Extended Abstract:

Out-of-pocket expenses for Maternity Care in Rural Bangladesh: A Public – Private comparison

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A bstract:

This paper examined out-of-pocket expenses incurred by women for availing maternal health care services at public and private health facilities. The survey was conducted in 2010 where 3,300 women, who had given birth in the previous 12 months during data collection period, were interviewed. Information on costs incurred to receive antenatal, delivery and postnatal care services were collected. Findings reveal that the majority of women reported paying out-of-pocket expenses for availing maternal health care services both at public and private health facilities. Out-of-pocket expenses include registration, consultation, laboratory examination, medicine, equipments, transportation and other associated costs incurred for receiving maternity care services. On average, women paid US$3.6 out-of-pocket expenses when receiving antenatal care at public health facilities and US$12.4 at private health facilities. Similarly, women expensed 1.5 times more for normal delivery (US$42.3) and 1.4 times more for cesarean delivery (US$136.2) at private health facilities compared to public health facilities.

INTRODUCTION

The Fifth Millennium Development Goal calls for a reduction in the maternal mortality ratio by 75 percent between 1990 and 2015 [1]. In Bangladesh, maternal mortality declined by 40 percent from 322 deaths in 2001 to 194 deaths per 100,000 live births in 2010 [2]. Bangladesh appears to be on track to achieving the primary target of MDG 5. But this achievement is mainly quantitative while qualitative improvement is negligible. Despite this recent achievement, still, the country has one of the highest maternal mortality ratios (MMR) in the world [3].

With a population of around 150 million, Bangladesh is the 7th most populous country in the world [4]. It is predominantly a rural country and only 26 percent of its population lives in urban areas and also Bangladesh, being a low income country with a vast majority of its people living in poverty [5]. Like this situation, Bangladesh continues has to face a number of major challenges, including getting access to health care services. The health care delivery system in Bangladesh can be broadly divided into the public sector and private sector, and each has a number of tiers of service delivery. This structure has been developing and changing over time, such as, government set a three-tier health care service structure for the people living in the rural area, which include household level domiciliary services, union level institutional services and upazila level institutional services [6]. Recently, the role of the private sector has increased with the rapid growth of private clinics and hospitals. But private facilities are mostly available in urban areas where more affluent people reside. It means that the rural as well as poor people are more dependent on public health facilities [4, 7]. Parallel to the development of the private sector

clinics, there has also been a growth of NGOs (non-governmental organizations) providing health care to the poor. Utilization of skilled attendance at delivery almost three times less in rural areas compared to urban areas and also it is seven times less among the poorest (9%) compared to the richest (63%) households [8].

The majority of poor and middle-income countries - even the most aid dependant - the biggest source of finance in the health sector is out of pocket (OOP) expenditure. This finance is mainly spent in the private sector [9]. In Bangladesh, the total health care expenditure is borne by government (35.7% of total) and private persons (64.3% of total) [5]. OOP payments for health can cause households to incur catastrophic expenditures, which in turn can push them into poverty. Bangladesh has one of the highest rates of catastrophic illnesses which drive up 3.8% of the population into poverty every year [5]. OOP spending was found to be major source for paying for the delivery care for most of the households. Borrowing, using household savings, and financial assistance from relatives were also found to be important in paying for the delivery care [10]. Around 71% of births in rural Bangladesh takes place at home [11]. Home delivery is preferred as it is associated with low cost [12] and delivery care at facilities is considered only for emergency obstetric care (EmOC). Notwithstanding their lower levels of utilization, poor households often spend a larger proportion of their income than those who are better-off, and end up making catastrophic payments [13].

