TBAs was a low 30% in the programme slums in 2009 compared to 58% in 2007 and 43% in the comparison slums in 2009. Deliveries assisted by trained TBAs in the programme slums were similar in 2007 and 2009 (20% and 18% respectively).

In the Manoshi slums, women's knowledge of the need for ANC was slightly higher in 2009 compared to 2007. Their knowledge of the need for PNC visits had dropped in 2009.

Awareness of life threatening conditions

During and post delivery

The overall knowledge of women about major maternal complications during as well as within 42 days of delivery that required medical treatment was low. Knowledge of life-threatening pregnancy complications (except for lower abdominal pain and reduced fetal movement) was more frequent in the programme slums in 2009 than in 2007 and the comparison slums in 2009.

Knowledge on pregnancy complications

Knowledge on...	Programme area		Comparison area
	2007	2009	2009
Complications that require medical treatment[1]			
Severe headache	41.2	53.3	50.7
High fever	16.0	25.7	21.2
Blurry vision	20.9	24.1	25.4
Reduced/absent fetal movement	27.1	23.1	21.3
High blood pressure	0.9	5.8	5.3
Edema of hands/feet	23.1	23.6	27.3
Edema of face	1.4	7.5	9.6
Convulsions	21.2	29.9	24.9
Vaginal bleeding	17.5	18.2	11.2
Abortion/miscarriage	3.4	3.1	2.4
Lower abdominal pain	49.7	37.9	40.6
Others	0.3	0.1	0.0
Place of treatment for pregnancy complications[1]			
Home	0.5	0.5	1.5
BRAC delivery hut	2.3	13.1	1.6
Pharmacy	2.5	4.9	3.3
Government hospital	58.8	61.4	70.6
Private clinic	19.2	42.3	30.7
Chamber	11.5	16.8	17.4
NGO health centre	44.3	32.4	32.0
Other	0.1	0.0	0.0
Total	100.0	100.0	100.0
Number	1,256	2,172	1,054

[1]Multiple responses

Life in a Dhaka slum

Severe headache, followed by lower abdominal pain, convulsions, and high fever were acknowledged by more than 25% of respondents as complications that require medical treatment. Although knowledge about life-threatening maternal complications during pregnancy was not very common, knowledge about place of treatment in case of such conditions was higher (except regarding NGO health centre) in the programme slums in 2009 than in 2007 and in the comparison slums in 2009. More women mentioned the government hospital (61% in the programme slums and 71% in comparison slums in 2009) followed by private clinic and NGO health centre. Brac delivery centres were mentioned by 13% of women in the programme slums in 2009 compared to 2% in 2007 and 2% in the comparison slums in 2009. Less than 1% of the women reported that home was suitable for managing potentially fatal post-delivery complications in 2007 and 2009.

Knowledge on illness/complications after delivery

Knowledge on...	Programme area		Comparison area
	2007	2009	2009
Complications that require medical treatment			
Excessive vaginal bleeding	36.7	52.9	41.7
Prolonged labor	58.7	44.7	42.1
Hand/feet prolapsed	28.5	31.8	26.4
Foul-smelling discharge	1.6	2.0	3.2
High fever	5.7	10.5	11.9
Inverted nipples	0.2	0.7	0.5
Retained placenta	17.0	18.8	18.6
Severe abdominal pain	33.8	23.2	29.9
Convulsion	28.8	41.6	39.3
Engorged breasts	1.0	1.4	1.2
Tetanus	6.8	7.4	10.2
Others	0.1	0.1	0.3
Place of treatment for after delivery complications			
Home	0.7	0.5	1.5
Health & family welfare center	4.8	6.6	6.1
Government hospital	67.4	65.0	73.2
Private clinic	20.5	45.2	31.6
NGO health centre	34.2	35.2	32.8
Chamber	9.3	14.9	15.5
Maternity center	2.3	1.2	0.4
Other	0.1	0.0	0.0
Total[1]	100.0	100.0	100.0
Number	1,256	2,172	1,054

[1] Both contains multiple responses

- Knowledge of life-threatening pregnancy complications was more frequent in the programme slums in 2009 than in 2007.
- More women knew about place of treatment in case of life-threatening complications in both programme and comparison slums in 2009.
- There was more awareness about Brac delivery centres among women in Manoshi slums in 2009.

