

# Financing the costs of maternal care: cross-read of recent studies

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## Executive Summary

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Tim Ensor

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## **Acronyms and abbreviations**

BEOC	Basic Essential Obstetric Care
CEOC	Comprehensive Essential Obstetric Care
EHCS	Essential Health Care Services
HMGN	His Majesty's Government of Nepal
MCHW	Maternal and Child Health Worker
MDG	Millennium Development Goals
NRS	Nepali Rupees
NSMP	Nepal Safer Motherhood Project
PFP	Private for Profit Providers
TBA	Traditional Birth Attendant
USD	US dollars
VDC	Village Development Committee

## **1. Introduction**

As Government and Development Partners design and implement the next stage of the Nepal Safe Motherhood Programme there is increasing interest in the evidence on costs of, and financing mechanisms related to, safer motherhood programmes.

In the last six months four reports have been produced that relate to this area. These are:

- Alban, A. (2004). Costing of the Nepal health sector program-implementation plan with unit cost of essential health services (EHCS). Kathmandu, World Bank.
- Borghi, J., T. Ensor, B. D. Neupane and S. Tiwari (2004). Coping with the Burden of the Costs of Maternal Health. Kathmandu, Nepal Safer Motherhood Project, part of HMGN Safe Motherhood Programme, Options, DFID and HMGN.
- MacDonagh, S. and R. Neupane (2003). Private for profit maternity services, Nepal case study, final report, ref AG 3128. London, Options & Kings College London for DFID, UK and Department of Health Services, HMGN.
- Neupane, B. D. (2004). Emergency Fund Study. Kathmandu, NSMP/Options for Nepal Safe Motherhood Programme, HMGN.

The purpose of this short report is to identify synergies (or discrepancies) in findings, clarify uncertainties, identify knowledge gaps and recommend areas for further work in the costing and finance fields. Where relevant, the report also considers the recent costing of NSMP activities:

- S.R. Poudyal (2004) Costing analysis, Kathmandu, NSMP/Options for Nepal Safe Motherhood Programme, HMGN.

### **2.1 Overview of studies**

Each of the reports was developed for a different purpose and audience and the findings and recommendations reflect this.

#### ***i) Costing of the Nepal health sector program (A. Alban)***

This study was commissioned by the World Bank to calculate the costs of delivering an essential health service package (EHCS). Cost calculations for individual programmes and sub-programmes were based on a wide range of studies and expert best judgements - described as a rapid costing approach. Where there is a well-established programme with high coverage, costs were derived from the current programme expenditure with appropriate allowance

for increasing coverage where required. Where a programme is not well established, as with safe motherhood where coverage remains low, recurrent costs were based on available unit cost estimates together with allowances for investment and other items necessary to scale up these programmes in an effective way.

The perspective of costing was the supply side so that non-facility costs to the household, such as transport were not factored in. The study added an overhead of 40% and an allowance of 15% for monitoring and evaluation. Where specific programmes had already calculated a higher rate those rates were used.

### ***ii) Coping with the burden of the costs of maternal health (Borghetti et al)***

Although there are many efforts to address both demand and supply barriers to accessing good quality maternal care in Nepal, there has been little evidence quantifying the different costs faced by women and their impact on access and coping strategies. This study examined costs through a household survey of recently delivered women, a willingness to pay survey of women of reproductive age and a facility study which examined policies on user charges and exemptions as they relate to maternal health care. It also examined existing Nepali schemes for mitigating the costs of ill-health and the extent to which lessons might be transferred to address cost barriers of maternal health.

### ***iii) Private for-profit (PFP) maternity services, (MacDonagh and Neupane)***

This report was part of a three-country review study (Nepal, Tanzania and India) on private for profit maternity services. The objective was to review the evidence on the extent and nature of private maternity services, their regulatory base and impact on public sector provision. Recommendations for policy including better regulation of services and involvement of private providers in the delivery of health sector goals for safe motherhood are discussed.