In Bangladesh, historically, supply-side financing of health care services has been the backbone strategy for improving the access of poor households to essential health care services [14]. But, it is now acknowledged that maternal health programs have failed to serve a large proportion of the poor and vulnerable groups in rural areas of Bangladesh. Supply-side barriers include: non-availability of doctors and drugs; discriminatory behavior of providers; and lack of an effective cost-exemption mechanism. There are also demand-side barriers that inhibit women from seeking antenatal care (ANC), delivery, and postnatal care (PNC) services, including lack of information about when or from where to obtain treatment and women's awareness of potentially life-threatening conditions during pregnancy, delivery, and after delivery [15]. Other obstacles to seeking treatment include high indirect costs, transportation costs, intra-household preferences, and socio-cultural norms. Due to these reasons, most deliveries are conducted by untrained persons that results in high maternal mortality [16]. So, utilization of the services by the poor population remains comparatively low and is of great concern to society [14].

To address this equity issue, in 2006, the Government piloted a demand-side financing scheme (popularly known as the maternal health voucher program) in 21 upazilas (sub-districts) and expanded to 33 upazilas in 2007. The selected poor women under DSF scheme receive a package of essential maternal health care services, as well as treatment of pregnancy and delivery related complications. In addition, they receive cash incentive of Taka 2,000 (US$29) and a gift box of about Taka 500 ($7) for availing of safe delivery either in the facility or at home in presence of skilled birth attendant. They are also entitled to receive transportation cost of Taka 500 ($7) from home to the designated health facility, and additional Taka 500 ($7) for out-going referral to the District Hospital. This program also provides supply side financing to the service providers [17]. This program has been expanded to another 11 upazilas in 2010. Population Council with funding from the Bill and Melinda Gates Foundation has been evaluating the impact of voucher programs in five countries including Bangladesh [18]. There is a paucity of evidence describing

how RH services delivered through public, for-profit or non-profit organization. And also limited understanding of their effect on the quality of care received by clients and on levels of service utilization, especially among the poor and underserved. Most importantly, there is a very few study on evidence what make the difference among different settings of facilities and which is responsible for poor women' poor RH seeking behaviors.

As a part of evaluation activities, Population Council conducted a baseline survey in selected new DSF and non DSF areas. This article used information collected during the baseline survey to compare out-of-pocket expenses incurred by women for availing maternal health care services both at public and private health facilities and identifies key components of OOP expenses to develop cost-subsidization model for them (marginalized population) in rural Bangladesh.

METHODOLOGY

The baseline study was a cross-sectional survey of women 18-49 years of age who had delivered in the year preceding the survey. This article is written on the basis of the information was collected before introduction of DSF program from 22 upazilas. Where 11 upazilas were selected for DSF program and 11 upazilas were selected as control areas. Baseline survey was conducted during May-July 2010 to collect information on respondents' socio-economic and demographic characteristics as well as service use and cost of each service. A total of 3,300 women were interviewed using a structured questionnaire. OOP was separated into registration fees, consultation/doctors' fees, medicines, tests, transportation costs and others costs. The main limitation of the study is the probability of recall bias of actual cost of each service component. In addition, this study did not cover all sorts of OOP expenses for each service.

Data analysis

The unit of analysis was the women aged 18-49 years and had delivered a baby in the year preceding the survey. The main focus of the analysis was the OOP expenditure to avail maternal health care services at a facility. Univariate and bi-variate analyses were applied to calculate the OOP expenses associated with the utilization of maternal health care services from the public and private health facilities. All cost amounts are presented in Taka. One US $ is equivalent to BDT 70.00 Taka (period average) in 2010, July, Bangladesh Bank.

RESULTS

Out-of-pocket expenses

The main intention of the article was to assess OOP expenses of each maternal health care services expensed by the respondents. Information about cost of ANC, delivery and PNC services were collected from women who received services from a service provider or at a facility. Women were requested to record expenses on card/registration fees, consultation fees, laboratory examination, medicine, round trip transportation and any other associated costs.

ANC services

Utilization

Utilization of ANC services and Out-of-pocket expenses
Results revealed that about 72% of women received first, 54% second and 39% third ANC check-up either at an institute or at home. Almost one third (28%) of total pregnant women did not seek any ANC services. Table 1 presents the utilization patterns of ANC services. Finding shows that private health facility plays an important role in providing antenatal care services. Among the service recipients, almost one-third (29%) of women received first ANC check-up at home, 38% of women received ANC check-up at private health facilities and 27% received the services from public health facilities. Almost similar evidence was observed in case of second and third ANC.

