A FRAMEWORK FOR ASSESSING QUALITY OF MATERNAL HEALTH SERVICES AND PRELIMINARY FINDINGS FROM ITS APPLICATION IN URBAN INDIA

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ABSTRACT

This paper introduces a framework for assessing the quality of care of institutional maternity services developed by researchers at the University of Southampton. The framework divides quality into two parts: the quality of the provision of care and the quality of users' experience of care. Preliminary findings from the application of this framework within a slum area of Mumbai are presented. Data from municipal and private hospitals were collected using a community survey of 650 women, observation, exit interviews, provider interviews, review of hospital records, and the mystery client approach. Findings provide evidence that quality is far from optimal in both municipal and private facilities. Quality issues identified include a lack of essential drugs, the use of inappropriate procedures that are not evidence-based, users being left unsupported, evidence of physical and verbal abuse and institutional delivery which does not guarantee attendance by a health professional. There is also evidence that the quality of experience of care varies significantly by background characteristics of the woman and her family.

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A framework for assessing quality of maternal health services and preliminary findings from its application in Urban India

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Abstract

This paper introduces a framework for assessing the quality of care of institutional maternity services developed by researchers at the University of Southampton. The framework divides quality into two parts: the quality of the provision of care and the quality of users' experience of care. Preliminary findings from the application of this framework within a slum area of Mumbai are presented. Data from municipal and private hospitals were collected using a community survey of 650 women, observation, exit interviews, provider interviews, review of hospital records, and the mystery client approach. Findings provide evidence that quality is far from optimal in both municipal and private facilities. Quality issues identified include a lack of essential drugs, the use of inappropriate procedures that are not evidence-based, users being left unsupported, evidence of physical and verbal abuse and institutional delivery which does not guarantee attendance by a health professional. There is also evidence that the quality of experience of care varies significantly by background characteristics of the woman and her family.

'The question should not be why do women not accept the service that we offer, but why do we not offer a service that women will accept?'

Mahmoud F. Fatahalla 1998

Introduction

Over 90% of women in India become mothers. Unlike medical conditions that affect sub-sections of the population, often randomly, pregnancy in India affects almost all women quite predictably. At present 58% of these women deliver without skilled assistance during delivery and 66% deliver at home (IIPS and ORC Macro, 2001). The National Population Policy adopted by the Government of India in 2000 (Ministry of Health and Family Welfare, 2000) articulates the government's commitment to the safe motherhood programmes. Among the national socio-demographic goals for 2010 specified by the policy is the target that 80% of all deliveries should take place in institutions by 2010. This target is motivated by the very high levels of maternal mortality currently experienced in India which was estimated to be above 400 maternal deaths per 100,000 live births in 1990 (WHO, 1996a).

The target adopted by the Government of India assumes that institutions in some way provide preferable levels of care to non-institutional delivery. Growing evidence however, suggests that women receive and experience appalling care in some institutions in the developing world. Examples of poor institutional care identified in a number of studies range from the use of inappropriate obstetrical care, such as the routine use of practices that are not evidence-based (Qian et. al., 2001), to unacceptable treatment by hospital staff, such as the use of humiliating unnecessary procedures, lack of privacy and verbal and physical abuse in labour (Campero et. al., 1998). Recent work by the Averting Maternal Death and Disability Network and the …….have identified many examples of shortages of essential drugs and materials, poor staff deployment and other failings in health systems which contribute to the unacceptably high levels of maternal mortality in many countries.

In this paper the findings of a situation analysis of quality of care within institutional maternity services within a slum area of Mumbai are presented. The findings are broadly divided into two groups as defined by a quality of care framework designed during the course of this study; those which reflect aspects of the provision of care by the facility (human and physical resources, referral, information management, systems, use of appropriate technologies and internationally recognised good practice) and those which reflect the client's experience of care (human and physical resources; cognition; respect, dignity and equity; and emotional support) (Hulton et al 2000). The authors use the data to not only examine the quality of care provided and experienced at the case study institutions but to investigate a possible link between perceived and experienced quality of care and choice of provider. This research formed a component of a wider Wellcome Trust funded study into maternity care among the urban poor coordinated by researchers at the University of Southampton and the Centre of Technological and Social Change, a Mumbai based research unit (Matthews et. al., 2000).

More on the Framework

Based on an extensive review of medical, social science and health policy literature, ten different, but closely related elements of quality of care were identified and described (see Box 1). The elements were integrated into a framework which divides care into two broad groups; the first includes those elements that reflect important aspects of the quality of the provision of care; and the second which describes those elements which are more focused on aspects of the quality of the experience of care by clients[1]. For each element criteria, broad standards and selected indicators are suggested (see Hulton 2000 for more detail). A range of methods were then employed to undertake a situation analysis of quality of care within maternity services in the study area using the framework as the intellectual and practical basis for analysis.

The framework draws together a number of distinct yet integrated components of institutional delivery care: care during normal delivery; care during a complicated delivery; psycho-social-cultural care during labour and delivery; hospital logistics and management; and the overarching health system of which the unit is part. The quality of each component is dependent on the quality of the others, therefore their inclusion conceptually (within one broad framework) is important. A fully equipped operating theatre will be inadequate if an anaesthetist cannot be located. Similarly while care in normal delivery may be clinically exemplary, if a woman is unhappy with the psycho-social support she receives, she and her family may prefer that for any future pregnancies she deliver at home with the support of traditional birth attendants.

Quality of care is defined as:

> … the degree to which maternal health services for individuals and populations increase the likelihood of timely and appropriate treatment for the purpose of achieving desired outcomes that are both consistent with current professional knowledge and uphold basic reproductive rights.

This definition incorporates the concepts of both effective and timely access and of reproductive rights. In addition it allows quality to be separated into two constituent parts:

1) The quality of the provision of care within the institution.
2) The quality of the care as experienced by users.

For quality of care to be meaningful these two components of care would need to be consistent with the basic norms of internationally agreed reproductive rights (ICPD 1990).

The division of quality into these two components recognises that use of services and outcomes are the result not only of the quality of the provision of care but of women's *experience* of that care. The provision of care may be deemed of high quality against all recognised standards of good practice but unacceptable to the woman and her family. Conversely, certain aspects of provision may be popular with women but objectively ineffective or even harmful to health.

A quality of care framework: Ten elements of care

Figure 1 Quality of Care Framework

(see page below)

Provision of care

Experience of care

1. Human and physical resources

7. Human and physical resources

8. Cognition

2. Referral system

9. Respect, dignity and equity

3. Maternity information systems

4. Use of appropriate technologies

10. Emotional support

5. Internationally recognised good practice

6. Management of emergencies

A brief overview of the key elements of the quality of care framework:

Provision of care

Element one: Human and physical resources

The provision of human resources include '*the quantity and quality of health and non-health personnel employed for providing and supporting the delivery of patient care'* (De Geyndt, 1995). The term refers also to the configuration of staff, levels of supervision, staff training by length and place, safety at work, management styles, population-based staffing ratios, and nature and frequency of staff training.

Physical resources '*are the grounds, buildings fixed and movable, medical and non-medical equipment, vehicles, furniture, medical and office supplies, pharmaceuticals, warehousing and storage conditions and maintenance of physical assets*' (De Geyndt, 1995, p.33). The term covers general hospital infrastructure, including water and electricity supplies.

