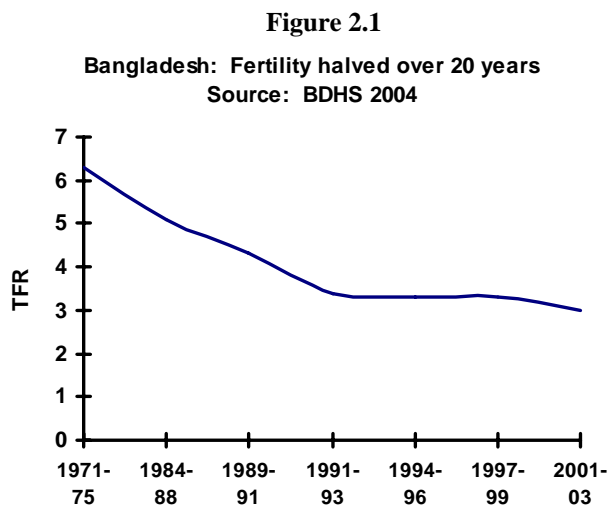


II HEALTH: CHARTING THE PROGRESS AND ADDRESSING MATERNAL HEALTH

2.1 One of the biggest success stories in Bangladesh relates to health. Frequently held up as one of Bangladesh's "puzzles," several recent reports have applauded the rapid improvements and reduction in gender inequalities in education and health outcomes despite low per capita income³⁸. At least four recent World Bank reports have focused on these issues – two on achieving Millennium Development Goals (MDGs), one on maternal and child health, and finally a Development Policy Review of Bangladesh³⁹. The speed of fertility and mortality decline has fueled a scholarly debate regarding its determinants and impact.

2.2 Links to other aspects of Bangladesh's development, notably the microcredit revolution and changes in women's autonomy have played a large part in this literature. The policy literature is trying to analyze how this came to happen, and what it is in Bangladesh's institutional set-up and policy framework that facilitated this. Non-governmental organizations (NGOs) no doubt played a major role in the delivery of services and in elevating demand for services, but without proactive government policy that both gave space to NGOs and directly delivered many of the most successful programs, none of this would have been possible. Indeed, the speed of the improvements in these areas makes Bangladesh something of an example to its neighbors, whose outcomes are improving much more slowly.



2.3 This chapter focuses on remaining challenges in health, specifically maternal health. The first part of the chapter provides an overview of the main achievements and remaining issues. The second part consists of an analysis of access to maternal health care, based primarily on the BDHS 2004. In addition, in keeping with the theme in this report, it looks also at the regional variations in access to and utilization of care (see annex III for a technical note). The final section of this chapter synthesizes the findings and makes recommendations to address the challenging issues surrounding maternal health care in Bangladesh.

A Charting the Gains in Key Health Outcomes

2.4 **Fertility decline has been accompanied by sharp reductions in infant and child mortality, rise in life expectancy and improvement in sex ratios.** In the early 1950s, East Pakistan (now Bangladesh) had substantially higher infant mortality and lower life expectancy than West Pakistan, and somewhat higher than the South-central Asia region as a whole. Today it is on par with these comparators on life expectancy, and ahead in infant mortality. The speed of the changes in Bangladesh has been remarkable as shown in Table 2.1. Sex ratios too have improved and are now better than India and Pakistan, but still have to catch up with Nepal and Sri Lanka and SE Asian countries.

³⁸ See for instance the Poverty Reduction Strategy, 2004; Development Policy Review (World Bank, 2004); World Bank (2005b)

³⁹ World Bank (2004); (2005 a and b); (2007)

Table 2.1: Pace of decline in infant mortality over half a century

Note: Infant deaths per 1,000 live births based on medium variant 1950-2005

	Male		Female	
	1950-55	2000-2005	1950-55	2000-2005
Bangladesh	199.6	63	201.4	59.5
India	166.1	60.9	165.2	64.2
Nepal	211.7	64.5	210	64.4
Pakistan	168.1	73.4	169.1	77.5

Source: UN World Population Prospects 2006

2.5 Gender inequality in infant mortality is reversed but still remains in child mortality.

Studies in Bangladesh in the 1970s and 1980s indicated a significant gender gap disadvantaging girls in the mortality rates of children and infants which was attributed largely to more aggressive efforts by families to seek health care if a boy fell ill, compared to a girl.⁴⁰ This has changed dramatically. Contrary to what is found in India and Pakistan and contrary to research on Bangladesh in previous decades⁴¹ *boys now have higher infant mortality rates than do girls*, which is “normal”. However, neonatal mortality (death in the first 28 days) has fallen much more slowly than those above one month of age.

	1985	1995	2005
Bangladesh	106.5	105.5	105.1
Bhutan	101.2	101.1	101.2
India	107.2	106.8	106.4
Indonesia	99.1	99.5	99.6
Maldives	107.3	105.5	105.8
Myanmar	98.7	99.2	99.6
Nepal	105.7	102.2	103.4
Sri Lanka	101.9	98.8	97.5
Thailand	100.5	100	99.2
World	101.3	101.5	101.5

Source: UN, World Population Prospects

2.6 After infancy however, the natural survival advantage enjoyed by girls is reversed. Thus, child mortality rates (deaths occurring between 12 and 59 months of age) are higher for girls than for boys. Such a reversal occurring at this stage in a child’s life suggests that the preference for sons is resulting in the neglect of young girls. For example, one study of 12,000 births from the Matlab area finds that the mortality risk for girls surpasses that for boys at approximately 8 months of age, which is precisely the age at which an infant requires greater care and is susceptible to early childhood diseases.⁴² This is an important point to bear in mind when looking at overall rates of under-five mortality for boys and girls, presented in Table 2.3, which indicate that on balance female under-five mortality is now lower than that of males.