Awareness of life-threatening conditions in the neonate

Mothers' knowledge about newborn's life-threatening health problems, e.g. difficult or fast breathing, asphyxia, jaundice and convulsion, in the programme and the comparison slums was quite high.

Level of knowledge related to drying the newborn thoroughly, followed by wrapping with warm clothes and feeding colostrum was higher in the programme slums in 2009 than in 2007 and the comparison slums in 2009. Mothers' knowledge related to the requirement of vaccination right after birth and requirement of vitamin A for under-five children was found to be universal.

Knowledge about newborn and child health care

Knowledge on...	Programme area		Comparison area
	2007	2009	2009
Essential newborn care immediately after birth[1]			
Drying thoroughly	64.4	90.2	87.1
Wrapping with warm cloths	59.4	74.6	69.4
Feeding colostrum	25.4	41.4	31.0
Cord care	46.5	22.0	22.7
Eye care	0.9	0.5	0.6
others	0.4	0.0	0.0
Don't know	0.0	0.1	0.3
Requirement of vaccination right after birth			
Yes	99.6	99.8	99.7
No	0.1	0.1	0.2
Don't know	0.3	0.1	0.1
Requirement of vitamin A for under-5 children			
Yes	95.9	95.6	91.8
No	1.7	2.0	3.5
Don't know	2.5	2.4	4.7
Total	100.0	100.0	100.0
Number	1,256	2,172	1,054

[1] Multiple responses

Less than half of the respondents knew that breastfeeding should be initiated just after birth, and the majority knew that the duration of breastfeeding should be 6 months in both programme and comparison areas in 2009.

Women's knowledge on newborn and neonate care went up in 2009 compared to 2007 while knowledge of cord care went down.

Knowledge about newborn and child feeding

Knowledge on...	Programme area		Comparison area
	2007	2009	2009
Newborn's first feeding[1]			
Colostrum	38.9	72.8	50.9
Plain water	1.1	1.0	1.1
Misri/sugar-water	7.7	4.2	6.1
Honey	48.6	21.0	39.3
Mustard oil	2.5	0.6	2.5
Any milk except breast milk	1.0	0.3	0.1
Other liquid	0.1	0.1	0.1
Initiation of breastfeeding			
Just after birth	5.37	44.2	44.3
<24 hours of birth	38.0	50.4	46.9
Second day	2.6	2.7	4.6
Third day	5.0	1.9	2.9
Later	0.2	0.1	0.5
Don't know	0.4	0.7	0.9
Duration of exclusive breastfeeding			
None[2]	0.6	0.2	0.5
<1 month	0.5	0.2	0.9
1-5 months	22.4	17.8	26.2
6 months	72.8	79.3	69.3
More than 6 months	3.7	2.5	3.3
Supplementary foods for child after exclusive breastfeeding			
Any milk except breast milk	67.7	56.4	60.2
Suji	62.9	61.0	58.3
Ground rice	14.3	9.6	8.1
Egg	13.9	9.7	11.3
Pulses	24.8	40.6	36.7
Khichuri	10.0	6.4	7.9
Other liquid food	4.8	8.6	7.7
Fruits	0.5	0.6	0.9
Rice/chapatti	1.5	4.2	3.2
Fist/meat	3.1	1.3	1.5
Biscuit	26.9	32.9	33.7
Leaves/vegetables	8.6	6.4	9.2
others	0.6	0.4	0.4
Total[1]	100.0	100.0	100.0
Number	1,256	2,172	1,054

[1] Food/liquid that should put first in baby's mouth
[2] Includes 'Don't know'

Less than half of the women in both areas (43% in the programme and 44% in the comparison slums) were aware of the signs and symptoms of acute respiratory infection in 2009, compared to 39% in the programme slums in 2007. This suggests a little improvement in knowledge of ARI over the years. Almost all were aware of the need for rehydration with oral saline during episodes of diarrhea.

