Public-private partnerships to reduce maternal mortality: silver bullet or smoking gun?

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Introduction

Maternal mortality remains a serious public health problem in developing countries and it is prioritised as one of the Millennium Development Goal targets (MDGs). The WHO estimates that more than 500,000 women die due to pregnancy related causes world wide and almost all of these deaths occur in the developing world. Reasons for maternal mortality due to pregnancy complications include obstructed labor and ruptured uterus, postpartum hemorrhage, postpartum infection, hypertensive disease of pregnancy and eclampsia. In India it has been stated that Emergency Obstetric Care (EmOC) is required to tackle such complications, but EmOC is usually not available in resource poor and remote settings (Mavalankar & Rosenfield 2005).

Maternal Health in India

India has a population of more than one billion people, a per capita income of about USD$500, 86 per cent of the population living on less than USD$2 a day. The most recent estimate of the Maternal Mortality Ratio (MMR) is 540 (WHO 2006). This means that more than 100,000 women are dying every year in India due to pregnancy complications, which is more than 20 per cent of all world maternal deaths. In rural areas, where the majority of Indians still live, it is often difficult to access EmOC facilities. Further, many public providers have a shortage of qualified gynaecologists and obstetricians as well as anesthetists[1]. In such cases, women in need of EmOC services have to travel several kilometers to District Hospitals (DH) where the obstetrician and anesthetists might be available, but then barriers like distance, and problems of availability of medicines still remain. Due to these barriers, many women hesitate to travel and seek care far from home. Studies done in the Indian states of Andhra Pradesh, Maharashtra, (Ganatra *et al* 2005) and Rajasthan found that 42% to 52% of maternal deaths occurred at home or in transit to a hospital (Mavalankar & Rosenfield 2005).

The *Chiranjeevi Yojana* of Government of Gujarat

Gujarat is a state located on the western coast of India. The state has a population of about 55 million and is known for its industrial development and progressive private sector. More than 5000 women die every year in the state while delivering babies mostly in remote, coastal and tribal areas. The state MMR has been estimated about 389. As is the case with other states in the country, Gujarat also faces acute shortages of qualified gynaecologists in public health facilities. However, many of the deprived and low-income areas have private gynaecologists available and therefore the Government of Gujarat (GoG) decided to enlist their help in reducing maternal

[1] Unlike many other countries, India does not allow a nurse or a doctor without postgraduate degree to administer anesthesia or perform EmOC services.

mortality. The Chiranjeevi (meaning long life) Yojana (CY) is a scheme based on a Public-Private Partnership (PPP) model in which poorer people can go to empanelled private nursing homes for delivery, and the cost will be borne by the GoG. Moreover, each woman also receives INR 200 towards transport costs and INR50 for the accompanying person. Thus CY aims to reduce the financial barriers between the poor and qualified private providers.

Any qualified private gynaecologist with basic facilities, such as labour and operating rooms, access to blood and anaesthetists, can enrol under the CY. Empanelled private providers (EPPs) receive an advance payment of INR 15,000 upon signing an agreement with GoG and the Chief District Health Officer (CDHO), after which EPPs agree to perform free delivery only for women below poverty line (BPL). EPPs are paid INR1,790,500 (about US$4000) for every 100 deliveries including caesaresn section and complicated deliveries. To discourage unnecessary c-sections, there is no separate or additional payment for them. The remuneration package was designed by an expert panel in which all possible complications (estimated as 15 percent of all cases) have been included (see Table 1).

CY was launched in five poor districts of the state on pilot basis in December 2005, and from January 2007, it has been extended to the entire state. It is considered a successful PPP model, and has received a prestigious Asian Innovations Award by the Wall Street Journal. It has been claimed by GoG that maternal as well as neonatal deaths have been substantially reduced under the CY. The reported number of maternal deaths under CY has been compared with the expected maternal deaths based on the Gujarat MMR and is found to be more than 20 times lower (See Table 2). However, it should be noted that as the number of deaths reported under CY relate only to women who were selected into the scheme, the calculated number of mothers and newborns saved may be subject to selection bias.

