

Performance-based Incentive for Improving Quality Maternal Health Care Services in Bangladesh

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INTRODUCTION

Despite sincere efforts by the government and private sector, maternal health outcomes in Bangladesh are not satisfactory. The current maternal mortality ratio (MMR) is 194 per 100,000 live births, which must be reduced to 143 by 2015 to attain the Millennium Development Goal (MDG) 5 (NIPORT, MEASURE Evaluation & ICDDR,B, 2011). More worryingly is the low utilization of maternal health services from facilities. About 77 percent of deliveries occur at home, where traditional birth attendants with inadequate knowledge and skills are the primary source of service providers (NIPORT et al., 2011). Half of the pregnant women receive antenatal care (ANC) from any medically trained providers, only one in four women attain the four recommended ANC visits and one-third of women receive postnatal care (PNC) within 48 hours of delivery (NIPORT et al., 2011).

The Government of Bangladesh has established a comprehensive maternal, neonatal and child health service delivery system from grassroots to higher levels, yet these services are not optimally used. Both demand- and supply- side barriers hinder the optimal utilization of maternal health care by the women. At the demand-side, lack of awareness, cost associated with services, transportation obstacles, mobility and poor service quality are the major factors influencing women not to seek services (Ahmed & Khan, 2011).

On the other hand, supply-side barriers include shortage and/or unavailability of doctors and nurses, absenteeism, lack of drugs and logistics, negative attitudes and behaviors of service providers, insufficient consultation time and poor competency. Often service providers lack ability to perform required services appropriately and are not accountable and responsive to the patients in terms of comprehensive diagnosis and treatment due to weak and/or limited supervision and monitoring systems (Rahman et al., 2011; Andaleeb, Siddiqui & Khandaker, 2007). Shortage of service providers along with poor performance is a common phenomenon in the health sector (Talukder & Rob, 2009). It is also evident that sub-standard remuneration and poor or no incentive are the major reasons of shortage of skilled health professionals in the public sector (UNICEF, 2008).

To address the demand-side barriers, the government introduced demand-side financing scheme to increase the access to and utilization of maternal health care services by the poor from the health facilities. Findings suggested that the strategy increased the service volume at the institutional level where institutional delivery increased among the beneficiaries compared to women who were not covered by the scheme (Ahmed & Khan, 2011; Schmidt, Ensor, Hossain & Khan, 2010). The reason is that the scheme subsidized the costs incurred by the beneficiaries while receiving services from health facilities. The existing infrastructure of public health facilities in Bangladesh especially in the rural areas are not fully equipped to response the rapid increase in the use of institutions in terms of bed, drug and logistics and health personnel (Schmidt et al., 2010). Thus, service providers are at higher risk of losing motivation to provide quality services. The demand-side financing scheme increased the quantity of services provided

at the health facilities, but it did not address the quality of care and promoted performance at individual level instead of institutional level (Rob et al., 2012).

To improve service volume and quality of care of maternal health services, an operations research on pay-for-performance or P4P scheme for the service providers at institutional level was implemented to increase the utilization of maternal health services as well as to improve quality of care through a quality assurance mechanism. This paper examined the effectiveness of performance-based incentive model for service providers to improve quantity and quality maternal health care services.

METHODOLOGY

Study design

The study employed a separate sample pre-test/post-test control group design with one control and two intervention arms. A combination of performance-based incentives and demand-side financing was employed in one intervention arm (Strategy I) and the other arm received performance-based incentives only (Strategy II). The control arm was not exposed to any interventions. The strategies were employed in the two intervention arms for 14 months for the service providers at institutional level.

Conditional financial incentive was provided to the institution for obtaining quantitative and qualitative targets. Quarterly targets for services were set for the institution as a whole. Managers, direct and indirect providers, and administrative and support staff were entitled to receive incentives.

Study sites

Bangladesh has a comprehensive public-sector service delivery infrastructure to provide health care services at all levels. In the rural areas, there are Upazila Health Complex in sub-district level and District Hospital in district level (as referral for Upazila Health Complex) while medical college hospitals and postgraduate institutes and hospitals are located in urban areas.

From three districts, 12 government health facilities were the intervention sites while four facilities in another district served as the control site. Four facilities from each district – one District Hospital and three Upazila Health Complexes – were exposed to the interventions of the study.

Data collection

To measure the impact of the intervention activities, data were collected through service statistics, population-based surveys among service providers, visits of ‘quality assurance group’ and client exit interviews.