⁴⁰ Bhuiya and Streatfield (1991), Chen et al. (1981), Choudhury et al. (2000), Fauveau et al. (1991), Hussain et al. (1999), Mitra et al. (2000), Stanton and Clemens (1988).

⁴¹ For more details, see Bhuiya and Streatfield 1991, Chen et al. 1981, Choudhury et al. 2000, Fauveau et al. 1991, Hussain et al. 1999, Mitra et al. 2000, and Stanton and Clemens 1988.

⁴² See Koenig and D’Souza (1986)

Demographic Characteristics	Neonatal mortality	Postneonatal mortality	Infant mortality	Child mortality	Under-five mortality
	(NN)	(PNN)	(₁Q₀)	(₄Q₁)	(₅Q₀)
Child's sex					
Male	52	28	80	24	102
Female	40	24	64	29	91

Source: BDHS 2004

2.7 **Improvements in health indicators owe much to strong programmatic intervention.** Studies around the world show that as the number of births per woman falls, maternal and child health outcomes improve. Clearly, in Bangladesh too fertility decline has been a major factor in overall improvement in maternal and child health. Therefore, though the primary driving force for the family planning program was to reduce the pace of population growth, it had a positive impact on maternal and child health outcomes as well.

2.8 Other interventions such as the successful immunization program of the 1980s and 90s also generated substantial gains. Especially important for infant survival is the program for antenatal tetanus immunization, which protects against neonatal tetanus — a leading cause of death amongst newborns in developing countries. BDHS data show that by the early 1990s, this program reached 66 percent of all women giving birth, and coverage rose further to 85 percent by 2004. Even in rural areas, coverage increased from 64 to 84 percent during this period, almost closing the gap with urban areas. The gap between uneducated and educated women is also narrowing, and today 78 percent of those with no education are covered, compared with 88 percent amongst those who have completed primary schooling.

2.9 The standard package of child immunization also protects against other diseases that are important contributors to child mortality. The BDHS 2004 found that 73 percent of children aged 12-23 months had received all recommended immunizations, and only 3 percent of children had received no immunizations. The urban-rural gap in child immunization has also been closed.⁴³

2.10 Non-health sector programs such as the total sanitation drive have had seminal impact as well. Toilets are almost the norm in even in rural areas. The drive against diarrhea has similarly made the use of oral rehydration and clean drinking water commonplace, and this is known to contribute to lowering infant mortality. An increase in girls' education has meant that present generation mothers are better able to care for themselves and their children, compared to earlier cohorts. Finally, the big push for rural infrastructure has led to a vast increase in the network of roads, bringing medical centers and hospitals closer to people.

2.11 **But challenges remain: Malnutrition rates in Bangladesh are among the highest in the world.** In 2004, 43 percent of kids were -2SD stunted, and 48 percent of kids were -2SD underweight.⁴⁴ Malnutrition in Bangladesh is slightly higher than the regional average for South Asia⁴⁵. A key factor that affects malnutrition is low birth weight (which affects as many as 45 percent children), caused by poor

⁴³ In 1999, children age 12-23 months living in urban areas of Bangladesh were 2.4 times more likely to be fully immunized (receiving all BCG, DPT1 – DPT3, and Polio1 – Polio3) than same-aged children in rural areas. The urban-rural gap has narrowed to 89.1 percent coverage in urban areas and 84.2 percent in rural areas as of 2004 (BDHS, 2004)

⁴⁴ BDHS, 2004

⁴⁵ World Bank, 2005b

physical condition of mothers⁴⁶. The BDHS 2004 shows that 34 percent of women suffer chronic energy deficiency, as measured by a BMI below 18.5. Forty-seven percent of women in the poorest wealth quintile have chronic energy deficiency, and even in the richest quintile, 17 percent of women fell below the internationally accepted cutoff for acute under-nutrition. Bangladesh is in fact an outlier in this respect: even the top wealth quintile exhibits shockingly high malnutrition rates comparable to the national averages of impoverished neighboring countries such as Myanmar⁴⁷. A number of non-income variables such as feeding practices for mothers and babies and other practices relating to childbirth contribute to Bangladesh's extraordinarily high levels of malnutrition.

2.12 There have however, been modest improvements. In 1996-97, 56 percent of children below age 5 were below 2 standard deviations (SD) in weight-for-age, but by 2004 this had fallen to 48 percent.⁴⁸ Over the same period, the proportion of chronically energy-deficient mothers of children under five years of age fell from 52 to 38. While children from rich households also experience high levels of malnutrition, the problem is severest amongst the poor. In the lowest wealth quintile in 2004, nearly 60 percent of children were below 2SD weight-for-age⁴⁹.

2.13 In addition, micronutrient deficiencies are also widespread. Vitamin A deficiency is very common in pregnant and lactating mothers in Bangladesh, a factor which both decreases the mother's survival chances and makes it more likely for her child to also be vitamin A deficient. Despite the seriously adverse consequences, iron deficiency anemia afflicts one half of children and women of reproductive age in Bangladesh⁵⁰.