Element two: Referral

The quality of the referral system is crucial to preventing maternal death. The hierarchy of maternity facilities only becomes a functioning unit if the referral system from the lower-order health centre to the referral unit is efficient and effective. Poor referral procedures were identified as a significant constraint to the accessing of emergency care in a study in Nigeria (Okafor and Rizzuto,1994). Here, midwives in Akwa-Ibom were reportedly frustrated that registered maternity-centre patients were treated as 'unbooked' cases when they went to general hospitals for emergency assistance, and were therefore denied prompt treatment. The AMDD…..An effective referral and transport system is the link that allows facilities to work together in a continuous chain. There must be good communication and cooperation throughout the chain if the system is to be effective (WHO, 1994).

Element three: Maternity information systems

Effective management information systems are vital to resource management at all levels and the key to the good quality assurance strategies. An overview of record-keeping procedures by the Prevention of Maternal Mortality (PMM) network at ten facilities in Kumasi, Ghana (Danqua et al., 1997) revealed that information on obstetric complications is often inconsistent or missing. Some hospital record systems were not designed to collect such information at all. Individual patient records are indispensable for case-management and peer review, and for appropriate record-keeping to determine the impact of programmes (Geefhuysen, 1999). In these studies, case notes were often nonexistent, incomplete or illegible. No formal procedure existed to classify and then record maternal complications by primary cause. Nor did any functional procedure exist to review causes of death.

The PMM network also identified problems in record-keeping at the human resources and management levels where they noted a dearth of trained records personnel and training programmes. They found that medical personnel lacked knowledge and skills in recording and managing information, and that administrators' poor use of available information contributed to inefficient planning of services.

Element four: Appropriate technologies

It is now recognised that there are a number of technologies and interventions within maternity care which are being routinely used, a level of use which is not supported by evidence. In this study the extent to which inappropriate technologies are used is used as an indicator of quality of care. These include the routine use of or use 'most of the time' of:

- Pubic shaving
- Enema
- Intravenous infusion
- Episiotomy for primis
- Lithotomy position for delivery
- Manual revision of the uterus

3) The use of vaginal examination to assess the progress of labour is kept to the minimum necessary.

4) Intramuscular oxytocin is not used to speed up labour.

5) A caesarean section rate of between 5% and 15%

Element Five: Internationally recognised good practice

There are a number of procedures in maternity care that have, through carefully designed randomised studies been shown to be of benefit to the mother or her baby (Benbow et al.,1997, WHO 1996) These include the following which represent a handful of procedures which were measured and used as an indication of the quality of the general level of clinical practice.

1) Magnesium Sulphate is the drug of first choice for the treatment of eclampsia. (The Eclampsia Trial Collaborative Group, 1995), (Royal College of Obstetricians and Gynaecologists, 1996).

2) Women are actively considered for a vaginal delivery after one Caesarean section.(Flamm et al., 1988; Rosen et al., 1990; Rosen et al., 1991).

3) Prophylactic antibiotics are used routinely at the time of an emergency Caesarean section (Mungford et al., 1989).

4) Ventouse delivery is the instrument of first choice for low-cavity operative vaginal delivery. (Benbow et. al.,1997, Johanson 1995, and Drife 1996).

5) When repairing perineal wounds, polyglycolic acid suture material is used. (Glazener et al., 1995, Enkin et.al. 1995; Sleep 1991).

6) For a non-complicated delivery women are always allowed to adopt whatever position they choose for delivery (Stewart et al., 1978; Nikodem, 1995).

7) Women are always allowed the social support of their choice during labour and birth. All women should have continual professional support in labour and the choice of social support during labour and birth (Hodnett and Osborn, 1989a&b, Benbow, 1997, Klaus et al., 1986; Hodnett and Osborn, 1989a&b; Hemminki et al., 1990;

Hofmeyr et al., 1991, (WHO, 1996b)

8) Throughout labour a woman's physical well-being should be regularly assessed. A woman's pulse, temperature, blood pressure, fluid intake and urine output should be monitored regularly throughout her labour and delivery (WHO, 1996b).

Experience of care

While the quality of the provision of care in facilities is fundamental to ensuring effective care, women's actual experience of care is a significant, but often neglected aspect of quality of care that contributes to maternity outcomes. If women's cumulative experience at a facility is such that it deters some from returning for a subsequent delivery, or leads to rumours to the same effect in the wider community, the actual quality of the provision of care for these women is academic. The Safe Motherhood study in Nigeria reported findings from focus groups in which participants cited a litany of inadequacies that they *expected* to experience at health services including poor hygiene and medical treatment and censure or abuse from health workers. Cost, convenience and kindness were principal factors in the choice of health-care provider (Okafor and Rizzuto, 1994). A study in Zaire that identified qualities that women thought should be found among health workers showed that they valued interpersonal qualities (respect, patience, courtesy, attentiveness, friendliness and straightforwardness), technical qualities and, to a lesser extent, integrity (Haddad and Fournier, 1995). When they were asked about the two best qualities a nurse should have, the majority mentioned a relational component first and a technical component second. This observation is supported by findings from studies conducted in a variety of settings (Calnan, 1988a; Bruce, 1990; Lohr et al., 1991; Vera, 1993). What this suggests is that the provision of care could be of the highest technical quality yet still be unacceptable to the women and families for whom the care is intended.

A woman's experience of care can be divided into four broad areas: her contact with and experience of human and physical resources; her 'cognition', that is, the level to which she understands what is happening to her and why; the respect, dignity and equity of care she receives throughout her experience of delivery care; and, finally, the emotional support she receives during her labour and beyond.

Human and physical resources

A woman's experience of care relates not only to the quality and appropriateness of the obstetric care she receives and her perception of the quality of that care, but also to her impression of the state of the infrastructure (the bed, sheets, food, toilets and so on). Her experience of care here refers also to her experience of actual contact time with qualified staff. This is distinct from her impression of how staff treated her during interaction (see section on respect, dignity and equity below). Are providers qualified to undertake the tasks they are responsible for, and is the time they spend with clients sufficient? For example, criteria here would help identify whether or not women are being left alone for extended periods, or whether unqualified personnel are undertaking certain duties that should be the responsibility of nurses or midwives.

In a study that examined the meaning of quality for women who received reproductive health services at a non-governmental family planning and maternal and infant care clinic in Santiago, Chile the clinic's cleanliness was regarded as a sign of respect for the client and its hygienic conditions relieved fears of infection (Vera, 1993). Women also referred to the quality of time and attention they received as an important element of overall quality. They described having to wait for hours and hours as characteristic of the government health services. In the clinic in question, women felt they were given the time to both talk and learn: *'…they explain things'*. For the women interviewed in this study a high quality of health services meant treatment that included the following elements: a clean, hygienic place, prompt service, accurate information, an opportunity to learn, and enough time to consult with staff and receive advice (Vera, 1993).

Cognition

One aspect of care that Donabedian (1988) drew attention to in his model was the interpersonal care. This consisted of communication between the client and provider for the purpose of both diagnosis and the determination of preferences for treatment. The relationship between these two parties should be characterised by 'privacy, confidentiality, informed choice, concern, empathy, honesty, tact and sensitivity'.

Cognition relates to two specific experiences of care:

1) The extent to which a woman feels she understands what is going on and feels that her questions have been answered adequately.
2) Whether she actually receives sufficient information in a form that she and her family can understand and that she has the right to know.