PERFORMANCE-BASED INCENTIVE MODEL

Performance-based incentive model is an innovative strategy as it provided incentives at the institutional level instead of the individual level. Both demand- and supply-side incentives were provided to motivate women and service providers to improve the utilization of services. Each facility received a

conditional financial incentive for the service providers at the supply-side while poor pregnant women received incentive to subsidize out-of-pocket costs to receive services. Provider performance was linked with both quantity and quality of services. In addition, the referral system was strengthened through providing referral incentive to field workers for referring appropriate clients to intervention facilities.

The maternal health team within the health facility was divided into sub teams or service units to provide services. Quality Assurance Teams (QATs) were formed for each unit, e.g., emergency room, labor room, operation theater, autoclave room, female ward, child ward, pharmacy, store, laboratory, antenatal and postnatal care unit, and family planning unit. A leader was selected for coordination of the activities of each QAT unit through monitoring and supervision of service performance routinely with a QAT tool. They also identified needs and challenges in the service delivery of respective unit.

Quality Assurance Group (QAG), an external professional body consisting of specialists from nearby higher level facility, i.e., Medical College Hospital, was formed to assess the facility performance every three months by using monitoring tools with standard indicators. QAGs visited each facility quarterly, assessed the performance and quality of different service units, identified gaps and mentored the QATs where necessary and graded the facilities to improve maternal health services. QAG, in consultation with respective facility-based project implementing committee, determined performance targets, performance achievements, and eligibility for incentive.

Financial incentive was provided quarterly based on quantitative and qualitative performance of the health facility. Quantitative target was set for the individual health facility based on the previous year's performance for antenatal care, institutional delivery, postnatal care and family planning counseling. On the other hand, qualitative targets were set on the basis of a weighted score on a 100 point scale to measure the performance in quality of care.

The performance of a health facility was measured through service statistics and the quality assessments by QAGs. The facility received performance incentives based on the achievement of quantity and quality targets and the recommendation of QAGs.

FINDINGS

Significant changes occurred due to the intervention in service volume, quality of care (QOC) and client satisfaction related to maternal health services.

Table 1 shows significant changes in service volume of antenatal care, institutional delivery and postnatal care. For Strategy I which is a combination of performance-based incentive and demand-side financing, there was 254 percent increase ($p < .01$) in the service volume of antenatal care, while it was 57 percent ($p < .01$) for Strategy II which provided performance based incentive only. Similarly, institutional delivery significantly increased for both Strategy I ($p < .01$) and Strategy II ($p < .01$) by 114 percent and 32 percent respectively. Utilization of postnatal care also increased for both strategies – 278 percent increase for Strategy I ($p < .001$) and 100 percent for Strategy II ($p < .01$). However, comparison group shows an increase, which is much lower than the intervention groups. It has been further understood from the Table 1 that increase in the service volume is higher for Strategy I than Strategy II.

Table 1: Changes in Maternal Health Service Volume

		Strategy I		Strategy II		Comparison	
		Benchmark	Performance	Benchmark	Performance	Benchmark	Performance
Antenatal care	Mean	138	489**	534	840**	505	634
	Percent change		254%		57%		26%
Institutional delivery	Mean	44	94**	139	184**	213	230
	Percent change		114%		32%		8%
Postnatal care	Mean	37	140***	140	280**	255	343
	Percent change		278%		100%		35%

***p<.001; **p<.01. Benchmark – average volume per quarter for one year before intervention; Performance – average volume per quarter over the intervention period.

Assessment of the impact of the intervention at the facility level shows more encouraging findings. Remarkable increase in the service volume has been observed in the Upazila Health Complexes due to P4P interventions primarily due to staff strength, number of beds at the facilities and physical accessibility. Before intervention, each of nine facilities conducted approximately 30 deliveries or less in a quarter, while during intervention, five facilities conducted roughly 90 deliveries quarterly. Being a referral facility, District Hospital received and managed increased number of complicated cases by doubling the institutional deliveries (Rob, Talukder, Rahman, & Hena, 2012).

Table 2 indicates the changes in quality of care score for Strategy I and Strategy II before and after intervention which was measured on a 100 point scale. Quality of care score was not measured in the comparison facilities, and therefore not included in the analysis. Comparison of qualitative performance between pre-intervention and intervention indicates that overall pre-intervention quality score of 54 percent increased significantly to 77 percent at the end of the intervention period, marked with 42 percent increase (p<.001) . The improvement was more pronounced at the Strategy I facilities relative to that of the Strategy II facilities since the benchmark score of quality of care was significantly lower for Strategy I facilities relative to the Strategy II facilities (p<.001). Eight facilities under Strategy I scored 50 percent on quality performance before intervention, which increased to 76 percent due to the interventions, while four facilities under Strategy II improved score from 62 to 79 percent.