Methods

Semi-structured interviews with private providers (n=7) and three district health officials (n=3) in Surat city, Gujarat, were conducted in March 2008 to assess the perceptions, attitudes, behaviours and motivations of key stakeholders with experience scheme participation. From this, we developed a taxonomy to describe the motivations and behavioural response of private providers to PPP for poorer households.

Further, a review of existing descriptive research related to the Chiranjeevi Yojana policy was undertaken to assess the methods that were used by policy-makers to ensure successful implementation of the scheme, along with a literature review of published evidence on the costs and effectiveness of similar voucher schemes.

All studies published from inception of the databases MEDLINE, EMBASE and SCOPUS to week 4 June 2009 were searched using the following key words: public-private partnerships/or cash transfer/or conditional cash transfer/or free care/ or financial assistance/or financial support/ health services accessibility/ or health care utilization/ health program/or medical assistance; AND maternal mortality/or maternal death/or pregnancy complications/or labour complications; AND developing countries/or poor countries/or middle-income countries/or low-income countries/or

third countries/ or third world. Further, a manual search of reference lists of identified studies were hand searched so that studies missed during electronic search could be identified. Finally, Population Council, WHO and World Bank websites were searched for relevant studies.

Findings

(i). Semi-structured interviews

We found that 56 out of approximately 200 gynecologists and obstetricians in Surat district were registered for the scheme. Most of these were located in Surat city, with the remainder in bigger towns, for example Bardoli, which is only about 25 km from Surat. Thus, no private providers from remote areas volunteered to be part of the scheme. Out of the registered 56 EPPs, very few had performed the number of deliveries that would be expected for those eligible under the scheme. Although the scheme appears to be well advertised, the reasons for such under performance were unclear, and as such require further investigation.

There appeared two main motivational factors for EPPs to join the scheme. Either they were new in "practice", and joined the scheme to build "reputation" by performing more deliveries to gain "experience", or they were at the end of their career and wanted to do some charitable service for the poor. None of the EPPs joined the *Chiranjeevi Yojna* in order for those deliveries to part of their mainstream activity. Mid-career gynecologists were less enthusiastic regarding the policy, and some were actively considering quitting from it. Discussion with officials from the CDHO office confirmed that they had received withdrawal applications from some EPPs. Many talked in terms of having no incentive to be part of what they viewed as "charitable" schemes of government. An overriding view of all EPPs is that they saw the scheme less as public-private partnership, but rather a charitable activity to help the poor. Other motivational factors included an expectation that scheme membership would bring with it a greater opportunity to become licensed providers for abortion, through award of MTP (Medical Termination of Pregnancy) certification.

It was observed that some EPPs only take "safe" cases of normal delivery and divert complicated cases to the public hospitals, i.e. "cost-shifting" behaviour. Although the financial package does budget for pregnancy complications, some EPPs refuse to continue the treatment in case of complications requiring EmOC and some warned BPL families before admission that they would transfer them to public hospitals following complications. The rationale provided by EPPs for this is that the cost of treating complications is far more that what is being remunerated under the package, with the result that they cannot afford to treat complications. Some also claimed that the caesarean section rate of 7 per cent budgeted in the government package was totally unrealistic; some claimed a rate of more than 30 per cent.

Discussion with providers also considered the economic and cultural factors associated with scheme implementation. The migrant population account for around 21 per cent of the total population of Surat city (Acharya 2008). Migrants mostly stay in slum-like low-income settlements and do not have documentary evidence like BPL cards that are required to access the scheme. As most of the EPPs are located in better-off areas of the city, many providers felt that poor people fear treatment as they

are apprehensive of some hidden or unexpected charges, even if the scheme is free. *Aanganwadi* workers play a very crucial role in linking the potential BPL beneficiaries with EPPs as they suggest opting for free institutional delivery under the scheme rather than choosing home delivery. Nonetheless, there were reports of EPPs demanding additional money from BPL patients, which clearly breaks the trust between BPL families and *Aanganwadi* workers. Finally, providers felt there was a problem of targeting, with some considering that many beneficiaries are not really BPL, despite holding an entitlement card.