B Maternal Health

Summary

- *The predominant impediments to maternal health care utilization are demand-based, but there are indications of change*
- *Low demand drives the low utilization of maternal health services.*
- *Poverty and the cost of services are significant barriers to receiving maternal care*
- *Urban women are better placed to get care during pregnancy and childbirth, but otherwise there are no significant variations by geographical area.*
- *Education is one of the most important correlates of using skilled health care during pregnancy and childbirth*
- *Exposure to mass media can be a powerful means of raising the demand for maternal health services*
- *Participation in NGO programs also has positive effects on maternal health*
- *The youngest and oldest women are the least likely to obtain maternal health care and the more children women have the less likely they are to receive proper care.*

2.14 It is difficult to accurately estimate maternal mortality because even in countries with high rates as Bangladesh, maternal deaths are rather rare events that occur to the order of once per 300+ live births. Despite this, it is possible to make crude projections of maternal mortality based on an average rate of decline calculated using the limited data points available⁵¹. It shows that Bangladesh needs to make a structural break in the trend line if it is to move anywhere near the MDG target on the maternal mortality ratio (143 maternal deaths per 100,000 live births). Doing so will require not just continued reductions in

⁴⁶ Rahman et al, 2003

⁴⁷ HKI, 2006

⁴⁸ BDHS, 2004. World Bank (2005b) has higher estimates of child malnutrition than BDHS 2004.

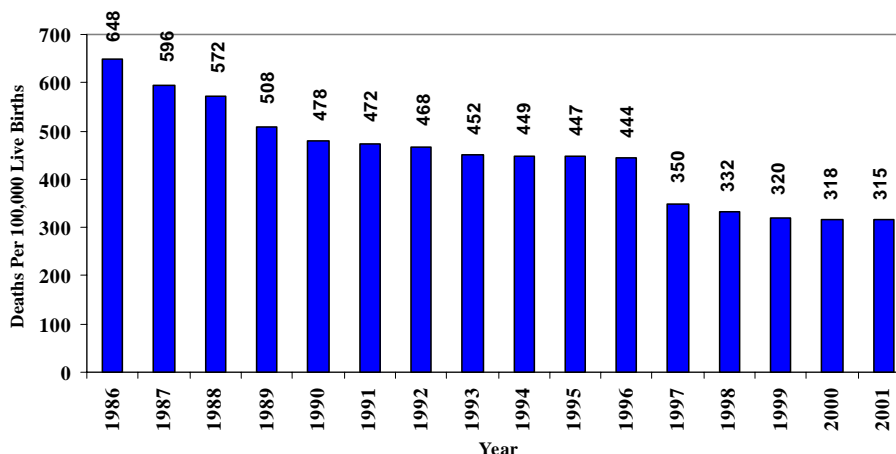
⁴⁹ BDHS, 2004

⁵⁰ HKI, 2006

⁵¹ World Bank, 2007

fertility, which may reduce the maternal mortality ratio slightly, but a renewed focus on the quantity and quality of reproductive health services. These issues are taken up in the next section on safe motherhood.

Figure 2.2
Bangladesh: Maternal Mortality Ratios 1986-2001
 Source: BDHS, 2004



2.15 Most life-threatening complications of pregnancy and labor cannot be predicted, and therefore cannot be prevented – they can only be treated. Maternal death as a result of direct obstetric causes can largely be avoided by ensuring that women have access to skilled care at their time of delivery, as well as prompt access to a facility that provides quality emergency obstetric care (EmOC)⁵² if need arises. Key concerns in the Bangladeshi context include whether women utilize maternal health care services such as having a skilled attendant at birth, whether women deliver in a facility that can safely provide emergency services, and the factors associated with women’s use of these services. In the analysis presented here, factors associated with women’s access to and use of maternal health care services are conceptualized as factors of supply of and demand for these services.

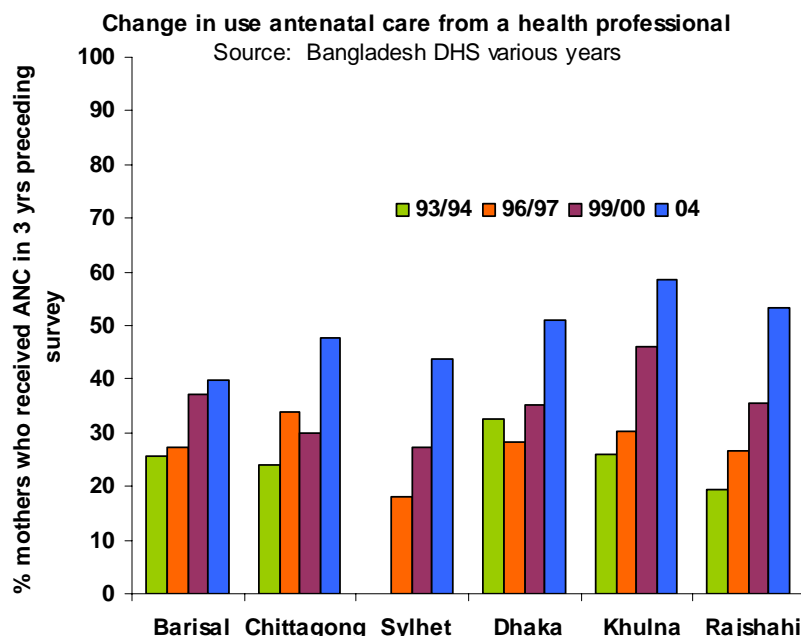
2.16 **Over time there been an increase in the use of maternal care by all women.** This has been most pronounced in the case of antenatal care, which is a low cost service provided through health workers and satellite clinics (blood pressure, weight, tetanus toxoid). On the other hand post-natal care (PNC) and delivery care, which require more costly care and obstetric services have improved more slowly⁵³.