Knowledge related to child morbidity and management

Knowledge on...	Programme area		Comparison area
	2007	2009	2009
Signs of pneumonia among under-5 children			
Fever	42.7	55.2	60.8
Cough	49.5	60.2	65.2
Fast breathing	39.9	26.7	35.3
Difficulty on breathing	68.2	51.0	43.5
Chest in-drawing	33.8	29.7	21.6
Other	0.3	0.0	0.0
Don't know	5.4	2.8	1.9
ARI	41.4	43.2	44.3
Type of food that should be given to under-5 children with diarrhoea			
Packet saline	95.3	97.4	95.0
Home-made saline	15.0	27.2	28.6
Plain water	5.7	3.6	2.8
Usual diet	13.4	8.6	6.4
Other liquid food	61.9	66.5	54.6
Other	0.2	0.0	0.0
Amount of food that should be given to under-5 children with diarrhoea			
Usual diet	6.2	13.2	20.4
Less food that usual	17.1	26.9	36.1
More food than usual	76.7	59.9	43.5
Person to seek advice to manage pneumonia/diarrhoea			
BRAC Sastha Sabeka	0.3	3.1	0.9
SACMO/MA	22.4	10.5	21.2
Nurse/midwife/FWV (Govt.)	29.9	10.8	13.4
Nurse/midwife/FWV (NGO)	8.4	13.4	14.3
MBBS doctor	60.7	78.9	69.9
Pharmacist	0.7	11.4	11.8
Spiritual healers	0.1	0.6	1.6
Homeopath	1.1	2.3	3.0
Kabiraj/Hekim	0.1	0.5	0.8
Others	0.0	0.0	0.0
Total[1]	100.0	100.0	100.0
Number	1,256	2,172	1,054

[1] All of the above are multiple responses

Most respondents sought advice on managing diarrhea and pneumonia among under-five children from an MBBS doctor, followed by government nurse/midwife/family welfare visitor and government medical assistants.

Actual practices

Maternity care and services received

The overall utilization of ANC visits for the most recent birth was higher (81% compared to 75% and 71% respectively) in the programme slums in 2009 than in the programme slums in 2007 and the comparison slums in 2009. Four or more ANC visits were made by 42% of the women in programme and 35% in comparison slums in 2009 compared to 27% in the programme slums in 2007. Women tended to start making ANC visits somewhat later in pregnancy than recommended, with a median of 4 months pregnancy at first ANC in 2009 compared to a median of 5 months pregnancy in 2007. BRAC Delivery Huts (22%) followed by NGO health centers and private clinics (20% each) were the predominant places for receiving ANC in the programme slums in 2009 unlike the situation in 2007. In comparison slums in 2009, NGO health centers (26%) and government hospitals (17%) were the most common place for the first ANC.

Institutional deliveries accounted for half of the deliveries in programme slums in 2009 compared to 24% in the comparison slums in 2009 and 15% in the programme slums in 2007. Deliveries in Brac delivery huts rose to 19% in the programme slums in 2009 compared to 1% in 2007and 3% in the comparison slums in 2009. Deliveries in government hospitals and private clinics were also higher in the programme slums in 2009 compared to 2007. Half of the deliveries took place at home in the programme slums in 2009 compared to 76% in the comparison slums. In 2009, most deliveries in the programme slums were assisted by untrained TBAs, followed by MBBS doctors, trained TBAs and BRAC midwives.

- ANC use went up in 2009 compared to 2007. Most ANC utilization occurred in BRAC Delivery huts and NGO health centres.
- While half of deliveries still took place at home, deliveries in health facilities accounted for the other half in 2009, up from 15% in 2007.
- PNC visits more than doubled in programme slums in 2009 compared to 2007.

Like ANC, the proportion receiving PNC among the sampled women was higher – 55% in the programme slums in 2009 compared to 24% in 2007 and 21% in the comparison slums. A minority received four PNCs (7% in programme slums in 2009). There was an increase in the use of Brac delivery huts and private clinics

Children playing in a Dhaka slum

(18% and 16% respectively) in the programme slums in 2009, from 2% and 3% in 2007. Private clinics(16%) and government hospitals (13%) were also used by the programme slum dwellers for PNCs.