Cognition depends on what Bruce refers to as 'provider-client information exchange' (Bruce, 1990). How effective this information exchange is depends on having adequately trained and qualified staff and a positive client-provider interaction. An analysis of women's demand for services in South Asia identified this aspect of care as a crucial factor explaining women's use of medical services (Leslie and Gupta, 1989). Reasons that have been given for under-utilisation of available health services include poor relations between health-care providers and their clients (Jacobsen, 1991). Women often have questions that they hesitate to raise with the typical Western-trained or male provider, fearing that providers are too busy to attend to a women's real concerns or that such questions would be considered stupid (Simmons and Elias, 1994; Lubis et al., 1992). The clients' view that providers might consider them stupid is often well-founded (Simmons and Elias, 1994).

Women interviewed by Campero et al. (1998) in a study examining the influence of support in labour in a social security hospital in Mexico made constant reference to the lack of information provided by the medical staff regarding their health and that of their babies, the hospital routines and medical interventions. The information that *was* provided was reported as having been delivered in an authoritarian and vertical manner such that the women did not have a chance to speak, let alone ask questions. It was reportedly taken for granted that the woman would accept whatever the doctor told her: *"We're going to examine you"*, *"We're going to remove the drip"* and so on (Campero et al., 1998, p. 398). With regard to the degree to which women received information about their own labour and delivery, this study found that it was often hard to know exactly what women had been told about a Caesarean section, for

example. Even when the doctor gave the woman some information, almost no one in the study understood it, and the information was often inaccurate and confusing. Some women consequently felt guilty and thought that the indication for a Caesarean section was the consequence of their poor effort during labour (Campero et al., 1998). Likewise, with regard to episiotomies, lack of information resulted in some women perceiving it was their fault that the episiotomy had to be performed.

Whether or not a woman clearly understands what is happening, why, and any specific instructions will determine her subsequent behaviour. High quality provider-client information exchange is more than a nicety that may contribute to a 'positive experience': it is a medical necessity. It has been argued that the interpersonal process is the vehicle by which technical care is implemented and on which its success depends (Donabedian, 1966). It is the task of the provider to give the woman as much information and explanation as she desires and needs (WHO, 1996b).

Respect, dignity and equity

Client-provider exchanges reflect and are shaped by what Simmons and Elias (1994) refer to as latent dimensions of programme-client interactions, which are relatively hidden but nonetheless powerful components of the interactions. Such components reflect the fundamental differences in the status, power and culture of participants in the encounter (Simmons and Elias, 1994). These interactions are rarely characterised by supportive relationships, more often expressing dissonance, inherent conflict and social disparities (Simmons and Elias, 1994; Mernissi, 1975; Nichter, 1989; Scrimshaw, 1974; Misra et al., 1982).

There are numerous instances during labour and delivery where staff can fail to treat women with the respect and dignity they have the right to expect. This includes the observance of her privacy and dignity during physical examinations, late-stage labour and delivery. All women's privacy in the birthing setting should be respected (WHO 1996b). Insensitive treatment, poor standards of confidentiality, tactlessness and moral judgements by health providers are all elements of poor quality care documented by numerous studies as women's experience of care (Lasker, 1981; Finerman, 1983; Wedderburn and Moore, 1990). A study of public-health units in the Rakai district of Uganda found that some midwives were perceived as rude, proud, negligent and vulgar. Some young midwives were also said to abuse mothers if they had never attended antenatal care or if they had had many pregnancies.

There are cultural practices that currently have no place in modern hospitals in the developing world but if recognised by institutions, assuming they did not interfere with the provision of high quality care, would greatly enhance women's experience of care and may even be beneficial. The squatting position for childbirth, traditional in many cultures, is known to promote the progress of labour more effectively than the supine position typically used in hospital settings (Rohde, 1995). The adoption of such a tradition by providers would have multiple advantages (with appropriate training of birth attendants). In addition, in many areas the placenta is considered to have enormous ritual significance and forms part of the celebration of the new life. In hospital settings, placentas are generally routinely disposed of and the family given no choice in what is done to this symbolic part of the newborn. Some hospitals in Cochambamba now provide the placenta to families on request (Rohde, 1995).

If a woman and her family are treated with disdain and disrespect, if she is ignored and subjected to unnecessary, uncomfortable and humiliating procedures, it would not be surprising that if given a choice she and her family subsequently chose to deliver at home or at an institution where she expected to receive higher quality care. Being treated like a person was the single most frequent theme in Vera's study of women's attitudes to quality of reproductive health services in Santiago. Other elements identified as important to quality by the women interviewed in this study included treatment as an equal in transactions and cordial, likeable, friendly staff (Vera, 1994).

Emotional support

Many factors in the birth environment can induce stress. The setting and many of the people in it may be strange to the labouring woman. Fear, pain and anxiety may be increased by a mechanised clinical environment and unknown attendants, with potentially adverse effects on the progress of labour. A hospital environment, where separation of family members and rigid protocols are enforced is one of the factors believed to cause the high intervention rates during labour that are seen in many industrialised societies.

There are numerous studies, that highlight the relationship between psycho-social support and the reduction of various types of medical interventions such as the use of forceps, analgesics and Caesarean sections (Sosa and Kennell, 1980; Klaus and Kennell, 1986; Keirse and Enkin, 1989; Kennell and Klaus, 1991).

It has been shown that support during labour accelerates recovery, favours early bonding between mother and child, decreases anxiety and depression during the first six weeks postpartum and reduces the time spent in labour (Klaus and Kennell, 1992; Hofmeyr and Nikodem, 1991).

Emotional support in this context refers not only to a woman's access to her own social and emotional support but to emotional support given by members of staff. Professional birth attendants need to be familiar not only with their medical tasks but also with their supportive tasks, both of which they need to be able to perform with sensitivity and competence (WHO, 1996b)

Methods and study area

There were two target populations in the situation analysis of Mumbai. Firstly there were all women from six slum pockets within the study slums of Mumbai who had recently delivered a baby, and second, there were the providers of institutional maternity services (public and private) located in or near the study area, and used by the local population. A variety of methods were employed, provider-based and community based, over the period of one year (Jan 1999-December 1999). These methods included; a community survey of 650 women from the six slum pockets; exit interviews of 70 recently delivered women from the three main public hospitals in the area; a review of hospital labour ward records from four public hospitals in the area and two private hospitals; provider-interviews; observation; the application of a quality schedule to assess aspects of quality at the three main public hospitals; and finally a mystery client approach was employed at 10 private hospitals in the same catchment area. Table 1 summarises these methods. The outcome sought from the

application of these methods was a range of data on the quality of maternity services in the case study area.

Table 1: Methods employed by type of hospital

Method	Key source of data: provider, user or researcher	Number of public hospitals	Number of private hospitals	Number of individuals interviewed
Community survey	User	N/A	N/A	650
Exit interviews	User	3	0	70
Review of case notes (antenatal and labour ward notes)	Provider	3	0	70
Provider interviews	Provider	3	0	14
Quality schedule	Provider	4	1	14
Observation	Researcher	3	0	0
Hospital records	Provider	4	2	0
Mystery client	User and provider	0	10	12

As a general point, the use of such a variety of methods was considered entirely appropriate. By combining specific service based methods such as observation and provider and exit interviews with a review of hospital records and case notes a degree of triangulation was achieved and it most cases it was possible to verify findings using data from one of the other data collection methods.