Table 1 Type of visiting place for antenatal care check-ups (in percent)

Visiting Place	First ANC	Second ANC	Third ANC
Home	*29.2*	*32.7*	*30.8*
Public sector facility	*26.7*	*25.5*	*26.4*
District Hospital/Medical College	1.3	1.1	1.7
Maternal and Child Welfare Center (MCWC)	3.0	3.3	3.2
Upazila Health Complex (UHC)	9.7	8.7	11.1
Union Health and Family Welfare Center (HFWC)	10.2	10.0	8.3
Satellite Clinic/EPI Outreach Site/Community Clinic	2.5	0.8	0.6
NGO facilities (Static/Satellite clinic/Mission clinic)	*5.6*	*6.3*	*5.8*
Private facilities (Private Hospital/Clinic/Chamber/ Traditional Doctor)	*37.8*	*35.5*	*37.1*
N	2,371	1,772	1,294

Table 2 presents the average costs (per visit) of service components incurred by women for ANC check-up at public and private health facilities. The service component includes registration fees, consultation fees, medicines, laboratory tests, round trip transportation costs as well as others associated costs. Findings revealed that almost one fourth (23%) of women received ANC services without expensed any money as majority of them received ANC services at their home. Findings reveal that the average OOP expense was 3.4 times higher at private health facilities (US$12.4) than that of public health facilities (US$3.6) to receive ANC check-up.

Expenditure on medicine accounted the largest component of OOP expenses both at public and private health facilities. On average, medicines represented over 52% of OOP expenses at public health facilities and 36% at private health facilities. Besides this, lab test was the second largest component of OOP at public and private health facilities. Among the different components of service costs, major differences between public and private facilities, were found in medicine purchased from service provider which was about sixteen times higher at private health facilities

than public health facilities and consultation fee was about ten times higher at private health facilities. Almost similar evidence was observed in case of second and third ANC visits.

Out-of-pocket expenses:

Table 2 Average cost of service components for ANC services by type of health facility

Service Components	Type of health facility			
	Public		Private	
	N	Avg. cost	N	Avg. cost
Card/registration fees	616	1.5	893	1.5
Consultation fees	606	14.5	787	140.9
Laboratory test	601	58.8	738	256.6
Medicine purchased from service provider	629	1.9	852	31.1
Medicine purchased from outside	569	131.0	681	310.9
Round trip transportation cost	602	37.7	777	108.2
Others	618	6.5	843	16.2
Total of average costs		251.8		865.5

Utilization of delivery care services and out-of-pocket expenses

Table 3 describes the place of last delivery reported by women. Findings suggest that home deliveries are still prominent at rural areas in Bangladesh where only 20% of deliveries were conducted at health facilities. Only 11.6% deliveries were conducted at private health facilities and 7.6% at public health facilities. Among facility based deliveries, 36% were normal, 56% were caesarean and 8% were others (forceps/vacuum, face, vaginal breech delivery etc.). Almost three fourth (77%) caesarean case done in private facilities and 22% conducted in public and only one percent caesarean performed NGO clinic.

Table 3 Percentage of women reported place of their last delivery (in percent)

Places	Total
Home	*80.2*
Public sector facility	*7.6*
District Hospital/Medical College	2.0
Maternal and Child Welfare Center (MCWC)	0.8
Upazila Health Complex (UHC)	4.6
Union Health and Family Welfare Center (HFWC)	0.2
Private facilities (Private Hospital/Clinic/Chamber)	*11.6*
NGO/Other facility	*0.6*
N	3300

The average costs of each service components incurred by women for normal delivery care at health facility has been presented in Table 4. The major components of OOP expenses were medicine followed by consultation fee and round trip transportation. Findings reveal that the cost of medicine was slightly higher at public health facilities than the private health facilities. However, the average cost of consultation fee was 6.2 times and round trip transportation was 1.3 times higher at private health facilities than the private health facilities. Findings revealed

that women expensed almost 1.5 times more for normal delivery care at a private health facility than the public health facility ($42.3 vs. $29.0).