Following Le Grand (1997), the above findings suggest a taxonomy where providers can be characterised as "knights" – "public-spirited altruists", or "knaves" – "self-interest profit-maximisers". The 18th century economist David Hume noted that policies designed on the assumption that all relevant individuals are "knights" are likely to fail if in fact the individuals are predominately "knaves".

A more realistic description however would account for whether an individual is "present-oriented", or whether long-term interests dominate. Further, there is also the possibility of someone being a mix of "knight" and "knave". This mixture seems more plausible; providers in the private sector serve the public (albeit predominately richer sections of the public) through provision of health care, but also have to be concerned with expenditure and income in order to remain in business. It could also be the case that this mixture changes through the "career life-cycle"; early stage career entrants in the private sector wish to be known in the market and establish market-share through good reputation, and strategies such as cost-shifting have potential to damage that reputation and market share; in mid-career, market share and reputation is established, and greater focus is on maintaining or enhancing practice size and target income, with the potential to engage in cost-shifting behaviour; whilst towards the end of career, providers have established target income, can afford not to cost-shift through efficient practice built up over many years, and now wish to "give something back" to society.

What are the implications of such characterisation? Should the CDHO restrict entry to only early career and end of career providers? One immediate problem is that of definition: how would one define early and end career providers? Without such entry barriers, and assuming that private providers are a mix of "knight" and "knave" at any one time, what does than mean for operation of the public-private model? The solution currently adopted - monitoring and regulation of performance - appears appropriate in the face of this uncertainty, as this should serve to diminish the opportunity and therefore probability of self-interested behaviour, if it were to exist. Devising effective monitoring systems are not simple however, and such systems do of course incur costs.

(ii). Literature Review

We identified five studies relevant to the management and operation of the Chiranjeevi Yojana policy.

First, Bhat et al (2007) collected information from a household survey and secondary data from district health officers, beneficiaries and non-beneficiaries of Chiranjeevi scheme. The total sample consisted of 656 respondents; 262 were beneficiaries of the

scheme while 394 were non-beneficiaries. They reported that 89% of Chiranjeevi clients and 87% of non-Chiranjeevi client groups were satisfied with service provision at the health facilities. They also found an increase in the proportion of deliveries attended by skilled personnel for beneficiaries compared with non-beneficiaries: one delivery was conducted at home for the Chiranjeevi scheme beneficiaries compared with 21% home deliveries for the non-Chiranjeevi group.

McQuestion & Velasquez (2007) assessed the effect of two intervention progammes in Peru. First, *Proyecto 2000,* a package of interventions encompassing health education, social mobilization, staff re-training, new supplies and enhanced management, to encourage delivery in nearby public emergency obstetric care (EmOC) facilities. Second, the Maternal and Child Health Insurance programme (*SMI Program)*, directly targeted at the country's poorest, where only those in the poorest wealth quintile were eligible to receive free institutional delivery care. They found that although *Proyecto 2000* improved the quality of care on offer, there was no direct increase in the probability of delivery in public EmOC facilities. However, compared to those not covered, enrolees in the *SMI Program* were twice as likely to deliver in EmOC facilities.

Witter et al (2007) used semi-structured interviews to understand the impact of introducing free delivery care in deprived districts of Ghana in 2003. A total of 65 key informants were interviewed between September to December 2005 to assess scheme successes and failures. On the plus side they found an overall increase in the number of deliveries attended by skilled care. However, they also documented budgeting and management problems; for example, facilities were not happy with the payment rates offered to cover the free delivery, with several considering opting out of the scheme, and one out of six districts where the scheme was operational reverted to charging women for deliveries that were meant to be free.

Devadasan and colleagues (Devadasan et al 2008) used descriptive semi-structured interviews to understand the effectiveness of the Janani Suraksha Yojana (JSY) policy implementation. The JSY is a conditional cash transfer programme introduced in April 2005 in India to promote deliveries in health institutions. Cash assistance was provided to poor women who had three antenatal checks and who deliver in health facilities. Interviews were conducted in four states of India (Maharashtra, Chattisgarth, Orissa and Karnataka). Seventeen members of health teams were selected randomly in the districts and interviewed by trained interviewers. In addition, 22 poor women who had delivered in the previous six months were also interviewed. The main findings were that a large number of beneficiaries expressed dissatisfaction, especially in Orissa where all beneficiaries received only half (Rs 350) instead of full entitlements (Rs 700). Further, there was a suggestion that quality of care fell following introduction of the scheme, as a result of increases in number of deliveries in public health institutions that could not be managed appropriately because of increased workload. The authors also found that the programme suffered from corruption from staff, and suggested strengthening of effective monitoring.