2.17 During focus group discussions, women from Satkhira (Khulna) drew attention to the changes in delivery practices (especially “scissors delivery” – the term used for caesarian section in rural Bangladesh) and greater awareness of the need for care during delivery.

⁵² The eight signal functions of comprehensive emergency obstetric care are as follows: administer parenteral antibiotics, administer parenteral oxytocic drugs, administer parenteral anticonvulsants for pre-eclampsia and eclampsia, perform manual removal of placenta, perform removal of retained products, perform assisted vaginal delivery, perform surgery, and perform blood transfusions.

⁵³ Mahmud (2006)

Figure 2.3



“About 15-20 years ago mothers depended upon local midwives. At that time about 10 to 15 percent mothers died at the time of delivery. They didn’t have any medical care. They were taken to Thana Sadar by carts. Now doctors are available at the union level. Women are also going to male doctors.” Mother of adolescent girls Satkhira during FGD

“Previously, women used to stay at home during delivery. But now, they have check-ups during pregnancy. Mothers of this generation are more conscious about their own and their child’s health”. Mother of adolescent girls Satkhira during FGD

“The first delivery by scissors started in this village about 8/10 years ago. Now all pregnant women are mentally prepared for scissors operation if they face any problem. Mothers couldn’t think this way 10 years ago.” Young woman from Satkhira during FGD

In this village the first caesarian baby was born 15 years back. Now if a girl faces a complication in her delivery, she gets mentally prepared for scissors.” Mother of adolescent girls Satkhira during FGD

“Women are aware about birth control and they are talking about those matters frankly. Twenty years back it was not possible to talk about birth control”. Elite man in Mymensingh during FGD

i) Supply of Services

2.18 **The Government of Bangladesh (GoB) has boosted access to health services.** In the early 1990s two-thirds of women reported that they had received tetanus toxoid vaccination⁵⁴; a decade later it had increased to 85 percent. The use of antenatal care has increased as well. The BDHS 2000 found that only one-third of women who had given birth in the preceding five years reported having received at least one antenatal checkup; but this rose to 56 percent of women in the BDHS 2004.

⁵⁴ Refers to women who had a live birth in the five year period preceding the survey.

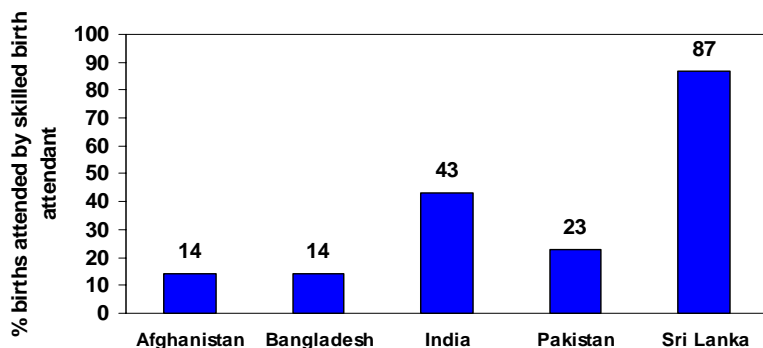
2.19 Much of this progress has been achieved by increasing the supply of services provided by village health workers and relatively low level paramedics, which are an inexpensive and easy supply solution as compared to more complex services such as emergency obstetric care. That being so, the Bangladesh Service Provision Assessment (BSPA) 1999-2000 shows that only 36 percent of all facilities provide a comprehensive menu of maternal health services. The majority of these are located at the Upazilla level and only 16 percent of Union level facilities – whether government or NGO run – provide all maternal health services. Annex 3 details government programs and non-governmental efforts.

2.20 Access to care depends to a large extent on *availability of facilities with adequate staff*. Thus, while most surveys do not ask whether staff is available or not, they do have questions on distance from a fixed health facility, and access to outreach workers. These are significantly associated with obtaining maternal health services in Bangladesh,⁵⁵ as in most countries. The relationship appears to be even stronger in the case of use of delivery care than in antenatal services, presumably because people can time their seeking of antenatal care over a longer period in response to transportation requirements and other obstacles.

2.21 In 2001, ten percent of Bangladeshi women reported that they did not seek ANC because the facility was too far away. By contrast, in 2004 only two percent of women reported that antenatal care was “too far” for them to make use of. During and after delivery, only five percent of women said access was the main reason for not delivering in a health facility and for not seeking postnatal care⁵⁶. This rapid improvement is testament to Bangladesh’s efforts to improve access to health services. Other reports have highlighted the importance of development of roads and communication in improving health outcomes in Bangladesh⁵⁷. However, two broad supply issues remain. The first concerns the type of

health services to which the population has access; the second relates to the quality of health services.