Table 4 Average cost of service components for normal delivery services

Service Components	Type of health facility			
	Public		Private	
	N	Avg. cost	N	Avg. cost
Card/registration fees	118	1.0	68	3.8
Consultation fees	106	143.8	27	891.1
Laboratory test	143	12.9	67	5.2
Medicine purchased from service provider	124	59.3	41	475.9
Medicine purchased from outside	83	1,076.5	20	895.0
Round trip transportation cost	101	415.9	29	540.7
Others	109	317.5	32	150.3
Total of average costs		2026.8		2962.1

Like normal delivery, expenditure on medicines was still the most dominant component of OOP expense at both types of facilities for cesarean delivery. Remarkably, it represented 70% of total OOP expenses at public and 33% at private health facilities. Similarly, the share of OOP expenses on consultation fee at private health facilities (34%) was quite higher than the public health facility (8%). The average consultation fee was almost 6 times higher at private health facility than the private health facility. Findings show that the OOP expense for caesarean delivery at private health facilities was quite higher than the public health facilities ($136.2 vs. $98.8).

Table 5 Average cost of service components for caesarean delivery services

Service Components	Type of health facility			
	Public		Private	
	N	Avg. cost	N	Avg. cost
Card/registration fees	62	0.7	253	5. 9
Consultation fees	42	561.9	62	3,259.7
Laboratory test	60	42.5	228	20.6
Medicine purchased from service provider	49	640.8	100	1,945.9
Medicine purchased from outside	28	4,833.6	54	3,153.9
Round trip transportation cost	36	369.2	69	673.1
Others	36	466.7	94	473.9
Total of average costs		6915.3		9533.1

Utilization of postnatal care services and out-of-pocket expenses

Table 6 shows only one-fifth of the respondents reported having a postnatal check-up during their last pregnancy. But half of them visited health facility and half received PNC check-up at

their residence. Findings reveal that the prominent source of postnatal check-up was the private facilities (38.7 percent).

Table 6 Visiting place for PNC (in percent)

Places	Total
Home	*47.0*
Public sector facility	*13.5*
District Hospital/Medical College	3.0
Upazila Health Complex	7.5
Maternal and Child Welfare Center (MCWC)	1.4
Union Health & Family Welfare Center	1.3
Satellite /EPI Outreach Site/Community Clinic	0.4
NGO Satellite Clinic	*0.8*
Private facility	*38.7*
Private Hospital/Clinic/Chamber	27.8
Traditional Doctor's home/Chamber	7.1
Pharmacy	3.7
Others	0.2
N	630

Table 7 shows the average cost of different OOP expenses spent to receive PNC services from a health facility. Like other services, medicines accounted as the biggest component of OOP both at public and private facility. At public health facility, it was about 75% of total OOP and at private health facility it was over 50% of OOP. The second and third highest OOP expense was round trip transportation and consultation fee. On the contrary with ANC and delivery care, it was found that women expensed slightly higher for receiving PNC services at public than private health facilities ($13.3 vs. $9.9). The major variations of components of costs between public and private health facility were observed in case of consultation fee and medicine.