Table 2: Change in Quality Score

	Pre-intervention (%)	Intervention (%)	Change (%)
Strategy I	50	76	50***
Strategy II	62	79	28***
Strategy I & II	54	77	42***

*** $p < .001$. Score measured on a 100 point scale.

In the follow-up study¹ of the P4P project, quality of care score was measured for the control facilities, which allowed a comparison across the intervention and control facilities. At the inception of the follow-up study, the intervention facilities initially had higher QOC score caused by the P4P interventions compared to the control facilities (77 percent vs. 60 percent). At the end of the follow-up period, average QOC score of the intervention facilities rose to 90, which is significantly higher relative to the control facilities that achieved average score of 64 (Talukder et al., 2012). Over the two intervention periods the QOC score increased gradually from the average score of 54 to 90 percent, which indicates that bringing about changes in the quality of care is a time consuming process (Rahman et al., 2011).

Table 3 shows the changes in clinical compliance by the service providers before and after interventions. Encouragingly, 24-hour service provision at the health facilities significantly increased for both strategies ($p < .05$). Use of partograph to manage labor moderately increased after intervention for Strategy I compared to Strategy II ($p < .10$) while significant increase has been documented for active management of third stage labor (AMTSL) for Strategy II ($p < .05$).

Table 3: Clinical Compliance by the Service Providers during Service Provision

Issues	Strategy I		Strategy II	
	Baseline (%)	Endline (%)	Baseline (%)	Endline (%)
<i>Practice during maternal health service</i>				
Use partograph to manage labor	48	62*	59	73
<i>N</i>	64	84	75	37
Active Management of Third Stage of Labor (AMTSL)	71	77	53	79**
<i>N</i>	110	83	75	28
24 hours services for EmOC	92	99**	91	100**
<i>N</i>	135	99	79	55

*** $P < .01$, ** $p < .05$, * $p < .10$;

AMTSL – an evidence-based, low-cost intervention used to prevent postpartum hemorrhage with the component of administration of a uterotonic agent (e.g., oxytocin) within one minute after birth of the baby and after ruling out the presence of another baby, controlled cord traction with counter-traction to support the uterus and uterine massage after delivery of the placenta

¹ The follow-up study implemented the intervention for three months. Earlier P4P OR project implemented the intervention for 14 months.

The provider survey indicated that the group work has become more structured in complying with guidelines – Strategy I and II site facilities are two and six times, respectively, more likely to follow structured guidelines relative to the comparison site facilities controlling for the baseline performance (Strategy I OR=2.39, 95% CI, 1.03, 5.55, $p<0.043$; Strategy II OR=5.84, 95% CI, 2.75, 12.42, $p<0.00$) (Rahman et al., 2011). Findings from exit interviews suggest that the overall client satisfaction score was highest in Strategy I sites relative to both the Strategy II and comparison sites. Both Strategy II and the comparison sites performed better in terms of providers' behavior relative to Strategy I sites. Client satisfaction was significantly higher at the Strategy I relative to Strategy II sites for not requiring extra monetary payment (Rahman et al., 2011).

DISCUSSIONS AND CONCLUSION

The performance-based incentive introduced at the institutional level increased the overall quality of care after the interventions with the simultaneous increase in the quantity of antenatal, postnatal and institutional delivery at the facilities. Incentive payments to management, services, administrative and support staff based on their level of efforts contributed to ensure teamwork, motivation and performance level as a way to improve outcomes.

Incentive scheme contributed immensely to increase service volume and improve quality of maternal health services. Improvement in the quality of services can be attributed to two interventions: external QAG and internal QAT. Regular supervision, mentoring and counseling, on the spot training offered by the QAG members from higher-level facility increased providers' skills in offering better services while QATs implemented a system of regular performance review to address internal quality gaps. This managerial improvement was supported by several infrastructural improvements. Changes were especially noticeable in the labor room, obstetrics ward, autoclave, and antenatal/postnatal and family planning corner (Rahman et al. 2011). Service providers were encouraged to practice partograph, AMTSL to manage delivery in the intervention areas. Also, team work as well as 24-hour emergency care services increased. Prior to the intervention, each sub-district hospital conducted less than 20 deliveries in a quarter, which increased to more than 70 deliveries in a quarter during the intervention period.

Considering the maternal health situation in Bangladesh, performance-based incentive strategy has potential for motivating service providers in offering quality maternal health care, which will eventually increase the utilization of maternal health services from facilities towards reaching Millennium Development Goals (MDGs) 5.

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