Pregnancy complications and management

Pregnancy and childbirth-related complications are among the leading causes of maternal mortality in Bangladesh. Delivery complications were found to be lower in 2009 (19%) compared to 26% in 2007 in the programme slums. Lower abdominal pain was reported to be most prevalent among women (14% in 2007 and 12% in 2009 in programme slums, and 17% in comparison slums), followed by severe headache or blurry vision and edema of hands/feet in both 2007 and 2009 in both programme and comparison slums. For treatment of pregnancy complications, NGO health centers were visited most frequently (5%) in 2007 whereas in 2009 it was private clinics (6%) in the programme slums. Medicine from pharmacy (8% in 2007 and 9% in 2009 in the programme slums), followed by medicines prescribed by doctor or nurse (7% in 2007 and 4% in 2009 in the programme slums) were the predominant forms of treatment sought to manage pregnancy complications.

Although pregnancy complications were found to be fewer in 2009, management of the complications had not changed much in 2009 compared to 2007.

Very few women (less than 1%) were referred to facilities for treatment in case of complications. The women were mostly referred to government hospitals in the programme slums and private clinics in the comparison slums, followed by NGO health facilities in the programme slums and government hospitals in the comparison slums. The major reasons for referral were to avail better treatment (62% in the programme slums and 78% in the comparison slums), followed by unavailability of equipment in the facility (29% in the programme slums and 11% in the comparison slums) and lack of required skills to treat (24 % in the programme slums and 11% in the comparison slums).

Pregnancy complications and management

Knowledge on...	Programme area		Comparison area
	2007	2009	2009
Complications during pregnancy[1]			
No complications	74.4	80.8	71.6
Severe headache/blurry vision	5.2	2.4	9.1
High fever	3.0	2.3	3.5
Smelly vaginal discharge	0.6	0.3	0.7
Convulsions	0.7	0.2	1.9
Excessive vaginal bleeding	1.3	0.9	1.9
Reduced/absent fetal movement	1.3	3.1	2.1
High blood pressure	0.6	0.6	0.6
Edema of hands/feet	4.0	3.2	6.3
Edema of face	0.1	1.3	1.7
Lower abdominal pain	13.7	11.8	16.6
Untimely water break	0.9	1.1	2.8
Others	0.3	0.6	0.2
Place for treatment of pregnancy complications[2]			
No complications	74.4	80.8	71.6
Did not seek any treatment	8.9	4.2	8.6
Home	0.6	0.0	0.4
BRAC delivery hut	0.6	2.4	0.4
Pharmacy	1.2	0.4	0.9
Government hospital	4.5	2.7	6.7
Private clinic	2.1	5.8	5.2
Chamber	1.9	1.1	3.0
NGO health centre	5.4	2.6	3.2
Other	0.3	0.0	0.0
Type of teatment received[3]			
No complications	74.4	80.8	71.6
No treatment sought	8.9	4.2	8.6
Medicine from pharmacy	7.7	9.4	11.2
Advice from FHW[4]	2.1	2.2	1.5
Referral from FHW	1.2	0.8	0.4
Spiritual water/substance	0.4	0.0	0.6
Amulets	0.1	0.0	0.0
Homeopathic medicine	0.0	0.1	0.2
Injection/saline	0.3	1.3	2.1
Medicine from doctor/nurse	7.4	3.8	6.3
Medicine from Kabiraj/Hakim	0.6	0.0	0.2
Others	0.0	0.1	0.2
Total[1]	100.0	100.0	100.0
Number	672	1,013	536

[1] Multiple responses
[2] Place where the respondent sought care/treatment first
[3] Multiple response
[4] Female Health Worker

School children in a slum area in Dhaka

Immediate newborn care

In the 2007 baseline and the 2009 midline surveys, half of the women in the programme slums started breastfeeding within an hour of birth. The majority reported feeding colostrum to their newborn.

The number of women feeding colostrum to their newborn doubled in 2009.

Bathing the newborn just after birth decreased substantially in 2009 compared to 2007.

Medicine from a pharmacy was still the predominant form of treatment for neonatal complications in 2009 and had remained unchanged from 2007.