Figure 2.4
Bangladesh's record in providing skilled care for women during delivery is very poor
 Source: WDI 2005



2.22 Deficiencies remain with respect to more complex services such as emergency obstetric care (EmOC), which is critical in the event of adverse complications. For example, the 1999-2000 BSPA found that only 6 percent of all facilities offering delivery and postpartum care were able to provide basic first aid (24-hour services and medicines) for

⁵⁵ Anwar et al. 2004; Rahman et al. 2003. Similar results are found for the use of immunization services. Distance to fixed clinics (such as a UHC, hospital or Family Welfare Center) has a significant negative effect on tetanus toxoid (TT) immunization, while the presence of a health worker in the community significantly increases the likelihood of receiving at least one TT immunization dose during pregnancy (Jamil et al. 1999). Pregnant women in villages with a health worker present were 50 percent more likely than others to receive TT vaccination, and TT vaccination receipt was 20 percent less likely for those without outreach clinics held within two miles of their villages. As for children’s vaccination, only proximity to outreach clinics was found to be significantly (positively) associated with full immunization; children living in areas with no outreach clinics held within 2 miles had 30 percent lower odds of immunization than children living with nearby clinics (ibid).

⁵⁶ BDHS, 2004

⁵⁷World Bank, 2005b

hemorrhage, the principal cause of maternal mortality. Only 3 percent of the surveyed facilities had the capacity to perform a caesarean section⁵⁸. This challenge has been taken up by the Government, which is now planning under the Health, Nutrition, and Population Sector-wide Program (2003-2008) to ensure availability of emergency obstetric care at all medical college hospitals, 64 district hospitals, 60 maternal and child welfare centers (MCWCs), and 201 upazilla health complexes (UHCs). If Bangladesh is able to ensure that good quality EmOC services are delivered in these sites, and if skilled or trained birth attendants make referrals at appropriate times, then the country will have gone far toward alleviating this supply constraint.

2.23 Finally, quality of maternal and child health services is an important challenge to safe motherhood. Even when women avoid unqualified health practitioners and seek care from trained personnel, the quality of care can be poor. The BSPA (1999) shows that only 69 percent of facility-based providers and 45 percent of field workers knew all five warning signs in a pregnancy. In the BDHS 2004, nearly all women who received antenatal care reported receiving it from medically-trained providers, but only half of them said that they had received iron supplements or had had their blood pressure taken⁵⁹. Additionally, there were large differences between socio-economic strata in the quality of care received: women that are wealthy and/or educated through secondary school not only have higher health care utilization rates, but are also significantly more likely to obtain services from skilled providers.

2.24 Our multivariate analysis results from the BDHS 2004 indicate that being visited by a trained health worker is associated with an increase in iron supplementation, but not with increased use of maternal health services. This is probably because iron supplements can be easily distributed through village level workers, but more comprehensive care needs facilities and medical personnel. This is also in keeping with the results on satellite clinics: the presence of a satellite clinic that provides ANC services is significantly and positively associated with the use of antenatal services. This relationship between facility availability and health seeking behavior is stronger still in the case of delivery care.

ii) Demand for Maternal Care

2.25 **The predominant impediments to health care utilization are demand-based.** Despite the progress recounted above, Bangladesh still has very high proportions of women who give birth at home (90 percent) and without a skilled birth attendant (86.5 percent). These figures are especially high when we compare Bangladesh to neighboring countries and persist even among the wealthier quintiles: 70 percent women from the richest quintile gave birth at home rather than in a health facility. Overall, only 13 percent of live births in the five years preceding the BDHS 2004 survey had been attended by a qualified doctor or trained nurse, and in rural areas it was only 9 percent. Of women who delivered at home, only 18 percent of women had had a postnatal checkup. Since most women do not receive antenatal care the signs of the most common causes of maternal death are in the main not identified properly or in a manner timely enough to seek appropriate care. According to the BDHS 2004, of the 44 percent of all women who did not receive antenatal care, 63 percent did not believe that such checkups were needed. An additional 12 percent of women were not aware of the need for such services.

2.26 **Poverty and the cost of services create significant barriers.** In keeping with studies, the BDHS data indicate that household income is significantly associated with utilization of all maternal health services. Actual or expected cost appears to be a significant issue for a substantial proportion of women. Eighteen percent of DHS respondents that had not sought antenatal care cited the cost of the service as the primary reason.

⁵⁸ Saha, 2002

⁵⁹ BDHS, 2004

2.27 The Bangladesh Maternal Mortality Survey 2001 indicates the severity of the financial burden associated with obtaining delivery care: of those households that had to pay for delivery care in the preceding three years, 10 percent had taken a loan, and a further 18 percent had to raise funds from relatives, sale of assets, etc.⁶⁰ In the poorest quintile, 35 percent had to take a loan or raise funds from other sources. For the poorer segments of society, then, the cost of services is disproportionately burdensome. Our multivariate analysis of BDHS data confirms this finding: even after controlling for a number of other characteristics, women from the higher wealth quintiles received more of nearly all types of MCH care, but particularly of antenatal care and trained assistance at delivery.