### ***iv) Emergency Fund Study (B. Neupane)***

Communities have established emergency loan funds with the assistance of NSMP for financing the costs of maternal care. The study set out to evaluate the performance of these funds undertaking a sample survey in five NSMP districts from both the first and second phase of the project. The report makes suggestions for increasing the effectiveness, sustainability and coverage of loan funds.

### 3. Issues arising from the cross-read

#### 3.1 Costs of delivery

Three of the four studies provide an estimate of the costs of delivery care. Borghi et al and MacDonagh and Neupane estimate household costs based on survey data. In the former case this was based on random sampling of home and a census of institutional deliveries drawn from a stratified sample of districts and VDCs. The second study is based on an exit survey at facilities visited during the study. The sample size in the latter case was not sufficient to estimate the costs of complicated deliveries. For normal vaginal delivery some comparison across studies is possible. The estimate in the Alban (World Bank) study is based on bottom up costing of staff and medical supplies.

**Table one: Cost of vaginal delivery in three studies, NRS<sup>1</sup>**

	Borghi et al	Alban	MacDonagh & Neupane
Sample =	720		60
<b>Government</b>			
Delivery cost	678		1,427
Extra cost	873		372
Total	1,551	1,250	1,799 (1,565) <sup>2</sup>
<b>Private for profit</b>			
Delivery cost	1,311		2,958
Extra cost	572		2,083
Total	1,883	-	5,041
<b>Home</b>			
Medical worker	879		400
TBA	778		386 (terai) 53 (hill)
Untrained TBA	731		
Family/friend	410		Low

Given the differences in methodologies the results for the costs of delivery in a government facility are surprisingly similar. The composition of the cost is rather different although this may be a definition issue of what constitute extra costs. The figure reported in the Alban study is lower. This difference may arise from a number of factors. One is that the Alban study only includes salary costs and not additional informal payments to staff. Second it only includes essential medicines and supplies procured at low price. The MacDonagh study suggests that there are wide differences between the price of drugs at different retail outlets. Drugs are also a key area of induced

<sup>1</sup> 72 rupees to one US dollar.

<sup>2</sup> The averages were based on those that responded with a positive figure. This lower figure adjusts the figure downwards to average across the entire sample.

demand. These two factors may mean that patients spend far more on medical supplies than is medically necessary.

There are substantial differences in the cost of private for profit and home services between the studies. A reason for the large difference in PFP costs is that the MacDonagh survey was carried out in “large urban and district centre locations” (annex 2) in the hill and terai areas where the prices charged by providers are likely to be substantially higher than in more remote mountainous locations. This does not explain the much lower costs of home delivery reported in this survey although some of the difference may be that in-kind costs are not included in the facility exit survey (MacDonagh & Neupane). In the terai, although not in the hill areas, similar costs for TBA and medical workers are found in both studies although the average is substantially higher in the Borghi et al study (based on a substantially larger sample).

### **3.2 Estimates of costs of resource requirements**

Two of the studies (Alban and Borghi et al) examine the resource requirements of a strategy for safe motherhood. Alban estimates a EHCS component consisting of antenatal, delivery and postnatal care, abortion and neonatal services. Service costs are estimated for 2004 at around 20 percent coverage and 50 percent coverage by 2015 (following MDG targets). The costs are based on per person recurrent costs multiplied by number of deliveries (normal vaginal and complicated). Recurrent costs include staff time, supplies and operating expenses of the facility. These costs are then augmented by estimated capital investments required to upgrade the EOC system including safe blood supply, an overhead of 40% and monitoring and evaluation of 15% of the total costs.

The costs estimated in the Borghi et al study take a household perspective. The study estimates costs to the household at the facility, additional costs of services, transport and opportunity cost (cost of lost productive time to carers). These costs are then used to develop resource scenarios for the total and per capita costs of current and expanded delivery of services. Although a household perspective is taken it appears that since more than 90 percent of recurrent costs are covered by patients. These should, therefore, account for most of the cost of supplying services.