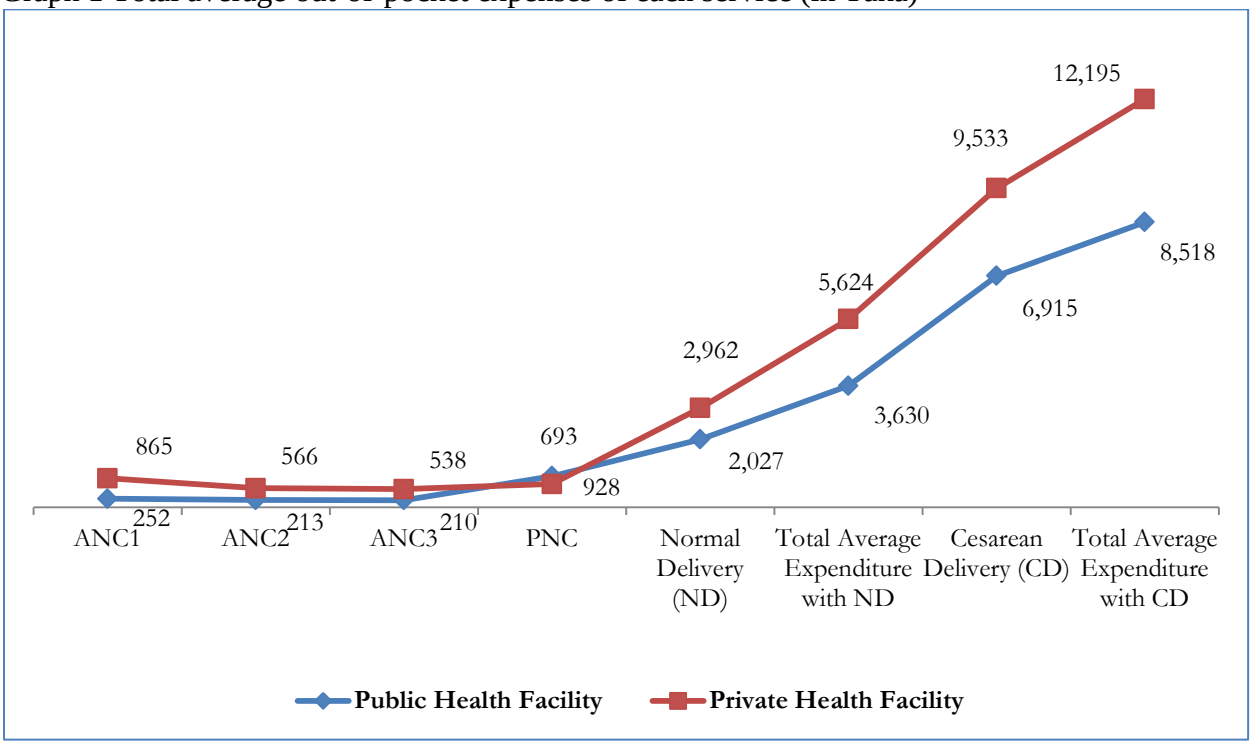
Table 7 Average cost of service components for PNC services

Service Components	Type of health facility			
	Public		Private	
	N	Avg. cost	N	Avg. cost
Card/registration fees	80	1.2	239	0.2
Consultation fees	79	38.5	209	93.0
Laboratory test	83	25.7	234	26.8
Medicine purchased from service provider	83	19.6	226	97.3
Medicine purchased from outside	66	685.5	190	362.5
Round trip transportation cost	70	142.9	198	106.5
Others	78	14.9	223	7.0
Total of average costs		928.3		693.3

Total average out-of-pocket expenses of each service

The following graph shows the average cost of 3 ANC, PNC, normal delivery, caesarean delivery and total cost for whole package with normal and caesarean delivery both at public and private health facility. Findings suggest that all service expenditure is comparatively higher when women visit to private health facility rather public health facility. Findings also reveal that women required expensing on average Tk. 5,624 to receive package of maternal health care services with normal delivery from private health facility which is almost 1.5 times higher than public health facility. Similarly, analysis shows that on average women expensed Tk. 12,195 to receive same package with caesarean delivery from private health facility which is almost 1.4 times higher than public health facility.

Graph 1 Total average out-of-pocket expenses of each service (in Taka)



DISCUSSION AND CONCLUSION

In Bangladesh, most of the reproductive health programs are directed towards improving maternal health and family planning services, yet maternal mortality remains one of the prime challenges, only for not availing services from a skilled provider or health facilities. The article examined the key components of OOP expenses incurred by women for availing maternal health care services and compared these expenses for both at public and private health facilities.

