



Human Resource Issues in Maternal and Neonatal Health in India

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Abstract

One in seven women die from complications related to pregnancy or delivery in some of the African countries, compared to one in many thousands in Europe and North America. More than 95 per cent of maternal deaths occur in developing countries. In the developing countries complications of pregnancy mainly due to inadequate Emergency Obstetric Care (EmOC) is the leading cause of death among women of reproductive age. They account for 18 per cent of the burden of health disease in reproductive age group-more than any other single health problem (World Bank ,1993). At least 40 per cent of pregnant women experience some type of complication during their pregnancies. Most maternal complications and death occur either during or shortly after delivery and are difficult to predict. Nearly 15 per cent of complications are life-threatening that require immediate EmOC. However, many of them do not receive adequate EmOC. Hence, “Safe Motherhood” will remain a dream in the absence of adequate EmOC. As in any services, health services are highly dependent of the human resources - its availability, quality, commitment and performance. EmOC services are even more dependent on highly skilled human resources as they need complex procedures as Caesarean Section (CS) and other emergency procedures. Thus ensuring access to quality maternal services including EmOC is a major challenge in Human Resources Management (HRM). In this paper we present an outline of key issues in HRM which specifically relate to MH and EmOC, based on our experience in India and review of literature.

Measures are suggested to:

- A. How to improve the availability of personnel in the pyramid that is composed of specialists, General Doctors (GPs), nurse-midwives and community workers such as Trained Birth Attendants (TBA)?
- B. How to ensure adequate technical and behavioural skills to identify, refer and provide services adequately at different levels?
- C. How to ensure commitment, accountability, creativity and performance among care providers?

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INTRODUCTION

Background: One in seven women die from complications related to pregnancy or delivery in some of the African countries, compared to one in many thousands in Europe and North America. More than 95 per cent of maternal deaths occur in developing countries. In the developing countries complications of pregnancy mainly due to inadequate Emergency Obstetric Care (EmOC) is the leading cause of death among women of reproductive age. They account for 18 per cent of the burden of health disease in reproductive age group-more than any other single health problem (World Bank ,1993). At least 40 per cent of pregnant women experience some type of complication during their pregnancies. Most maternal complications and death occur either during or shortly after delivery and are difficult to predict. Nearly 15 per cent of complications are life-threatening that require immediate EmOC. However, many of them do not receive adequate EmOC. Hence, “Safe Motherhood” will remain a dream in the absence of adequate EmOC.

Safe motherhood initiatives, so far, have primarily concentrated upon interventions such as antenatal care, training of Traditional Birth Attendants (TBAs), provisions of micronutrients, improving girl’s education and empowerment of women. However Maternal Mortality Rate (MMR) has not significantly improved in most of the developing nations where EmOC services are not adequately assured. It is essential to strengthen EmOC to achieve goals of Safe Motherhood.

As in any services, health services are highly dependent of the human resources - its availability, quality, commitment and performance. EmOC services are even more dependent on highly skilled human resources as they need complex procedures as Caesarean Section (CS) and other emergency procedures. Thus ensuring access to quality maternal services including EmOC is a major challenge in Human Resources Management (HRM). In this paper we present an outline of key issues in HRM which

specifically relate to MH and EmOC, based on our experience in India and review of literature.

Three Delay Model for EmOC Reform: Owing to high unpredictability of need for EmOC and urgency of medical attention in complicated cases, it is essential to find ways to instigate quick decisions in home settings. There are three kinds of delay in providing EmOC.

- a) *Delay in deciding to seek the medical care:* Low attendance of births by trained personnel, perception of poor quality of services in institutions, low institutional deliveries and prohibitive cost of services to women are primarily responsible to these delays. Lack of medicines, lack of skilled staff and their rude behaviour are the other causes for poor perception of the health facilities.
- b) *Delay in reaching a medical facility with adequate care:* Owing to high unpredictability of requirement of EmOC and urgency of medical attention in complicated cases, it is essential that the first referral units are conveniently located and transport services are available to refer women to these units in emergencies. In developing countries most rural women live more than 5 kilometres from the nearest hospital. Vehicle shortage and poor road conditions mean that walking is often the main mode of transportation, even for women in labour. Referral units have to find innovative solutions locally to these problems.
- c) *Delay in receiving medical care at the facility:* Often there are considerable delays to attend the women owing to non-availability of doctors, lack of medicines and blood at the centers and non-cooperative behaviour of the staff, and administrative procedures. It is estimated that only 52 percent of staff of first referral units, located in villages, stay at the place of their postings (Mavalankar, 1999a). Many of them prefer to stay in nearby towns from where they commute daily. There are evidences to show that staff members are irregular to health facilities on working days.