The practice of bathing just after birth was markedly low, 18% in 2009 compared to 55% in 2007 in the programme slums, and 29% in comparison slums. The majority of the women reported shaving the infant's head within one week of birth. Almost all the women took 'special' care of the cord in spite of the recommendation to only keep it dry. The proportion of women taking 'Kangaroo-mother care' (skin-to-skin contact between mother and child) was low although with a slight increase (12% in 2009 from 6% in 2007).

Child morbidity and management

Child morbidity levels were lower in 2009 compared to 2007. Fever was the predominant childhood illness (27.9% in programme slums and 33.2% in comparison slums in 2010 compared to 44.7% in programme slums in 2007), followed by cough (22.6% in programme slums and 30.9% in comparison slums in 2009 compared to 33.1% in programme slums in 2007), difficulty in breathing (4.9% in programme slums and 7.8% in comparison slums in 2009 compared to 10.2% in programme slums in 2007), and diarrhea (4.8% in programme slums and 5.0% in comparison slums in 2009 compared to 19.1% in programme slums in 2007). For management of acute respiratory infection (ARI), treatment was sought most in chambers (32.1% in the programme slums an 38.5% in the comparison slums in 2009 compared to 19.6% in the program slums in 2007), followed by pharmacies (26.9% in programme slums and 16.9% in comparison slums in 2009 compared to 38% in programme slums in 2007), and government hospitals (23.1% in programme slums and 20% in comparison slums in 2009 compared to 13% in programme slums in 2007).

Notably, in 2009, there was a move away from pharmacies being the predominant place of treatment for management of acute ARI in under 5 children.

Immediate newborn care

Knowledge on...	Programme area		Comparison area
	2007	2009	2009
Pre-lacteal feed after birth[1]			
Colostrum	36.2	70.6	45.5
Plain water	0.9	1.5	0.7
Misri/sugar/glucose water	15.6	7.8	13.4
Honey	39.6	16.2	36.2
Mustard oil	4.5	0.8	3.2
Any milk other than breast milk	3.1	2.8	0.6
Other liquid	0.1	0.4	0.4
Don't know	0.0	0.0	0.0
Initiation of breastfeeding			
Breastfed within one hour of birth	50.1	52.0	47.4
Breastfed within one day of birth	35.1	39.8	42.0
Breastfed after first day of birth	14.4	7.8	10.4
Never breastfed	0.1	0.1	0.0
Don't know	0.1	0.3	0.2
Received colostrum			
Yes	83.2	90.8	77.6
No	16.8	9.2	22.4
Timing of bathing the baby			
Just after birth	54.6	18.0	29.1
Within 24 hours of birth	17.4	17.8	23.1
On second day after birth	14.1	17.7	21.1
Within third day to one week after birth	12.5	41.5	24.4
Later	0.7	4.8	2.1
Don't know	0.6	0.3	0.2
Timing of shaving the baby's head			
Just after birth	0.6	0.3	0.6
Within 24 hours of birth	0.3	0.3	1.7
On second day after birth	0.7	1.1	0.9
Within third day to one week after birth	91.4	83.3	87.5
Later	6.3	11.7	8.2
Never shaved hair	0.7	3.3	1.1
Taken special care of the baby's cord			
Yes	98.5	95.4	92.9
No	1.5	4.6	7.1
Wrapping the baby with warm clothes			
Yes	97.2	95.2	94.8
No	2.8	4.8	5.2
Taken 'Kangaroo mother care' of the baby			
Yes	6.0	12.4	23.1
No	94.0	87.6	76.9
Total	100.0	100.0	100.0
Number	672	1,013	536

[1] First thing put into mouth

Opinion on local healthcare facilities

85% of the women in the program slums in 2009 in contrast to 43% in 2007 and 49% in the comparison slums in 2009 reported availability of healthcare and delivery facilities in their localities. The most frequently mentioned

facilities were Brac delivery huts followed by NGO operated health centers and private clinics. In 2009 in the programme slums, the respondents mentioned good behavior (70%), availability of drugs and supplies (56%) and efficacy of treatment (38%) to be the most important factors that influence patient satisfaction.