In Bangladesh, Rahman et al (2009) used a before-after study survey design to examine changes in the process of care following introduction of a voucher scheme for poor rural women to improve utilisation of antenatal, delivery and post natal care from trained service providers. They reported institutional deliveries increased from

2.3% to 18%, an increase in the number of women seeking postnatal care services from trained providers from 22% to 60%, and an increase in the proportion of deliveries attended by skilled providers from 5.5% to 22%. Amongst the 82% of women did not attend a health facility for delivery care, the most frequent cited reasons for not attending were "didn't face any problem" (60%), followed by "labor pain started suddenly" (25%). Only a minority (17%) raised service related issues including poor quality of service, unpleasant behavior of providers, long waiting time and unsuitable hours. Descriptions were also given of the implementation process, and it was noted that involvement of local people through community support groups was an important factor in strengthening implementation of project activities.

In addition, we searched for studies that measured the costs and effectiveness (defined in terms of mortality or morbidity or some other measure of health status) of voucher schemes for maternal care. We did not identify any relevant studies.

Summary of Results

We consider that the sustainability and effectiveness of PPPs is likely to depend on private providers' motivations for participating in PPPs. Altruism - a strong concern for reducing health inequalities and improving well-being of poor households – is likely to be a necessary but not sufficient condition for continued participation in the scheme. For example, providers should also be able to at least recover expenditures incurred. Discussion revealed that some do so through cross-subsidisation or other strategies, such as referral of higher risk patients to public providers ('cost-shifting' / 'cream-skimming'). Such strategies may lead to poorer quality of care and reduced health outcomes. From literature and theory we can hypothesise that the likelihood of adopting these strategies is likely to depend on three factors: the strength of the altruistic motive, technical efficiency (the ability of providers deliver care within the fee schedule), and target income.

We also show that there is a very limited evidence base on the effectiveness of PPPs in particular, or voucher schemes more generally. Of the studies identified that reduced fees for delivery or other forms of maternal health care, a number describe a range of budgetary and management problems. However, most studies were able to document a rise in the number of women that received skilled attendance at delivery.

Conclusions

Under the conditions of sound financial management and budgeting, together with well-motivated providers, PPPs such as the Chiranjeevi Yojana policy can be the silver bullet that improves maternal health outcomes and reduces inequalities. However, there is also a danger that it may lead to unintended adverse effects. There is a strong need therefore to learn more about the effectiveness and cost-effectiveness of such schemes through well-designed comparative studies.

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Table: 1 Remuneration Package for EPPs under the CY

Procedure	**Cases per 100 deliveries**	**Cost per procedure (INR)**	**Total (INR)**
Normal Delivery	85	800	68000
Complicated Cases	15		
Eclampsia/Forceps/ Vacuum/ Breech	3	1000	3000
Septicemia	2	3000	6000
Blood Transfusion	3	1000	3000
Caesarean Section	7	5000	35,000
Other costs			
Pre delivery visit	100	100	10,000
Investigation	100	50	5000
Sonography	30	150	4500
NICU support	10	1000	10,000
Food	100	100	10,000
Dai	100	50	5000
Transport	100	200	20,000
Total	100		**1,795.000**

Table 2: Lives saved through the CY scheme (up to September 2008)

Total Deliveries under Chiranjeevi scheme	Expected Maternal Death	Maternal death reported under Chiranjeevi scheme	Mothers saved under Chiranjeevi scheme	Expected New born death	New born death reported under Chiranjeevi scheme	New born saved
235,289	941	46	895	8,941	987	7,954

Source: www.searo.who.int/LinkFiles/FCH_11.Dr**AmarjeetSingh**.pdf

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