2.28 The relationship between poverty and use of maternal health services is clearly demonstrated in an analysis based on the HIES⁶¹. For antenatal care, public primary health care facilities (at upazilla level and below) were most commonly used both by poor and non poor women, but the latter were much more likely to use public hospitals and private or NGO sources. The wealth gap in use of private services was more pronounced in urban areas: urban poor women used public hospitals more than the rural poor, because of availability. For post natal care too, primary level public services and public hospitals were commonly used by poor and non poor women alike, but non poor women were more likely to use private or NGO services.

Type of care	Urban		Rural		Bangladesh	
	Poor	Non poor	Poor	Non poor	Poor	Non poor
Antenatal care						
Public: upazila and lower	77	50	87	80	86	71
Public hospital	11	15	3	5	4	8
Private or NGO	12	35	10	15	10	21
Delivery						
Home	95	82	98	96	98	92
Public: upazila and lower	2	3	1.5	2	1.4	2
Public hospital	2	7	0.4	1	0.6	3
Private or NGO	1	8	0.3	1	0.5	3
Postnatal care						
Home	9	5	14	13	13	10
Public: upazila and lower	52	27	61	54	59	44
Public hospital	18	22	4	10	7	14
Private or NGO	21	46	21	23	21	32

Source: Mahmud 2006 from Bangladesh Public Expenditure Review (2003), World Bank and the Asian Development Bank. Based on HIES 2000.

*Most recent birth in last 5 years for ever married women

2.29 The gap between poor and non poor women is also in evidence in the use of care during delivery. A recent study based on Matlab data for instance finds that women from poorer households were significantly less likely than their better-off counterparts to use ICDDR,B delivery facilities: the ratio between the best-off and worst-off 20 percent of the population was nearly 3:1. Moreover, these disparities have persisted over time.⁶² Mahmud (2006) points out that while over 90 percent of all births take place at home, non poor women are more likely to avail themselves of hospital facilities during delivery than poor women. While 8 percent of non poor women delivered either at public hospitals or private/NGO clinics, this figure was only 2 percent for poor women. In urban areas these proportions were 15 percent and 5 percent respectively. About 2 percent of births - whether among poor or non poor -

⁶⁰ NIPORT, 2003

⁶¹ At the time of writing this chapter, data from the HIES 2005 were not readily available.

⁶² Anwar, et al., 2004

took place at public facilities at upazilla and below. The largest wealth gap was in the use of a qualified doctor for delivery care, with qualified doctors attending 27 percent of births to women in the richest wealth quintile compared to less than one percent of births to women in the lowest wealth quintile⁶³.

2.30 Women’s education has a strong effect on health. The role of education in improving health outcomes for women and children is well-documented from across the developing world and in previous studies on Bangladesh.⁶⁴ Our results from the BDHS 2004 are in line with this literature. For example, at the bivariate level, slightly more than one-third of women with no education received antenatal care, as compared to almost 60 percent of women educated to primary level. The effect of secondary education is stronger still: 94 percent of women who had completed secondary school received antenatal care. The multivariate analysis also finds that women’s education increases the probability of using every type of maternal care service, and that the strength of the relationship rises steadily with the level of education while controlling for household wealth. The effect is strongest amongst those who have completed secondary schooling. Education, then, is one of the most effective means for giving women the tools they need to make themselves aware of appropriate maternal and child health care.

2.31 Exposure to mass media can be a powerful means of raising the demand for maternal health services. In Bangladesh, nearly 60 percent of women and over 80 percent of men accessed the media (TV, radio, or newspaper) on at least a weekly basis⁶⁵. We find that media exposure significantly increases a woman’s probability of using trained help at delivery, obtaining care in the event of experiencing complications of pregnancy, and obtaining postnatal check-ups if they delivered at home. The presence of a community TV is not significantly related to service use.

2.32 Participation in NGO programs also has positive effects on maternal health. Bangladesh is well-known for the role of NGOs that mobilize women for a number of activities. In addition, they seek to raise awareness of women’s issues such as domestic violence. NGO efforts have been found to be very effective in increasing women’s autonomy, and this is manifested also in increased use of health and family planning services.⁶⁶ One study found BRAC members to be far more likely to seek care from qualified medical personnel than non-members, who are twice as likely to turn to the less-qualified community health care workers⁶⁷. We find that if a woman belongs to such an organization, she has a significantly higher probability of using antenatal care services and of obtaining iron supplements.

2.33 Indicators of women’s autonomy have a complex and nuanced association with use of antenatal services. In South Asia women are often not decision-makers for their own health. This is especially true for younger women, in whose lives the husband and elders in the family are key decision-makers⁶⁸. The BDHS 1999-2000 survey indicates that women who live in male-headed households with their mother-in-law have lower decision-making power than other women—especially with regard to their own health and that of their children. This problem is often mitigated if women have greater contact with their natal family, who can support them in their health-seeking decisions.⁶⁹

⁶³BDHS, 2004

⁶⁴ See, for example, Bairagi 1986; Bicego and Boerma 1993; Mosley and Chen, 1984; Muhuri 1995; Ware 1984. For the relationship with child health, see Alam 2000; Bairagi 1995; Bhuiya and Chowdhury 2002; Bhuiya et al. 1995; Koenig, et al. 2001; and Muhuri 1986. For the relationship with nutrition, see Chen, et al. 1981; and Trapp et al. 2004.

⁶⁵ BDHS, 2004

⁶⁶ See, for example, Hadi, 2001; Hadi et al, 2001; Nanda, 1998; Schuler and Hashemi , 1994; Schuler et al, 1997

⁶⁷ Ahmed et al, 2000

⁶⁸ See Haider et al, 2000, cited in Rahman et al, 2003.