Service use and the service environment

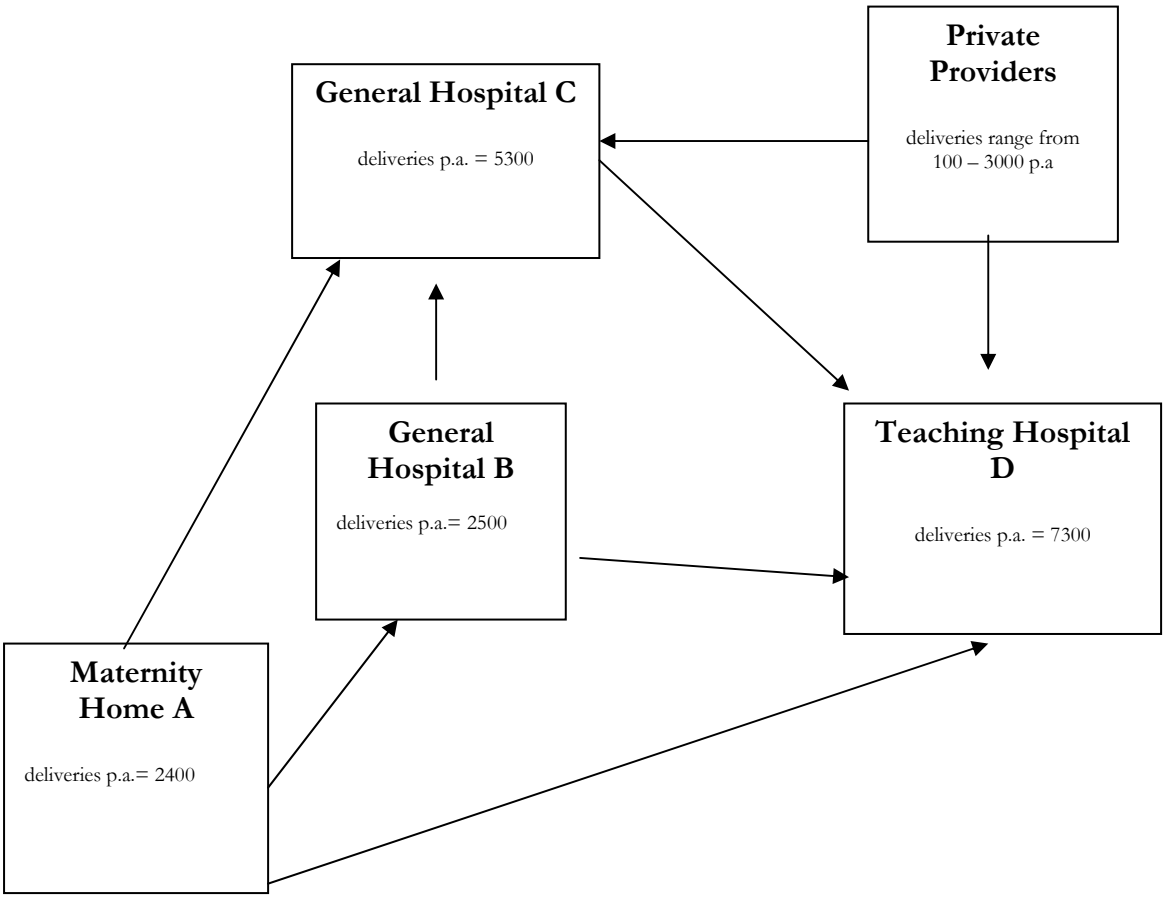
Maharashtra has a higher percentage of women delivering at a hospital than most other states in India. According the NFHS 1998-99, 80% of deliveries in urban Maharashtra took place in a health facility or institution compared with only 35% in rural areas. Within Mumbai slums 86% of births took place in an institution (84% for slum areas and 92% for non slum areas), 48% in a public institution and 35% at a private provider (IIPS and ORC Macro, 2001). At the aggregate level 80% of deliveries in Maharashtra in 1998-99 took place in an institution. This level of institutional delivery is relatively unique not only in urban India as a whole but within urban slums specifically.

In Mumbai there were 26 municipal maternity homes in 1999, according to the Municipal Corporation of Mumbai Population Project-V, with the number of beds ranging from 10 to 84, and 14 maternity hospitals with the number of beds ranging from 20 to172. Among these are three teaching and referral hospitals. There are also two large charitable hospitals (catering for as many as 11,000 deliveries a year each) and a numerous, but unknown number of private facilities ranging from nursing homes with 2-4 beds to private hospitals with 40-50 beds.

Women resident within the study area could theoretically 'book' at one of four municipal hospitals in, or in relatively close proximity to the study area. These hospitals will be referred to as Maternity Home A, General Hospital B, General Hospital C and Teaching Hospital D. Or they could choose from one of a number of private providers located in the area. The four municipal hospitals form a hierarchy of care. Maternity Home A lies at the bottom of the care chain and Teaching Hospital D is at the top. General Hospital B and General Hospital C lie in between however General Hospital C is a relatively large general hospital and receives referrals from both General Hospital B and Maternity Home A. Figure X provides a schematic overview of the referral chain for maternity care in the study area. Women are sometimes referred from private maternity homes to one of the larger municipal hospitals. In addition, women who plan a home delivery but who seek care, for whatever reason during labour tend to present at whichever hospital is closest. According to the United Nations definitions of what constitutes a basic essential obstetric care (BEOC) facility, and what constitutes a comprehensive essential care facility (CEOC), Maternity Home A is the former and the other three municipal hospitals are, theoretically, the latter (UN, 1997). Maternity Home A is dedicated to maternities only. The other three are more general hospitals with maternity wards.

Insert figure

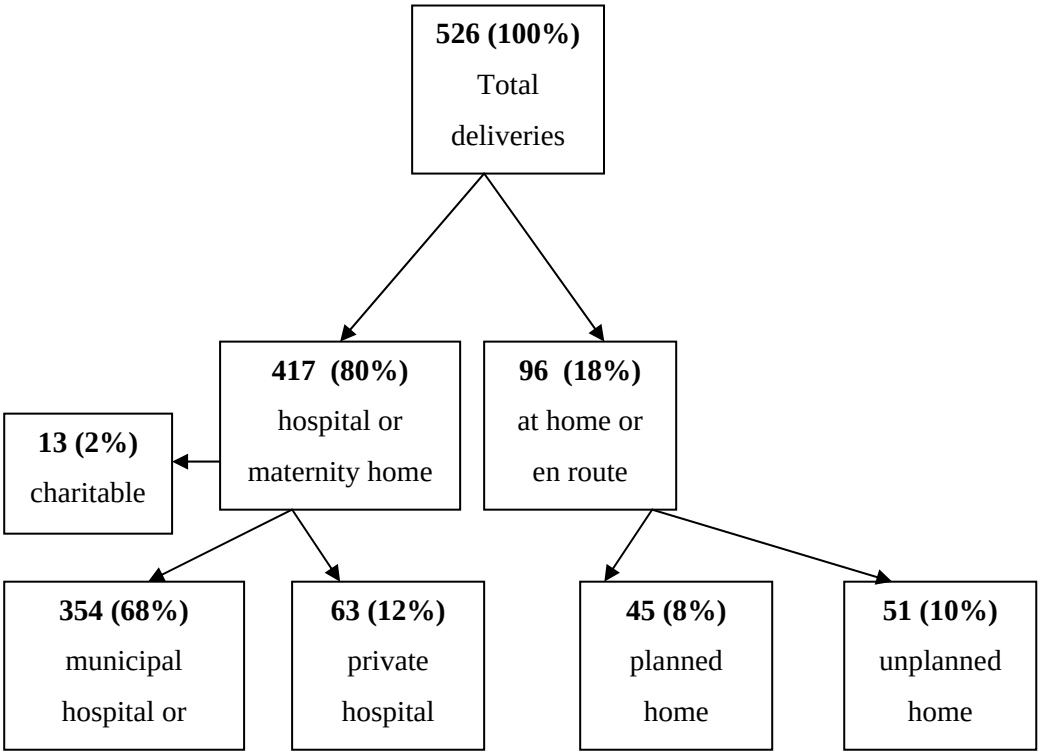
Figure 2 Schematic overview of the referral chain in the study area



Use of services

Of the 650 respondents to the community survey 81% (n=526) actually delivered in Mumbai. Of these 526 women, 354 (68%) delivered in a municipal hospital, 63 (13%) in a private hospital and 96 (19%) delivered at home (see figure 3). Of this group 45 had planned to deliver at home (or 9% of the total) and 51 had planned to deliver in a hospital. Of the 354 women who delivered in a municipal hospital in Mumbai 92% of them (324) delivered at one of the 4 hospitals in the referral chain described above.