A comparison of the estimates is not straightforward. The total estimate of resource requirement given by the World Bank study is US \$ 28 million for only 20 percent coverage. In contrast cost of skilled attendance suggested by Borghi et al study is estimated at US \$41 million for 100 percent coverage, including demand side costs such as transport. Several adjustments are required to make a valid comparison. First, the delivery costs for the SM package must be extracted from Alban’s study since these are the only costs considered by Borghi et al. These account for around 58 percent of SM costs. Second, costs in Alban must be expanded to 100 percent coverage. Finally, the costs must be divided up into recurrent, investment and overhead elements. When these adjustments the estimates are seen to be roughly

comparable. Alban finds that for 100% coverage the recurrent service delivery cost (staffing, facility operating expenses, medicines, other supplies) is USD \$0.91 compared to \$0.92 per capita in Borghi et al (table two). In addition Borghi et al estimates additional transport and opportunity costs of \$0.74.

**Table two: Comparison of delivery costs (US dollars per capita)**

	World bank Study (A. Alban)	NSMP (Borghi et al <sup>3</sup> )	NSMP costs (Poudypal)
Per capita delivery costs (USD)	20% coverage	100% coverage	
Recurrent service delivery costs	0.18	0.91	0.92
Investment in blood supply	0.12	0.61	0.20 to 0.47 <sup>4</sup>
Overhead	0.37	1.85	
Demand creation			0.17
Transport and opportunity cost			0.69

The costs of investment in blood supplies add substantially to Alban's costs. There is very little detail contained in the report on composition and derivation of these costs. The largest element of cost are the combined overhead and monitoring and evaluation which add \$1.85 per capita to the total costs. The basis for the size of this overhead is unclear. In the report this is discussed as covering a range of items including heating, buildings maintenance, transport as well administrative costs of managing the system. Yet the costing of the CEOC services include nights in hospital, which include many of the recurrent (but not capital costs) of providing these services. Alban recognises that further analysis of these overhead cost is warranted.

A recent costing study of NSMP (S. Poudyal) looked at the investment costs of developing the service provision and increasing access activities. This includes investments in buildings, medical equipment, training of clinical and non-clinical staff and blood banking requirement to deliver improved BEOC and CEOC services.

The capital costs for increasing service access costs are expressed in total and per woman of reproductive age. For comparability with the costs in table two these were converted into dollar per capita levels weighted for the proportion of population living in terai, mountain and hills. On average the cost of these investments is estimated to be \$0.47 with \$0.25 in the terai, \$0.48 in hills and \$1.9 in mountainous areas<sup>5</sup>. The average is substantially less than the figures given by Alban (\$0.61 for blood banking and \$1.85 for other overheads). Super-overhead costs, such as district and national management costs are not included and this would add to the figure. It should be noted that since these are investment costs, they are not incurred each year. An

<sup>3</sup> Based on skilled attendance with conservative referral strategy (scenario three) referred to chapter six of the report.

<sup>4</sup> The higher figure is the per capita investment cost. The lower figure is an estimate of annualised investment plus 30% running costs.

<sup>5</sup> Based on an exchange rate 72 NRS to one US dollar.

estimate of recurring costs are not given but we could assume that the investments last on average for eight years (and average of longer value for buildings and shorter for some medical equipment). If an allowance of 30 percent for running costs (particularly high for blood banking) is added to this value, the annualised investment cost for across all districts becomes \$0.20.

The study by Poudyal also included investments in communities and behaviour change designed to increase demand for services. The costs do not include running costs of services or ongoing funding for loan funds. It would, therefore, seem legitimate to add these costs (\$0.17 per capita) to the costs of transport funds (\$0.69 per capita) estimated by Borghi et al to give an overall 'demand-side' cost of services (\$0.86 per capita).

### **3.3 Coping with the costs of maternal care: role of emergency funds**

Borghi et al emphasise the importance of providing access to resources in the community to cover the cost of care. More than 50 percent of the cost of normal delivery and 27 percent of the cost of a caesarean section was on transport. In addition opportunity costs of seeking care at a facility were also significant. Even if a facility covers the costs of services, this still leaves a substantial burden of costs on households.