This article found among all basic maternal health care services, usage of ANC was comparatively higher than other services e.i. women receive first ANC visit at a high rate, but the rate slips down in 2nd and 3rd visits. On the other hand, only one-fifth of the respondents reported having a postnatal check-up during their last pregnancy. Likewise the BDHS data, this

result also confirmed that home deliveries are still prominent at rural areas in Bangladesh. In rural Bangladesh, lack of education and poverty are the main obstacles to seeking treatment [21]. Usually, mothers receive delivery care or PNC services at health facilities when they face any life-threatening complications [22].

For both ANC and Delivery care, the usage of private health facilities are much higher than public facilities, particularly for complicated and high risk services like caesareans but/though the costs incurred at significantly higher at private facilities. But this picture is not same in the service of PNC, normally women having higher education and belongs top wealth quintile receives PNC services [11]. On the other hand, PNC visits are likely to incur large expenses if there are any obligation /complications. Even in that case, medicine uses to be bought outside the facility and thus does not reflect in the costs incurred at the facility like public or private, because only medicine taken about three quarter of (75%) of total OOP.

Findings reveal that medicine, laboratory test, consultation fee and round trip transportation cost were the major components of OOP expenses at public or private health facilities. Among the components costs, round trip transportation cost was found same for both public and private facilities. In private health facilities, the key component of costs was in consultation fees, which was significantly higher than public facilities. This is because in public facilities, the consultation fees are near zero. So this may also explain the higher use of private facilities since the medicine costs are near equal, if the only difference is consultation fees, people opt for private as they equate private to higher quality. Although public sector maternity care services are officially free in Bangladesh, some studies have documented the myriad hidden costs to patients associated with "free" obstetric care (such as hospital fees, corruption and medical supplies), which frequently result in an untenable financial burden to families [22]. Further study needs to be done for better understanding. /clearly exploring its underlying factors.

The recent shift in program development from supply-side driven to demand-side for improving the situation of non-accessibility of poor pregnant mother to health facility. A recent evaluation revealed that DSF program has had an unprecedented positive effect on utilization of maternal health services [8]. The results of this article show various patterns that might serve as an impetus for modifications and reallocations of funds. For instance increasing allowances for medicine and consultation fees and also round trip of transportation cost are warranted since these are the largest components of OOP. It might also be worthwhile to reallocate monies to have larger subsidies for complications and more complex care like caesareans.

It was also observed that a quite large proportion of women are visiting private health facilities and it was significant, it could be important to the government and national health financing strategies to engage the private health sector in a way that it enables poor women to access RH services in the private sector more easily and of high quality. This could be ensured through accreditation of private facilities and their inclusion in programs such as DSF. Therefore, government needs to find long-term strategies, such as increasing the number of facilities and allocating resources based on the requirements of population.