⁶⁹ Rahman, et al, 2003. This is a phenomenon across the northern parts of South Asia where proximity to natal home enhances women’s well-being. In Uttar Pradesh, India (Bloom et al, 2001) controlling for factors such as education, age, and household structure, women with stronger ties to their natal family had significantly higher

2.34 The BDHS 2004 did not permit us to identify which women lived with their mother-in-law. We were able to identify which women lived in a household where another married woman was present, indicating a joint family household. We found that this was not significantly associated with lower use of maternal health services.

2.35 We did find that a *higher level of spousal communication on health issues* (indicated by whether the woman had discussed HIV or family planning with her husband) was associated with a significantly higher probability of obtaining iron supplementation and postnatal checkups. Women who have better communication with their husband did better on these (albeit limited) aspects of maternal health care utilization.

2.36 The BDHS also shows that substantial proportions of women (and especially younger women) report that they cannot go alone to a health facility. Other studies in Bangladesh have found that mobility constraints negatively affect women's receipt of care before, during, and after delivery.⁷⁰

2.37 We find that if a woman reports that she can go to a health center alone, she is only more likely to have *iron supplementation* during pregnancy. Women's mobility is not significantly related to the other indicators of maternal health service utilization in our analysis. This probably indicates that the ability to go alone to a health facility is not as much a predictor of access to care as a proxy for security and norms of women moving alone.

2.38 Another indicator of women's autonomy also shows a similarly nuanced relationship with access to maternal health care. We find that women who earn cash and have a say in how their earnings are spent do not have significantly different use of maternal health care services than women who do not earn cash. Household wealth is controlled for, so this does not capture merely the effect of the fact that women from poorer households are more likely to work for wages than other women.⁷¹ On the other hand, if a woman earns cash but has no say in how the money is spent — reflecting very low empowerment within her household — she has a sharply reduced probability of seeking care if she has complications of pregnancy, and also of obtaining trained help at delivery. Therefore control over earnings does not necessarily enhance access to care but lack of control does sharply reduce access to maternal care.

2.39 **Women's age and parity are strongly associated with utilization of maternal care.** The risks arising from pregnancy and birth are highest among the youngest and the oldest women. For the former it is due to lack of readiness for motherhood and their overall low status in the household and for the latter it is perhaps because of cumulative maternal depletion. The BDHS 2004 shows that the risk per birth among women over age 35 is nearly ten times higher than the risk per birth among women between 15 and 24 years of age. Controlling for birth order, we find from our analysis of the BDHS 2004, in keeping with other studies, that the youngest women (aged 15-24) and the oldest women (aged 40-49) are the least

decision-making power over their maternal health care, as well as greater freedom of movement and control over finances. They were significantly more likely to use antenatal care and safe delivery care. In Punjab, India, Das Gupta (1990) found that women who deliver at their parents' home were likely to experience far higher infant survival than those who delivered at their husband's home.

⁷⁰ Goodburn et al., 1995; Rahman et al., 2003

⁷¹ We also find that women who report that they work but do not earn cash are more likely to use antenatal care services. This is difficult to interpret, since it is not clear why work without compensation would improve outcomes. One possibility is that they work on the family farm. Most rural women do such work, and typically do not report it when asked about employment.

likely to obtain maternal health care. Thus, the women who are at greatest maternal risk are least likely to access the services that can help to mitigate those risks.

2.40 There are large urban-rural differentials in use of maternal health services. As elsewhere in the developing world, not only the supply of services but also the demand for services is higher in urban areas. For example, urban women are more likely than rural women to believe that ANC checkups are necessary, and also more likely to receive ANC. Rural women also tend to wait longer before their first ANC visit, with a median of 5.4 months pregnant at first visit (among those receiving any ANC), compared to a median of 4.6 months for urban women⁷². However as discussed above, the government has actively sought to reduce the rural-urban gap in service coverage.

**Box 2.1: Gonoshasthaya Kendra (GK):
Improving Maternal Health through Institutional Innovation and Accountability**

Gonoshasthaya Kendra (GK) was founded in 1972 with a project in Savar upazila that aimed to improve the quality of life, and especially the health, of the rural poor by ensuring affordable health services. It has expanded impressively over the last 35 years to cover a broader range of services, including reproductive and child health, and basic education, as well as tertiary care to over a million people in 592 villages located in 16 upazilas across 11 districts. It is now the second largest health service provider in the country after the Ministry of Health and Family Welfare.

In its areas of activity GK has already exceeded the MDG for infant mortality a decade ahead of time, while the rest of the country remains at a level two-thirds higher. On maternal mortality, GK has achieved a rate of 186 per 100,000 live births, 42 percent lower than the national average. An additional decrease of 23 percent, or 43 deaths per 100,000, is required to meet the MDG—well within its reach given the decline of 113 deaths that GK achieved between 1993 and 2002. Part of the reason for this success is surely that GK's coverage includes 100 percent of the poor, including the very poor and destitute. And it does all of this at very modest unit costs, estimated at the level of the formal state sector.