One of the key financing interventions used in NSMP districts is the development of emergency funds. These are linked to community organisations but receive some start-up (seed) funding from NSMP. B. Neupane suggests that funds are well valued by their members. Repayment rates are high and the average size of loan, 900 RS but up to 5,000, meets a significant portion of the costs although there is still a substantial gap between the loans and the cost of care. Some borrowers (12%) were, however, required to borrow from other moneylender often at high rates in order to repay their loan.

The emergency fund study found that the loan groups most likely to be effective were those organised by women's (mother's) groups. By contrast the study suggested that dedicated emergency fund groups suffered from fund fatigue - people are tired of joining new groups. Conversely those based around projects or community groups deal with so many different issues that the issue of maternal health gets diluted. A major concern with funds, particularly those run outside of community organisations including those organised by women's groups, is that they often lack the administrative expertise to maintain good records and accounts. Training is considered essential to ensure that these groups are able to sustain the funds in the future.

Borghi et al found very few people (2 percent of respondents) that reported making use of emergency funds to cover the costs. This is despite half the sample being drawn from NSMP supported areas. This study is based on a survey and so it is possible that those using were simply missed and that the actual rate of using funds is higher. The study also found no differences in drug costs even though revolving drug funds are promoted in NSMP districts.

The literature review of Borghi et al also emphasises the poor record of sustainability in other countries of loan funds.

Borghi et al also report that while use of the funds appears relatively low among woman who have recently given birth, there do appear to be a number of important and statistically significant differences between NSMP and non-NSMP areas. These include:

- Quicker response rates from institutional delivery staff called to assist at home births
- Higher proportion of home deliveries using safe delivery kits
- Lower average payments for home delivery in NSMP districts
- Greater preference for birth in a CEOC facility
- Lower surgery fee

These findings suggest a generally greater awareness of the importance of skilled attendance and improved supply of services (as reflected in higher utilisation and lower cost).

Both the B. Neupane and Borghi et al studies reinforce the important point that access to finance alone is not sufficient to promote skilled attendance and referral. Low utilisation of emergency loan funds is partly attributed to the lack of awareness of the importance of skilled delivery and appropriate referral. This is reflected in the Borghi et al study finding that the willingness to pay for non-emergency delivery in a CEOC facility was little higher than for a home delivery. Although financial reasons for having a home delivery were important, women also suggested that as is the feeling that facility delivery is only necessary in an emergency and the importance of a more convenient and comfortable home environment.

Both studies suggest that while loan funds are an important source of assistance, they are no panacea for the problems of financial access to maternal health care. Loans may not be suitable for two key groups.

i) High-risk women requiring referral

The main advantage of loan funds is in helping families to manage their money and cash flow across time, to smooth out fluctuations in expenditure and income. Implied in this is that it will mainly benefit those households that on average have sufficient funding to cover essential expenses such as maternal health care costs. Conversely loan funds are unlikely to meet the financing needs of those that are chronically poor. The emergency fund study suggests that poor and other vulnerable groups, such as low caste, may have less access to emergency funds. This appears to be partly because they are less able to contribute even a small regular subscription to join the fund. It may also be because they are less accepted into these groups. This is important given that these costs have a much greater proportional impact on these households who appear to have to pay as much as other households despite the national guidelines to exempt the poor from facility charges.

ii) The poor

Loans are usually made once a woman is in labour when it is clear that services available in a health facility will be required. This raises the important question of what type of financing mechanisms is appropriate in areas, which are beyond a 'safe' distance from a CEOC facility. In many areas, particularly in mountain and hill areas, much of the population is situated more than 2 hours travel time from a CEOC facility. This can be regarded as the maximum time a woman can be managed in the absence of emergency interventions in the event of haemorrhage before death occurs. If an emergency occurs, then referral during labour could be too late for many women. At the same time even if loans are available to finance women to reach facilities before they are in labour, the evidence suggests that it would be difficult to persuade them to utilise funds for a 'non-emergency'.