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REFERENCES

1. United Nations (UN), *the Millennium Development Goals Report 2007*, New York, 2011.
2. National Institute of Population Research and Training (NIPORT), MEASURE Evaluation, The University of North Carolina-Chapel Hill, and ICDDR,B, *Bangladesh Maternal Mortality and Health Care Survey 2010 - Preliminary Results,* NIPORT, ICDDR,B, Dhaka. Bangladesh, MEASURE Evaluation, and University of North Carolina-Chapel Hill, 2011.
3. Population Action International, *Maternal Health Supplies in Bangladesh,* New York, Washington DC, USA, 2010.
4. Khurshid Alam and Shakil Ahmed, Cost Recovery of NGO Primary Health Care Facilities: A Case Study in Bangladesh, *BMC Cost Effectiveness and Resource Allocation,* 8(12), 2010. Available at: http://www.resource-allocation.com/content/8/1/12.
5. Bangladesh Health Watch (BHW), *Bangladesh Health Watch Report 2011: Moving Towards Universal Health Coverage,* James P. Grant School of Public Health, BRAC University, Dhaka, Bangladesh, 2012.
6. Ferdous Arfina Osman, Health Policy, Programmes and System in Bangladesh: Achievements and Challenges, *South Asian Survey*, 15(2), pp. 263-288, 2008.
7. Abbas Bhuiya, SMA Hanifi, Farhana Urni and Shehrin Shaila Mahmood, Three Methods to Monitor Utilization of Healthcare Services by the Poor, *International Journal for Equity in Health,* 8(29), *2009*. This article is available from: http://www.equityhealthj.com/content/8/1/29.
8. General Economics Division (GED), *The Millennium Development Goals, Bangladesh Progress Report 2011,* Bangladesh Planning Commission, Government of the People's Republic of Bangladesh, Dhaka, Bangladesh, 2012.
9. Institute for Health Sector Development, *Private Sector Participation in Health,* 27 Old Street, London EC1V 9HL, United Kingdom, *2004.*
10. Mohammad Nasir Uddin Khan, Zahidul Quayyum, Hashima-E-Nasreen, Tim Ensor, Sarah Salahuddin, *Household Costs of Obtaining Maternal and Newborn Care in Rural Bangladesh: Baseline Survey, 2009,* BRAC Research and Evaluation Division, Bangladesh, University of Aberdeen, UK, 2009.
11. National Institute of Population Research and Training (NIPORT), Mitra and Associates, and Macro International, *Bangladesh Demographic and Health Survey 2007,* NIPORT, Mitra and Associates, Dhaka and Macro International, Calverton, Maryland, 2009.
12. Kaosar Afsana and Sabina Faiz Rashid, The Challenges of Meeting Rural Bangladeshi Women's Needs in Delivery Care, *Reprod Health Matters* 9, pp.79-89, 2001.
13. The World Bank Institute, *Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementation,* Washington, D.C., 2007.

14. World Health Organization (WHO), *Health System in Bangladesh*, http://www.ban.searo.who.int/EN/Section25.htm.
15. National Institute of Population Research and Training (NIPORT), Mitra and Associates, and ORC Macro, *Bangladesh Demographic and Health Survey 2004*, NIPORT, Mitra and Associates, Dhaka and ORC Macro, Calverton, Maryland, 2005.
16. Rahman, Md. Moshiur, Ubaidur Rob, and Tasnima Kibria, *Implementation of Maternal Health Financial Scheme in Rural Bangladesh, DBRHCP Final Report*, Population Council, Dhaka, Bangladesh, 2009.
17. L. Hatt, H. Nguyen, N. Sloan, S. Miner, O. Magvanjav, A. Sharma, J. Chowdhury, R. Chowdhury, D. Paul, M. Islam, and H. Wang, *Economic Evaluation of Demand Side Financing (DSF) for Maternal Health in Bangladesh*, Abt Associates Inc. Bethesda, Maryland, 2010.
18. Ubaidur Rob, Moshiur Rahman, and Ben Bellows, Evaluation of the Impact of the Voucher and Accreditation Approach on Improving Reproductive Behaviors and RH Status: Bangladesh, *BMC Public Health*, 11(1), 2011. Available at: http://www.biomedcentral.com/1471-2458/11/257.
19. World Bank and Management Science for Health (MSH), *Reproductive Health at a glance Bangladesh 2011*, available at: *www.worldbank.org/population*.
20. Population Council, *World Health Report (2010) Background Paper, No 20, Health services utilization and out-of-pocket expenditure at public and private facilities in low-income countries*, Population Council, Geneva, Switzerland, 2010.
21. Mosammat Rashida Begum, Anowara Begum, Ehsan Quadir, Sayeba Akhter, and Latifa Shamsuddin, Eclampsia: Still a Problem in Bangladesh, *MedGenMed*, 6(4): 52, 2004.
22. Michael A. Koenig, Kanta Jamil, Peter K. Streatfield, Tulshi Saha, Ahmed Al-Sabir, Shams El Arifeen, Ken Hill and Yasmin Haque, Maternal Health and Care-Seeking Behavior In Bangladesh: Findings from a National Survey, *International Family Planning Perspectives*, 33(2):75–82, 2007.