The doctors and staff are found reluctant to work in rural areas owing to not only physical hardships but also owing to lack of professional growth opportunities. Further, often doctors are available at the health facility only for 3-4 hours on a working day (Mavalankar, 1999a).

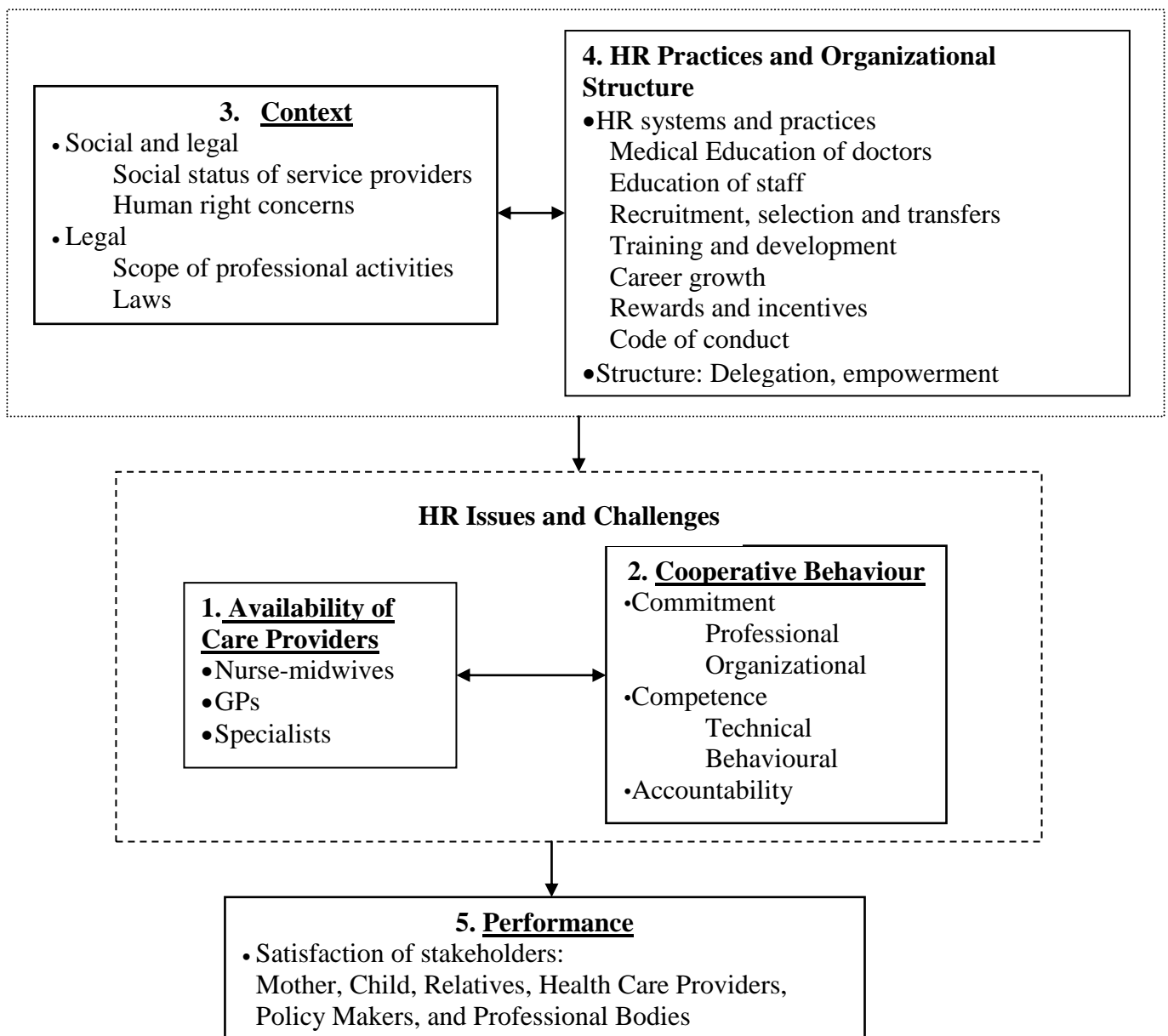
Employees at health centers are not available on holidays and vacations, which are nearly 40% of days in a year in India in government services (Mavalankar, 1999a). In the absence staff, there is none at primary health centers and Community health centers to provide care. Hence, the lack of staff at the referral center to serve the emergency cases is a major cause of delay at the center.