### **3.4 Dual practice and maternal health**

MacDonagh and Neupane emphasise the prevalence of dual practice suggesting that perhaps 75 percent of doctors and 50 percent of nurses working in the public sector also maintain a private practice. This may have both good and bad consequences. Maintaining a private practice may detract from their public sector duties: public doctors are usually only be available at the public facility for about four hours a day. This was suggested by women not choosing private care in questioned during the study (page 40). It also leads to substantial referral from public to the private sector as doctors suggest that women see them in their private chambers (page 42). Discussion with patients and practitioners also suggests that private facilities and practitioners might be reluctant to refer patients back to the public sector either to avoid losing revenue or to ensure that mistakes created by private sector practice are not detected.

At the same time being able to maintain a private practice ensures a subsistence income that permits them continue with their public employment. Practitioners wish to maintain a public position to gain prestige and experience but generate income from private practice. The key issue is that there is no transparent or effective way of limiting the malign effects of this pattern even though to stop dual practice might either prove impossible or severely detrimental to recruitment of good public sector professionals. It is acknowledged that this is an under researched area in Nepal although the effects have been considered in neighbouring countries such as Bangladesh (Gruen, Anwar et al. 2002). A further impact of private sector work is that private doctors may get their 'private' patients preferential access to public services particularly where a caesarean section is required.

The evidence suggests that it would be difficult and possibly undesirable to eradicate dual practice arrangements, at least in the short term. Less drastic measures might help to moderate the negative consequences. One measure is to make the practice more transparent, allowing doctors to practice privately from public facility at specified times. This could increase the level of control over the hours staff spend on public and private duties. It would also help to

reduce the perverse incentive stimulated by the use of pharmacies as practice chambers. A second measure is to ensure that patients know about the range of choices they have and that they don't have to use private practitioners or go to any particular pharmacy.

### **3.5 The non-facility private sector**

Both Borghi et al and MacDonagh and Neupane underline an important feature of the maternal health services in Nepal. While PFP facilities account for a very small proportion of deliveries (around 1 percent) private services more broadly defined account for the majority of transactions related to delivery care. Most women deliver at home. Where assistance is provided, a large number receive help from 'private' TBA (unqualified or qualified). In addition much of the cost of services, including transport, unofficial payments and medicines is effectively a funding flow to the private sector. There appears to be evidence of a preference for private providers. Women prefer to deliver at home with a local TBA rather seeking care in a facility (except in emergency). There is a perception that private facilities offer faster service. Where women attend a public facility for delivery, many may make 'private' or unofficial payments to a range of health staff to ensure prompt service.

Despite the strong reliance on private sector provision in its many forms, MacDonagh and Neupane emphasize the weak system of regulation. In practice doctors and nurses can often practice without formal registration. Even when they are registered, there are few systems for holding practitioners accountable for mistakes (as the case study on page 45 makes clear). Informal private practitioners such as TBAs are largely unregulated.

### **3.6 Information and managing uncertainty**

A theme taken up in the Borghi et al study is the inherent uncertainty that is present in relation to the costs of services at a facility. Even though households have a reasonably good sense of the average cost, the wide variation could both put women off travelling to a facility for services and make it difficult to plan for these costs. Some of this variation is also apparent in MacDonagh and Neupane who report a study which found large variations in the costs of the same prescriptions at different pharmacies. In some cases this may be because patients are directed to pharmacies in which the doctor has an interest. The study also found, in common with the public facilities reviewed by Borghi et al, that PFP providers generally bill on a fee for service basis. Few price lists are publicly available and none offered fixed (package) prices for common procedures. Doctors are usually given rooms by pharmacies free of charge provided that they encourage their patients to buy medicines there. Some doctors also gain commission from referrals to pharmacies and diagnostic services.

## **4. Conclusions**

There is considerable consistency in the findings of the four reports reviewed. Agreement or near agreement was found in the following important areas:

- Overall resources required to expand maternal health care provision
- Cost of facility based services
- Importance of information and uncertainty as a key disincentive to use of services.
- Key role of the private sector as a hidden provider of maternal health care services

Although they have much in common, the reports have different emphases and there are few areas of obvious disagreement or contradiction.