Figure 3: Percentage of total deliveries in Mumbai by place of delivery



Source: Community Survey 1999

Over the period of nearly a year the methods discussed briefly above were employed and the data on the aspects of quality of care identified in the quality framework were gathered. Below some of the key findings from these activities are summarised revealing a range of examples of sub-optimal care within the health service delivery. While there were many examples of high quality care at all the public facilities studied the focus below is on examples were quality of care was not ideal. The reasons for the shortcomings identified are multiple and almost certainly replicated to some degree in hospitals all over the world. The challenge is to use this kind of evidence to encourage initiatives that aim to improve quality of care delivered to the many and growing millions of women who do need to access hospital based services during labour.

Preliminary Findings

Quality related data collected using the various methods employed in this study is summarised in Table 2 at the end of the paper.

Insert Table 2: Brief overview of findings attached below

A situation analysis of quality: Provision of Care

Human and physical resources

The situation analysis identified a number of issues related to the quality of human and physical resources at the municipal case study hospitals. There was evidence at General Hospital C of women having no bed at the hospital at which they delivered (16% of respondents to the community survey) and of staff who expressed that they felt overwhelmed at times of high demand. In addition curtains and blinds were identified as either not being available, or being available but not being used. In two of the three municipal institutions the maternity wards were used for both labouring women and post-partum women. All these factors indicate that not only is the general infrastructure of this facility always of sufficient size to cope with demand and that, at times, the skill mix that fails to cope sufficiently with the patient flow but also that the maternity wards in two of the municipal hospitals are not adequate to perform their function in a manner consistent with international recognised good practice.

Other factors of sub-optimal provision of human and physical resources identified include: evidence of caesarean sections being performed at institutions that are not properly equipped to perform life saving operations (both General Hospital B and Maternity Home A), anaesthetists (for General Hospital B) who were difficult to contact at certain times of the day, and surgical operations being performed with no blood bank on site. These indicate the type of 'delays' that could prevent users receiving timely and appropriate care in the event of an emergency. Blood would reportedly have to be bought by relatives from private blood banks, which were not open 24 hours a day, for relatively large sums of money in relation to average household income in the study population. Problems with stocks of essential drugs were identified at one municipal hospital (General Hospital B). In addition, all the private facilities were equipped with operating theatres but there were strong indications that there were neither blood banks on site nor full time anaesthetic cover. Indeed there were occasions when women at municipal hospitals are attended by ayabais, who are unskilled women who help with the general running of the ward (cleaning and cooking) (See Table 3). In this situation women clearly do not have skilled attendance at delivery. Finally there had been no training in the year prior to the study for staff of any grade at the case study municipal hospitals.

Table 3 Percentage of women who report having a doctor, auxiliary nurse midwife, ayabai or no-one as their principal, attendant by hospital

Hospital/ Principal carer	Doctor	Auxilliary Nurse Midwife	Ayabai	No-one

General Hospital C (n=53)	31	69	0	0
General Hospital B (n=70)	24	68	4	1
Maternity Home A (n=177)	16	80	5	0
Municipal (n=354)	23	75	2	0
Private (n=63)	73	27	0	0

Source: Community survey 1999

Element two: Referral

Standards for a number of criteria that would be necessary to ensure a high quality referral are not met in all hospitals. However, the maternity home at the bottom of the referral chain, Maternity Home A, does have an ambulance and a driver on site to transport referred women to the referral hospital. It also has a policy of sending an appropriate member of staff with the referred woman (and baby). At Maternity Home A they also did not express problems with shortages of essential drugs that they might need to stabilise a woman and they had a functioning telephone which they could use to communicate with the referral hospital. In contrast, at General Hospital C the switchboard was often very busy and it was difficult to contact the labour ward. Also, at General Hospital B there was no dedicated phone within the labour ward. Referral hospitals would therefore often have no warning that a referral was on the way. There was evidence that antenatal notes for a woman were kept at the hospital from which she was referred. General Hospital B, as mentioned above, had problems with stocks of essential drugs at particular times of the year, it had no resident anaesthetists and no blood stocks. This could introduce considerable delay for a referred woman needing to access timely and appropriate care. Women referred from General Hospital B would have to make their own way to the referral hospital and would not be accompanied by a member of staff from the hospital.

The a practice of turning away unbooked women from Maternity Home A and General Hospital B, unexamined, regardless of the progression of her labour was identified. This practice introduces a delay in such women accessing care. As unbooked women have had no antenatal visits and therefore no case notes, one would expect recording women's pregnancy histories and health background to take longer at the hospital that is eventually reached. This contributes to an additional delay in accessing timely appropriate care and is evidence of sub-optimal quality within the case study referral chain.

Element three: Maternity information system

The labour ward records were completed daily at each hospital. They were complete and legible at the municipal case study hospitals and, based on observation, relatively accurate. The quality of the labour and post-natal notes however was variable. At Maternity Home A a colour coding system had been introduced to highlight information that needed to be easily accessible. The notes were legible and clear. The quality of the clinical content of the notes was not assessed. At General Hospital B the labour and post-natal notes were scrappy, illegible and incomplete. Many of the

labour notes had no more than FTND scrawled across the page (Full Term Normal Delivery). Even when a woman had had an episiotomy, or tear, this information was not included. More information was included when a labour was augmented or a caesarean section undertaken, but this was still limited. At General Hospital C however, while the notes were not as clear as at Maternity Home A it did appear that more time was taken to note the progress of the labour, blood pressure and other readings and some detail about the outcome, blood loss and so forth. The clinical accuracy of notes was not assessed.

From discussions with providers it was clear that there was no formal system in place to review the case notes of poor outcomes or to attempt to identify avoidable factors to improve care in the future. Nor were case notes or hospital records accessible without special permission. Data were required to be aggregated from the hospital records and sent to the central statistics office of the Municipal Corporation of Greater Mumbai (MCGM). It was not clear what happened to the information once it reached this office. There was a confidential enquiry into maternal death system but there was evidence of this being incomplete. The MCGM made the enquiry notes available for 17 women who had died from maternal causes in 1995/1996. These were, according to the MCGM the only maternal deaths in the city that year. This information contradicted evidence from the labour ward register of just one hospital (General Hospital C) which alone recorded 42 maternal deaths in the same year. This indicates a system of enquiries into maternal deaths that is seriously deficient.

Element four: Use of appropriate technologies

One of the most striking findings of this situation analysis is evidence of the routine use, at both municipal and private establishments, of procedures which are not evidence-based and which do not comply with the WHO's guidelines on care of women in labour. Routine enemas, pubic shaving, episiotomies for first births were hospital policy in all hospitals (including the two private hospitals which self-completed the quality schedule) (Table 4). It was also hospital policy that women should lie down to give birth to her baby. There was evidence of oxytocics being administered intramuscularly in municipal hospitals. Oxytocics were also being administered at Maternity Home A, a BEOC facility without the facilities to undertake an emergency caesarean section. In addition there was evidence of high levels of manual revision of the uterus (in both municipal (37%) and private hospitals (50%). Data also indicate high levels of intravenous infusion at private institutions, induction and augmentation. This evidence supports data from around the world that women delivering in private institutions are receiving increasing levels of interventions (Johanson et al. 2002).