Awareness of BRAC birthing huts

In the programme slums, 68% of women in 2009 compared to 25% of women in 2007, were aware of the existence of Brac's birthing huts in their locality. Respondents were aware that antenatal checkups (61%), followed by skilled delivery assistance (40%), delivery care (27%), newborn care (9%) and post-partum care (9%) were provided at BRAC delivery huts. The midwives were the main informers on the services provided. The proportion of women who were aware of Brac's birthing hut and had registered themselves to the birthing huts' services had increased to 38% in 2009 from 7% in 2007. Most women registered for antenatal checkup, delivery care and skilled delivery assistance. The survey also found that the respondents were aware of the quality of services and provision of low cost or free services provided by BRAC birthing huts.

- Most women in the programme slums in 2009, more than double the proportion in 2007, reported availability of healthcare and delivery facilities in their localities.
- Awareness of Brac birthing huts increased dramatically in 2009 compared to 2007.
- Registration to Brac birthing huts rose in 2009 with antenatal check-ups, skilled delivery assistance and delivery care being sought more frequently in 2009 compared to 2007.

Prepared by: Rumesa Rowen Aziz. Source: Alam N, Uddin A, Sumi NS, Ahmed SM, Streatfield PK. Manoshi: Community health solutions in Bangladesh, Midline survey in Dhaka urban slums 2009. Unpublished.

Trends in Utilization of Safe Motherhood Services and Management of Diarrhea and ARI 2009-2010

Collecting survey data from slum dwellers

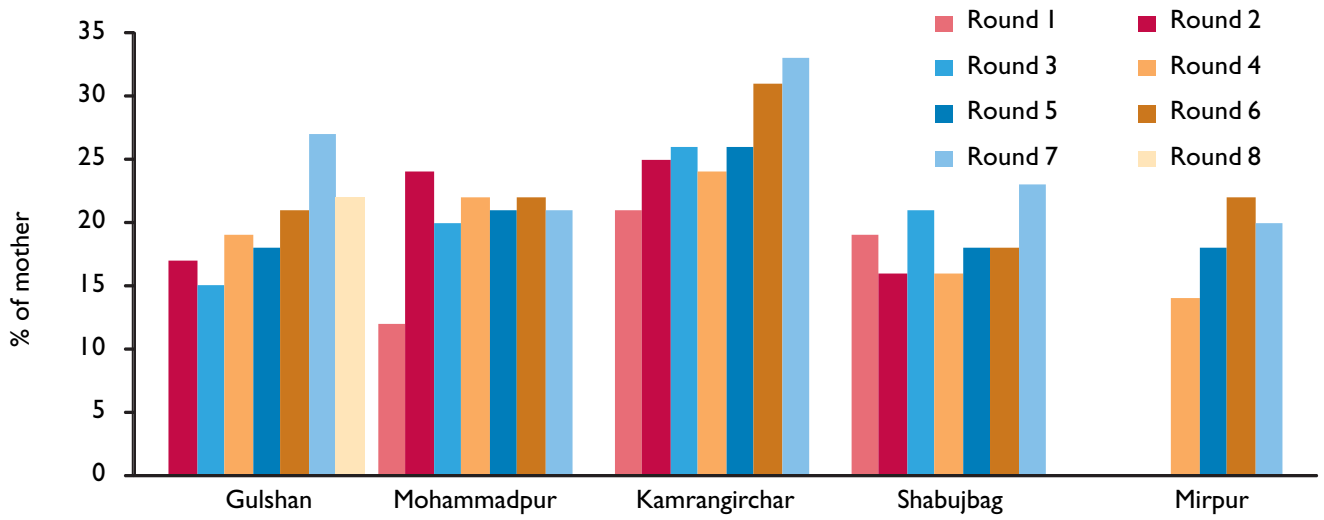
To aid the Manoshi programme managers to identify the lowest level inadequately performing work areas, a continuous monitoring system has been initiated since the beginning of the programme. The system comprises of carrying out LQAS surveys on a quarterly basis by an ICDDR,B team and providing a list of inadequately performing work areas to the managers. The survey uses 19 randomly chosen samples from each of the work areas. The indicators included in this exercise are delivery at birthing huts, delivery complications referred by Brac for infants born preceding three months from the survey, and prevalence of diarrhea and pneumonia and their management for children under 5. In addition to identifying inadequately performing work areas, the survey also permits estimation of coverage rates of the above indicators. Results derived from the LQAS for five sites of the Manoshi programme, namely Gulshan, Mohammadpur, Kamrangirchar, Shabujbag and Mirpur programme areas are presented below.