What are the main characteristics of the GK model? First, GK provides the whole range of health care from a specialized teaching hospital to community workers and is thus most comparable in scope with the public system. Second, GK's unit costs are low and thus replicable across the country. Third, GK has kept full records of its patients and their background since its early days and currently there is a statistically reliable household data series covering fifteen years allowing us to look at impact and examine the dynamic impact of changes over time. Fourth, GK carries out detailed verbal autopsy on all cases of child and maternal mortality, increasing accountability among stakeholders and serving as a useful source of data. Finally, unlike many NGOs GK works in partnership with local government in a way which allows the model to be replicated across the country.

Source: Adapted from World Bank (2007)

2.41 The BDHS shows that the urban-rural gap has been steadily narrowing. In 1993-94, rural women were half as likely as urban women to receive ANC care, but by 2004 they were two-thirds as likely. Moreover, by 2004 the percentage receiving ANC from trained nurses or midwives had equalized in urban and rural areas. Our results show that, as expected, rural women are significantly less likely to use antenatal care or trained help at delivery. However, they are more likely to obtain iron supplements. This may reflect a greater effort to provide this simple service in rural areas through outreach services such as home visits and satellite clinics, using workers who are not necessarily qualified enough to provide more elaborate medical services.

2.42 There are no significant regional variations in utilization of maternal health. The BDHS data indicate that in maternal mortality, Rajshahi and Khulna divisions have better outcomes than average, while Sylhet and Chittagong divisions have worse outcomes than average. Using verbal

⁷² BDHS, 2004

autopsies, NIPORT 2003 derived rough estimates of maternal mortality by administrative division, and found that the MMR varies from a low of 223 per 100,000 live births in Rajshahi to 471 per 100,000 in Sylhet. Similar regional differences are found in maternal body mass index, antenatal tetanus immunization, child immunization coverage,⁷³ and child mortality rates.

2.43 Our multivariate results on *access to maternal health care* are broadly in line with these previous estimates, but they do not present a strong pattern. Overall, they indicate that women in Chittagong receive somewhat less by way of maternal health services than in the other administrative divisions, and that outcomes are slightly better in Khulna (as well perhaps as Rajshahi and Sylhet). This may partly reflect longstanding regional differences in the coverage and quality of services, as well as in demand factors.

2.44 The BDHS data also show strong evidence of programmatic efforts to reduce these disparities: for example, the 2004 BDHS showed that Sylhet had made rapid strides in the overall ranking of divisions according to the proportions of women receiving antenatal care.

C Synthesis and Conclusions

2.45 This chapter addressed one of the prime remaining challenges in health care in Bangladesh – maternal health. It is notable that our analysis finds that supply factors seem to have little significant relationship with maternal health service utilization. The BDHS 2004 found that the service being “too far” away was barely a factor in reported reasons for not using antenatal services. However, we were not able to assess quality of care and the extent to which this impedes demand. Demand-related factors therefore, appear to be the major constraint to improved maternal health outcomes.

2.46 We find that women’s education is by far the most powerful predictor of service use, and that media exposure — another factor relating to information — is also significantly related to several aspects of service use. The second most powerful predictor of service use is household wealth. Issues related to women’s empowerment were less consistently related to utilization of maternal health services, except in extreme situations such as not being allowed to have a say in how their own wages are spent. *Thus, the main constraint does not appear to arise from low female autonomy: it arises primarily from lack of knowledge of the need for services and from financial constraints.* We make five sets of recommendations to improve access to maternal health services:

2.47 **Step up the efforts on education and access to information:** Bangladesh has shown that intensive health campaigns such as immunization, sanitation and family planning have had huge impacts on the health status of its population. The task is now to turn attention to maternal health and nutrition and embark upon the same kind of innovative campaigns as it has in the past. Experiences from NGOs such as Gonoshasthyo Kendro show that awareness campaigns targeted at different groups – mothers-in-law, mothers-to-be and husbands – have positive results.

2.48 **Design information dissemination efforts that reach everyone in a community:** Information campaigns should carry the message that routine health care is important for the mother and the child, and these messages must reach not only women of childbearing age, but also adolescent girls, their future husbands, and community opinion-leaders. The GoB is making some effort in this direction, and indeed it seems that NGOs in particular have had some success in raising service use through social mobilization. However, it is apparent that the GoB needs to make much more use of its regular information dissemination machinery to raise awareness of the need for these services.

⁷³ Jamil et al., 1999; Bhuiya et al., 1995; World Bank, 2005a

2.49 Complement efforts to increase demand for services with provision of affordable services: This can be done either through subsidies applicable to all or based on some form of means testing. The GoB is making efforts on this front, but studies indicate that the provision of means-based subsidies could be applied more transparently so that potential patients can have some assurance of what they will be required to pay.

2.50 Initiate institutional reform that places accountability of service providers closer to users: Currently, Bangladesh is one of the most centralized systems of governance and public service providers owe accountability to tiers above rather than to their clients below. Box 3.3 on the GK interventions shows that when local bodies are involved in monitoring health services, both quality and access improve, leading to dramatic improvements in maternal mortality.

2.51 Increase the understanding of quality of services and the extent to which this impedes demand: We were unable to analyze the extent to which quality of services inhibit demand. Earlier studies have shown high levels of doctor absenteeism in Bangladesh⁷⁴, and anecdotal evidence also points to casual treatment of pregnant women, both of which are likely to depress perceptions of the quality of available care.

⁷⁴ See Chaudhury and Hammer, 2004