The caesarean section rate fell within expected levels at General Hospital C at 10% but below the 5% minimum suggested by the WHO at General Hospital B[2]. There was also evidence of caesarean sections being performed at both Maternity Home A and General Hospital B which have variable access to life saving skills and equipment.

[2] Ronsmans (2001) examine data which indicate that setting an arbitrary minimum caeasarean section rate may enhance an over-interventionist culture and may cause more harm than good.

In terms of routine procedures private institutions performed enemas (59%) and pubic shaving (74%) on a higher percentage women than municipal institutions (74% compared to 59% for enemas and 61% compared to 57% for pubic shaving. They performed lower percentage of episiotomies on first deliveries however (62% by 47%) but a higher percentage of instrumental deliveries (21% compared with 14%).

Table 4 Summary table: Percentage of by intervention during labour by type of hospital (%)

Type of Hospital (association significant at x%)	Municipal % (n=354)	Private % (n=63)
Glucose Drip* **	13	49
Episiotomy (n=103^)**	62	47
Manual revision of uterus #	37	50
Induction and/or augmentation* **	23	55
Instrumental delivery#	14	21
Caesarean delivery#	5	8
Position at delivery – supine#	98	99

Element Five: Internationally recognised good practice

In obstetrics there are many examples of good practice (Benbow et. al., 1997). In this study only an illustrative selection has been used. The findings from the municipal case study hospitals were not encouraging in this respect. While magnesium sulphate was reported as the drug of first choice for the treatment of eclampsia, shortages hampered use of this drug at certain times of the year at General Hospital B. Providers reported that they did consider women who had had a previous caesarean section for a subsequent vaginal delivery, but they also reported that in practice they usually advised them to have another caesarean. Prophylactic antibiotics were routinely used for caesarean sections, but they were also routinely used for all deliveries, so it is not clear whether this policy is consistent with good practice by default, or a conscious decision to work within internationally recognised standards of care. Catgut, rather than polyglycolic sutures was the normal material for suturing. This was not necessarily the favoured option but it was the material that all municipal institutions used. This was justified on the grounds of cost and availability. Women were not supported in labour by a person of their choice, and there is evidence that many women spent much of their labour with no support from staff either. Finally, many of the vital checks as defined by Graham et. al. (2001) on women either in labour or post-partum were not consistently taken or recorded at any of the three case study hospitals.

In terms of processes which should take place at first examination the private institutions performed better with 77% of women having their blood pressure taken, 70% having the foetal heart rate listened to and 34% having an abdominal examination compared to 61%, 55% and 22% respectively. These differences were statistically different (Table 5). These figures, however provide evidence that in total, at both municipal and private hospitals are relatively high percentage of women are

not given basic vital checks at first examination while procedures whose routine use are is not supported by evidence were performed to a high percentage of women and in some cases to a higher percentage of women than those receiving a basic vital check (enema vs listening to the foetal heart rate and abdominal examination).

Tabl 5 Summary Table: Percentage of women by process at first examination by type of hospital (n=417 women who delivered at an institution in Mumbai)

Type of process (association significant at x%)	Municipal (n= 354)	Private (n= 63)
Blood pressure**	61	77
Auscultate foetal heart rate**	55	70
Abdominal examination**	22	34
Enema**	59	74
Shaved#	57	61

Pearson chi-squared
not significant
* 10% significant
** 5% significant
*** 1% significance
Source: Community survey 1999

Element six: Management of emergencies

The quality of the management of emergencies was not assessed in the course of this research.

Experience of Care

Element seven: Human and physical resources

Women responded to a number of questions about how they felt about the labour and post partum room. Responses to these questions were significantly more positive from users of private facilities (Table 6). A greater percentage of users of municipal facilities than private clients describe their bed as dirty, the labour ward as crowded and the ward not airy enough (Table 7). The community survey revealed that ayabais were performing procedures such as enemas and pubic shaving. There was also evidence that there were cases where ayabais were the primary attendants to women at delivery.

Table 6 Percentage of women who responded that they felt the labour ward was airy, their bed was clean, their bed was dirty, the labour ward was too crowded, they were too far from the toilets and/or they were too far from the staff desk, by type of hospital (n=417#)

Environment of the labour ward (association	Municipal (n=354)	Private (n=63)

significant at x%)		
Airy* **	59	87
Bed clean* **	43	86
Bed dirty* **	37	3
Too crowded* **	35	5
Too far from the toilets#	24	34
Too far from the staff desk#	28	10

Source: Community survey 1999

 # women who delivered an institution in Mumbai

Pearson chi squared
not significant
* 10% significant
** 5% significant
*** 1% significance

At the hospital level these differences in the experience of human and physical resources was greatest in hospital B which fared worst than all hospitals with 64% responding that the bed was dirty and 46% that the labouring environment was too crowded.

Table 7 Summary of negative responses to questions relating to the labouring environment? Percentage of women responding 'yes' by hospital.

Hospital	Not enough air	Too crowded	Too far from the toilet	Too far from the staff desk	Bed dirty
General Hospital C (n=53)	33	41	28	24	42
General Hospital B (n=70)	46	46	29	39	64
Maternity Home A (n=177)	25	29	19	24	34
Private Hospitals (n=63)	9	5	34	10	3
All Hospitals (n=417)	26	30	26	23	30

Element eight: Cognition

Three quarters of women responded that their principal attendant did not explain what was happening to them. This figure was similar at both municipal and private facilities. In addition there is evidence that women with poor outcomes were not

explained the reasons for the outcome. This evidence suggests that the majority of women are not involved in decisions about their care and indeed are not even informed about what is happening to them and why. There was evidence that higher parity women are being motivated using financial incentives and disincentives to be sterilized (women having a third baby, with two surviving children). This approach compromises effective communication between provider and users. Some users, who wanted to avoid a fine, and did not want to be sterilised, either withheld accurate information about them self, or planned a home delivery. This approach of motivating women using financial incentives to agree to a sterilization is contrary to both the internationally ratified Plan of Action from the International Conference on Population and Development (1994) and the International Conference on Women (1995).

Finally, evidence suggests that women who had been admitted to the maternity ward in pregnancy as a result of a complication, or who had had a serious complication in a previous delivery stayed at home for longer on average than women with no previous complications. This indicates that staff on maternity wards, and at antenatal appointments, are not communicating necessary health messages effectively to women with previous complications.

Element nine: Respect, dignity and equity

A number of issues were identified that indicate that the quality of this element of care is not optimal. Users did undergo unnecessary procedures and a number expressed that they were not happy with having to undergo these procedures. They were examined in crowded places and curtains or blinds were either not available or not used regularly to shield women who were being examined. Users laboured in public areas, sometimes unsupported for long periods. While the majority of women delivering at municipal hospitals did report that staff treated them kindly and with understanding, one in four women delivering at a municipal institution described some level of negative experience of care from ANMs, with 10% reporting that they felt their care was hurried or neglectful and 15% reporting that they were shouted at or slapped in labour (Tables 8 and 9). Reports of the type of treatment users received at private hospitals were generally more positive for all grades of staff. Despite this, 3% of women reported being either shouted at or slapped at a private facility (Table 8).