Eight rounds of data were collected every three months starting in December 2007. The data presented here shows data from rounds one to eight, collected from September 2007 to May 2010. The data on the utilization of safe motherhood services, child morbidity and management were collected using the lot quality assurance sampling (LQAS) methodology, a tool that enables rapid assessment of the programme reach and health situation in the field. The programme areas in Gulshan, Mohammadpur, Kamrangirchar and Shobujbag were monitored since 2007. Monitoring in the Mirpur area began later, starting in February 2009.

Utilization of safe motherhood services

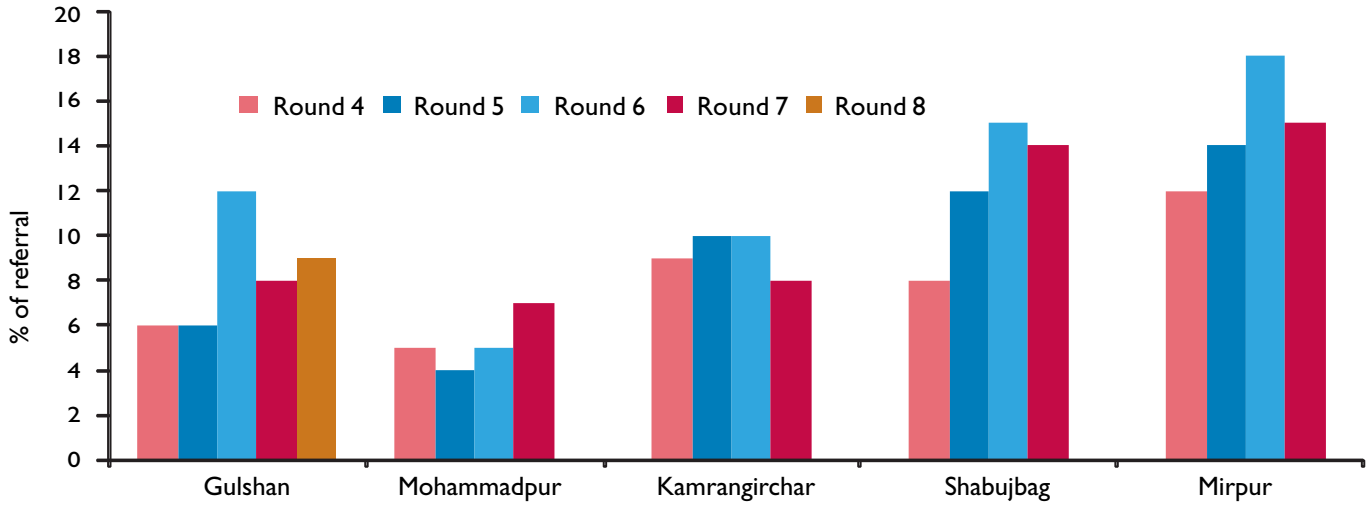
Over time, delivery at birthing centres increased for every site in the programme with availability and its services becoming increasingly known. In Gulshan, use of birthing centres increased from 17% in March 2008 to 27% in October 2009 with a drop to 22% in March 2010. Kamrangirchar, Shobujbag and Mirpur areas also show an increasing trend in the use of birthing centres over time. The Mohammadpur site, on the other hand, showed an initial increase followed by a drop in use which plateaued over the next five survey rounds from July 2008 to April 2010.

Proportion of mothers who gave birth* at BRAC delivery centre



* Based on mothers of infants born during last 3 months preceeding the survey.

Percentage of cases with delivery complications* referred by BRAC



* Based on mothers of infants born during last 3 months preceeding the survey.