- Figures for cost of attended delivery at home were somewhat different. In particular much high costs reported by Borghi et al compared to MacDonagh and Neupane. Although some of this difference may be due to methodology, there is a case for developing a better understanding of these costs given that the actual cost of these services is an important driver to the overall costs of the future maternal health strategy.
- There is an apparent contradiction in the findings of use of loan funds between B. Neupane and Borghi et al. The latter appears to indicate a lesser role for the funds than found in the former study. The reason for the difference is perhaps explained by the orientation of each study. Borghi et al was looking generally at all users of maternity care while B Neupane concentrated only on funds and users of those funds. What seems clear is that loan funds, despite some weaknesses, have been much appreciated by those utilising them. The broader point, which is supported by both studies, is that the constituency of those for whom loan funds provide a viable way of covering costs is limited. Other mechanisms will have to be developed for Groups, particularly low income, that fall outside this constituency.

The cross-read of studies suggests a number of areas where there is need either for more research or to test out the impact of mechanisms to stimulate the uptake of services.

A number of areas for further work and research are suggested by this report.

### ***i) Overhead costs of maternal services***

Although there is good agreement on the main recurrent service costs of delivering maternal services, the size of overhead that must be added to this figure to finance administration, capital, monitoring and other costs is quite unclear. This makes a substantial difference to the final cost of services. In fact this is an issue not only for maternal care, but applies to the financing of the entire EHCS. The costing of NSMP provides a rather lower figure for investment costs (between \$0.20 and \$0.47 per capita) although these do not include 'super-overhead' costs. Given the size of these costs further work in developing a better understanding of their composition would seem worthwhile.

***ii) Skilled attendance and role of the private sector***

It is neither affordable nor would it be popular to attempt to get all women to deliver in public facilities. Increasing the provision of skilled attendants at home delivery is generally recognised as a key element of a feasible strategy. It is unclear whether this could be done with public health workers alone. Developing a system to contract and provide incentives with workers such as MCHWs to provide skilled attendance is likely to be important. Systems of accreditation linked to contracting might become a more effective method of regulating and improving quality than the current morass of legal requirements and registration. Developing a role for the private sector appears to have been considered as part of the strategy for delivering EHCS to the underserved ((Rana 2001) quoted in MacDonagh and Neupane). Considerable investment in mechanisms to develop such a contracting framework will be required.

Extending skilled attendance to a much larger proportion of women requiring delivery services is unlikely to be achieved in the public sector alone. Developing simple and effective contracts with private sector providers could help to extend services to those currently outside the range of public sector services. Such contracts could include payments for skilled attendants perhaps including financial incentives for accompanying women to a health facility in the event of suspected complication.

***iii) Subsidies for the poor***

Emergency loan funds, while providing important cash flow management for the non-poor, are unlikely to ensure financial access to the most vulnerable. They are also unlikely to encourage many women to seek facility based care prior to delivery. Other instruments are required.

One option is that the loan funds are encouraged to cover the needs of the poor through cross-subsidy from richer members. The emergency fund provides evidence that this does indeed happen on a very limited scale. Yet there are also concerns with the overall sustainability of funds and further cross-subsidy make funds less attractive to current contributors. Global evidence suggests that without external funds systems for providing exemptions or subsidies to the poor tend to fail (Bitran and Giedion 2003).

It will be important to test out other methods for providing financial access to the vulnerable. This could include, for example, vouchers for accessing services (tried in countries such as Yunnan China and Indonesia) and increased subsidies for loan funds contingent on being used for poor.

***iv) Information and fixed tariffs***

The role of information on prices of services is an important factor in deterring users from accessing services. The lack of information on the best prices means that consumers are unsure about the total cost of a delivery and unable to obtain necessary items at competitive prices.

Improving the predictability and transparency of pricing at both private and public facilities could help consumers to select cost-effective providers and also plan for the costs of safe delivery. Such measures might include:

1. Establishing fixed tariffs for common procedures that are widely publicised
2. Information on recommended pharmacies offering competitive prices

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