Table 8 Experience of treatment by ANMs by type of hospital (%)

Type of hospital/rating	Kind	Hurried/ neglectful	Shouted/ slapped
Municipal (n=356)	75	10	15
Private (n=61)	95	2	3
Total (n=417#)	86	9	5

Pearson Chi-squared P=0.077

Total number of women who delivered at a hospital in Mumbai and came into contact with an anm

Source: Community survey 1999

Table 9 Negative experience of treatment by staff by case study hospital. Percentage of women, by hospital, who describe their treatment by staff as either neglectful or hurried, shouted at, or slapped.

Hospital	Neglectful/Hurried (%)			Shouted at (%)			Slapped (%)		
	Doctors	ANMs	Ayabai	Doctors /	ANMs	Ayabai	Doctors	ANMs	Ayabais
General Hospital C	7	6	22	0	4	10	0	0	0
General Hospital B	18	14	18	0	4	8	0	3	0
Maternity Home A	5	9	24	0	2	7	0	1	1
All case study hospitals	6	9	18	0	3	6	0	2	1

Source: Community survey 1999

The way in which women experienced care did not vary significantly by type of hospital. Seventy eight percent of women who delivered at a municipal hospital said they were not explained what was happening, compared with 75% of women who delivered privately. However, the percentage who was not explained what was happening varied significantly by background characteristics. For example, a significantly smaller percentage of Muslim women (8%) reported being explained what was happening compared with Hindu (28%) and Buddhist women (22%) (see Table 10). In addition a smaller percentage of women who never boiled their water, an indicator of receptiveness to health messages were not explained what was happening to them.

Table 10 Percentage of women by religion who report being explained what was happening to them either definitely or to some extent.

Religion	Yes definitely, or to some extent
Hindu (n=208)	28
Muslim (n=67)	8
Buddhist (n=138)	20
Total (n=413#)	22

Pearson Chi-squared P=0.005

Total number of women who delivered at a hospital in Mumbai (minus 7 'others' in relgion category)

Source: Community survey 1999

A stepwise regression was conducted to help identify which other factors were related to being explained what was happening and 'ownership of home' and 'ability to read' were the most significant. Users who lived in households who rented their homes had half the odds of being explained what was happening compared to those who lived in homes that were owned by their household. In addition, users who could not read, or

could read with difficulty had less than half the odds of being explained what was happening to them compared with users who could read easily (see Table 11).

Table 11 Regression to model being explained what was happening

Factor	Level	Parameter estimate (SE)	Odds ratio	N
Home owned or rented	Owned		1.00	397
	Rented**	-0.569 (0.265)	0.566	129
Ability to read	Easily		1.00	210
	With difficulty***	-0.845 (0.357)	0.430	61
	Not at all***	-0.833 (0.231)	0.435	255

Source: Community Survey 1999
* significant at 1% level
** significant at 5% level
*** significant at 10% level

These findings are not easy to interpret. They may reflect real differences in treatment of women of different backgrounds by staff, but it is likely also to reflect the expectations of women of different backgrounds and the extent to which they engage in conversations and be informed about what is going on. For women of very low social status who are uneducated women or/and with little freedom of movement, their expectations of care are likely to fall below that of their more educated, higher status counterparts (Sen, 2002).

Finally there was evidence that women at public hospitals were paying unauthorised 'tips' to medical staff and were sometimes expected to pay for essential drugs. Within the private sector the pricing system indicates that the use of certain procedures is encouraged by a pricing system which charges families 8,000 Rs extra (or over twice the medium household monthly income of 3,000 Rs for private deliveries) for a forceps delivery, rather than a normal delivery. This evidence raises an important quality related issue. If specific clinical interventions are costed differentially by private providers a financial incentive exists that may compromise clinical judgement. The reverse is true for the public sector, such that where certain interventions are more costly in terms of time and financial or human resources this too may influence clinical decisions. Neither of these situations is optimal in terms of supporting high quality institutional maternity care.

Element ten: Emotional support

Women were not permitted to be supported in labour by a person of their choice, and many of them were left for long periods unsupported by staff. One in four women

describe feeling that they were left along either during labour or immediately post partum at a time when it worried them to be alone. This figure did not vary significantly by type of hospital, with 25% of women at municipal hospitals feeling alone and 24% at private hospitals (Table 12). As with responses to questions about whether or not their principal attendant explained to them what was happening, the percentages of women feeling alone when it worried them to be alone varied significantly by background characteristics. A greater percentage of Hindu and Buddhist women felt alone when it worried them to be alone compared with Muslim women. This again is difficult to interpret and is likely to partly reflect the differential expectations of quality, combined with actual unsupportive care.

Table 12 Percentage of women by religion who report being left alone during labour or immediately after the birth at a time when it worried them to be alone

Religion	Left alone during labour or immediate post-partum	Not left alone
Hindu (n=208)	25	75
Muslim (n=67)	13	87
Neo-buddhist (n=138)	30	70
Total (n=413#)	25	75

Pearson Chi-squared P=0.060

Total number of women who delivered at a hospital in Mumbai minus those in 'other religion' category

Source: Community survey 1999

These findings further support the emerging picture of differential experience of care related to background characteristics of users. This is a significant finding and more research is needed to identify the extent to which this finding reflects a real differential experience of care or a different expectation of care. Whatever the relative balance, evidence that women do not report that they are being explained to and that they are reporting feeling alone during labour and immediately post-partum highlights an important quality issue.

Staff rating and being left alone

By grouping treatment by ayabais into two groups one broadly positive (kind and understanding and fairly kind) and the other including the remaining more negative responses and cross tabulating these with whether women felt alone when if worried them to be alone demonstrates, as might be expected that a greater percentage of women who felt they were left alone also reported more negative care by ayabais compared to those women who did not feel they had been left alone (44% compared with 20%) (see Table 13). This suggests that a woman's negative experience of care is the result of a number of factors that influence her overall experience, such that she does not only feel alone and worried, but she feels her treatment by staff, in this case ayabais, is hurried or neglectful, or she is shouted at or slapped. This is important to remember when designing interventions aimed at improving a woman's experience of care.

Table 13 The percentage of women who reported positive or negative treatment by ayabais by whether they felt alone when it worried them to be alone.

Alone	Treatment by ayabais	
	Positive	Negative
Yes (n=104)	56%	44%
No (n=309)	80%	20%
Total (n=413#)	74%	26%

Pearson Chi-squared P=0.000
Total number of women who delivered at a hospital in Mumbai who came into contact with an ayabai

Source: Community survey 1999

This data and analysis demonstrates that there is no significant difference in the level of use of inappropriate technologies by type of hospital. In addition data indicate that private hospitals undertake more thorough checks during first examination and that women who deliver in a private hospital report a more broadly positive experience of care with respect to the labouring environment. However, while there is a significant difference in responses, by type of hospital related to how women experienced aspects of care (such as cleanliness of the bed and how kind and understanding staff were) women were as likely to feel left alone when they were afraid to be alone regardless of where they delivered, and similarly likely not to be explained what was happening to them by their principal carer. The conclusion that can be drawn from this is that, apart from women's experience of the labour room environment, their treatment by staff and the consistency of vital checks taken, type of hospital determines only part of a woman's experiences care during labour. This is determined partly by their religious and their socio-economic background.