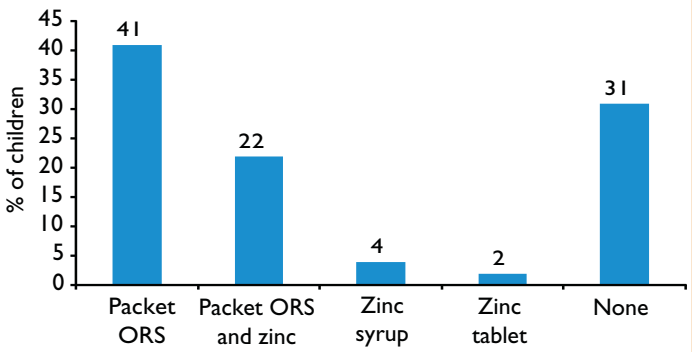
Referrals by Brac in cases of delivery complications show an increasing trend in most of the programme areas with the exception of Kamrangirchar where there was an initial increase, followed by a period of no change and then a fall. The data shown covers a time period from November 2008 to March 2010. The highest percentage of referrals was 18% and occurred in Mirpur during August 2009 to October 2009, while the lowest was 4% in Mohammadpur during March 2009.

Prevalence of diarrhoea pneumonia among children under-5, Oct 2009 - July 2010

Area	No. of under-5 children	Prevalence of diarrhoea (%)	Prevalence of pneumonia (%)
Gulshan	704	10	9
Mohammadpur	1,541	11	11
Kamrangirchar	1,347	8	11
Shabujbag	1,129	11	12
Mirpur	1,678	10	12

Woman working at home

Management of diarrhea of children under-5* Oct 2009 - July 2010

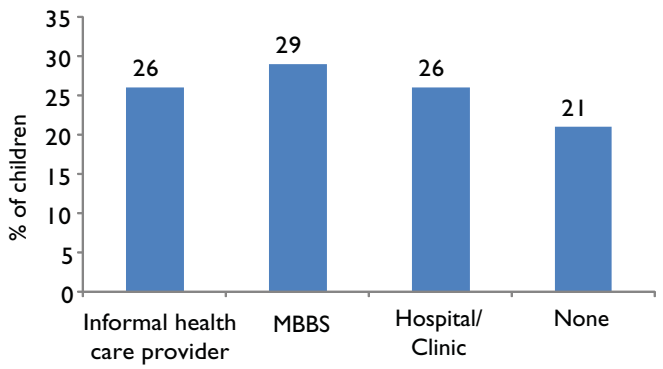


* Based on children under-5 at the time of survey

Child morbidity and management

The survey found that between October 2009 to July 2010, the prevalence of diarrhea among under-5 children was similar at between 8% to 11% in the Gulshan, Mohammadpur, Kamrangirchar, Shobujbag and Mirpur slum areas. The prevalence of pneumonia at this time period was also similar in the five programme areas ranging from 9% to 12%. 31% of slum dwellers used no treatment for the cases of child diarrhea, while 64% used packet ORS and 28% used zinc. 22% used both packet ORS and zinc to treat their children with diarrhea. For dealing with episodes of childhood pneumonia, 21% of caregivers sought no treatment while 29% visited MBBS doctors. A quarter of cases were treated at a hospital or clinic while another quarter of cases were treated by informal healthcare providers.

Sources of pneumonia treatment for children under-5*, Oct 2009 - July 2010



* Based on children under-5 at the time of survey

Prepared by: Rumesa Rowen Aziz. Source: Bhuiya A, Hanifi SMA, Urni F. Quarterly Manoshi performance monitoring reports. Unpublished.

For further information on Manoshi research, contact Abbas Bhuiya at abbas@icddrb.org or Syed Masud Ahmed at ahmed.sm@brac.net. For more information on the Manoshi programme, contact Kaosar Afsana at afsana.k@brac.net. To subcribe, contact Rumesa Rowen Aziz at rraziz@icddrb.org.

Manoshi is supported by the Bill and Melinda Gates Foundation

Published jointly by BRAC and ICDDR,B for Manoshi

Designed by Md. Abdur Razzaque | All photographs in this issue by Razib Chowdhury