Conclusion

The framework developed as part of this study draws together experience and evidence from the extensive medical, health policy and social science literature on all aspects of quality in maternity care to create a flexible quality assessment tool specifically for use at the institutional level in developing countries. It divides quality into two elements that are conceptually distinct but closely related in practice: firstly into the provision of quality of care, and second into elements relating to users' experience of that care. The framework divides quality into two parts: the quality of the provision of care and the quality of users' experience of care. Preliminary findings from the application of this framework within a slum area of Mumbai are presented. Data from municipal and private hospitals were collected using a community survey of 650 women, observation, exit interviews, provider interviews, review of hospital records, and the mystery client approach. Findings provide evidence that quality is far from optimal in both municipal and private facilities. Quality issues identified include a lack of essential drugs, the use of inappropriate procedures that are not evidence-based, users being left unsupported, evidence of physical and verbal abuse and institutional delivery which does not guarantee attendance by a health professional (see Table 2 below). There is also evidence that the quality of experience of care varies significantly by background characteristics of the woman and her family.

Change will ultimately come about only when pressure for resources and pressure for accountability by the public itself and professional organizations is sufficiently powerful (Van Lerberghe and De Brouwere, 2001). Information is power and as illustrated by the example of urban slums in Mumbai, this framework provides a structure which facilitates the accumulation of evidence that can be used to highlight examples of sub-optimal or/and unacceptable care.

Quality of care in pregnancy and childbirth are intrinsic components of a basic reproductive rights approach. The benefits of improving quality of care to mothers at delivery are multiple. Not only could we expect to see an increase in timely and effective use of services and improved psycho-social and health outcomes: improved quality has been shown to curtail inappropriate use of limited resources, reduce the use of ineffective and harmful technologies, eliminate inefficiencies, optimise the use of existing inputs and promote following of correct procedures.

It has taken the international community up to the 1990s to realise that the important factor is that deliveries are far safer with professional assistance and that when a serious problem appears a pregnant woman should have access to an appropriately equipped health service (Van Lerberghe and De Brouwere, 2001). After years of the maternal mortality ratio as the dominant indicator of safe motherhood, it is now recognised that maternal mortality measurements need to be complemented by information about other elements of the care that women receive and experience and quality of care is now recognised as vital aspect of care. Procedures and interventions that increasing numbers of women undergo during childbirth may be unacceptable even if they do not directly exacerbate mortality or morbidity. But they do need to be recognized as being unacceptable before change can even be considered. Indeed, the numbers of women having an institutional delivery increase worldwide and government targets, such as the recent National Population Policy ratified by the Government of India the Ministry of Health and Family Welfare (MOFHW, 2000) that has as an explicit target the growth in the percentage of institutional deliveries nationally, to 80%, in the absence of any explicit approach or commitment to assess and improve the quality of services that women receive is very worrying. Not exacerbating mortality or morbidity is not a sufficient goal for a provider, nor is discharging a live mother and baby after delivery. Providing care that is consistent with international good practice; avoiding the use of inappropriate technologies; and providing care that is humane, respectful, equitable and evidence-based are goals that need to be integrated into any policy that aims to increase the numbers of users delivering at institutions.

Table 2 The Quality Framework: A summary of evidence

Quality Framework	Elements of Care	Examples of quality issues identified
Provision of Care	**Human and physical resources**	✓ Wages for ANMs, ayabais and sweepers reasonable × Low 'wages' for house surgeons – commitment/private work × Honoraries – availability unpredictable × Training not carried out at all in 12 months before interview × Maternity ward being used as both labour ward and postpartum ward × Bed shortages at times of high demand (16% of women delivering at General Hospital C did not have a bed) × Staff feeling stretched a times of high demand × Low blood supplies, blood transfusion given only when over 1 unit required × No blood bank at some hospitals performing surgical deliveries × Shortages of essential drugs e.g. magnesium sulphate at General Hospital B × Use of wasteful and inappropriate technologies × Inconsistency in taking of vital checks × Some women reporting unskilled staff as principal attendant in municipal hospital
	Referral system	× Difficulty accessing staff from Ward via telephone at referral hospital. Only one line into hospital, switchboard often engaged. × Evidence of ANC and labour notes for referred women interviewed remaining at referring hospital × Policy of turning away all unbooked women regardless of stage of labour or condition at municipal hospitals at bottom end of referral chain × No telephone on the ward at General Hospital B, or within easy access × No hospital vehicle in which to transfer referrals at General Hospital B and women made to travel with no health professional ✓ Ambulance to transport referrals and women accompanied by health professional at Maternity Home A
	Maternity information system	✓ Maternity record for ward completed daily ✓ Colour-coding for clarity at Maternity Home A × Labour notes often not legible at all hospitals × Labour notes scanty (particularly at General Hospital B) × Access to facility records restricted × Evidence of confidential enquiry into maternal deaths deficient
	Use of appropriate technologies	× Routine enemas, pubic shaving, × Excessive use of episiotomy, manual revision of the uterus × Evidence of inappropriate routine procedures taking precedence over basic recommended vital tests × Relatively high level of augmentation and induction in private hospitals × Relatively high level of intravenous infusion among private deliveries (49%)
	Internationally recognised good practice	× No social support of woman's choice in labour × Supine position for delivery enforced in both private and municipal × Catgut used for sutures ✓ MGSO drug of first choice for treatment of eclampsia × Women with previous c-section, considered but not actively considered for vaginal delivery. × Antibiotics used routinely after every delivery × Women not allowed to choose position for delivery × Variability in consistency of vital test observed and recorded.

Table 1 continued. The Quality Framework: A summary of evidence

Quality Framework	Elements of Care	Examples of quality issues identified
Experience of Care	**Human and physical resources**	× ANMs unable to explain why routine procedures were necessary in some municipal hospitals × Toilets dirty with no soap at General Hospital C × 37% of women delivering in a municipal hospital report that their bed was dirty × 64% of women delivering at General Hospital B described their bed as dirty × 35% of women who delivered in a municipal hospital felt the labour ward was too crowded ✓ 86% of women who delivered at a private hospital described their bed as clean. ✓ Only 5% of women who delivered at a private hospital felt the labour ward was too crowded. × 45% of women who delivered at a municipal hospital did not have the foetal heart rate listened to × 66% of women who delivered at a private hospital did not have her abdomen examined. × 39% of women who delivered at a municipal hospital did not have their blood pressure taken.
	Cognition	× 78% of all women were not explained what was happening × Woman with still born baby had not been explained what had happened and what the possible reasons for this were. × Women with previous complications that involved contact with institutional services present later than women with no previous complications
	Respect, dignity, equity	× Evidence of blinds not used – lack of privacy × 9% of women were not happy being examined in a crowded place × 15% of women delivering in municipal hospitals were slapped or shouted at in labour by ANMs. ✓ 95% of women who delivered in a private hospital described ANMs as kind ✓ 100% of women who delivered in a private hospital described doctors as kind × 18% of women who delivered at General Hospital B described treatment by doctors as hurried or neglectful. × Experience of treatment by ANMs is associated with religion × Whether a woman is explained what is happening in labour by her principal attendant varies by religion and socio-economic status × Whether a woman is left alone at a time when it worried her to be alone varies by religion and socio-economic status
	Emotional support	× No social support in labour allowed in either municipal or private hospitals × 25% of women were felt left alone during labour or the immediate post partum period when it worried them to be alone × 20% of women felt alone at some point when it worried them to be alone and describe their treatment by ANMs as negative × Woman with still born baby left on postnatal ward surrounded by live newborn babies, no counselling available × Evidence of staff at Municipal hospitals leaving women to labour alone for long periods × Similar percentage of women from municipal and private hospitals felt alone when it worried them to be alone

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