HR Issues and Challenges: The three delays model highlights four sets of Human Resource Challenges.

- A. How to improve the availability of personnel in the pyramid that is composed of specialists, General Doctors (GPs), nurse-midwives and community workers such as Trained Birth Attendants (TBA)?
- B. How to ensure adequate technical and behavioural skills to identify, refer and provide services adequately at different levels?
- C. How to ensure commitment, accountability, creativity and performance among care providers?

Solution to these challenges requires interventions in the structure and policies of the health sector, HR policies and practices and monitoring mechanisms. Treating a patient requires different tasks to be carried out by variety of experts who possess different skills and who need to cooperate with each other (Lee, 2001). Effectiveness of health system is dependent upon availability of adequately skilled personnel who exhibit spontaneous intrinsic cooperative response towards other stakeholders in the system, as EmOC procedures cannot be precisely standardized for strict extrinsic monitoring. Hence, availability of skilled personnel and cooperative behaviour being the central theme, framework as in figure 1 is used to suggest measures to enhance the quality of EmOC.

Figure 1: Framework to address HR issues



1. AVAILABILITY OF CARE PROVIDERS AT EACH LEVEL

The critical staffs in the MH services are Nurse-midwives, GPs and Specialists. The adequate availability of these skilled personnel requires multiple interventions in the HR policies, structure and health context, as discussed here.

1.1 The Availability of Nurse-Midwives and Midwives: Nurses and midwives have been providing maternity care historically in many countries. Development of cadre of well trained and competent midwives have been credited with reduction of MMR in

Scandinavian countries and Holland. Midwives can play a critical role in EmOC in low resource economies. In Sri Lanka the bulk of maternal health care was provided by well-trained but relatively low-cost midwives, who are adequately supplied and equipped and are closely supervised and supported by nurse-midwives and a much smaller number of medical doctors (World Bank, 2003)

To provide skilled birth attendance India developed a cadre of Auxiliary Nurse-Midwives (ANM) with one and half years of training. There were 137,271 sub-centres with one ANM each in India in 1999 (GOI, 2002). Each sub-centre covers about 5000-7000 population.

ANMs are expected to conduct 50 % of the deliveries in their area, help Dais, whenever required and refer cases of difficult labour. They are expected to visit the catchment area for different purposes. According to World Bank report they spend 45 % of their time in medical care, 40 % in travelling, 5 % in paper work and 10 % in obstetric care on the day of their work. In spite of large numbers of ANMs in India, they do only 12-13 % of the total deliveries (NFHS I & II). The reasons for this are:

1. Over the years - from 1966 onwards, the government MCH program has focused on Family Planning (FP) and immunization. Hence, the health system has focused on performance of ANMs on these two programs. This led to neglect of skilled birth attendance function. ANMs in effect often became FP and immunization workers. Further neglect of skilled birth attendance happened due to focus on ANC and high-risk approach.
2. Study done by ICMR some years ago showed that only 54 % of ANMs stay at the village of their posting and rest are commuting from near by towns using public transport. This makes their availability very limited - only 2-4 hours per day in their work area. With such short availability they cannot perform any delivery related work, as deliveries are un-predictable and will need assistance for several hours per delivery.

3. There is only one ANM for 5000 people. Our calculations show that any government employee is eligible for holidays up to a total of about 40% of days in a year. Given this she cannot be expected to attend deliveries happening when she is on leave or holiday. There is no leave coverage system for ANMs. Our observations indicate that they are often irregular to health facilities even on working days - largely due to inadequate supervision. Under the new programs such as polio-eradication, Reproductive Health etc, the ANM's work scope is increasing - and hence there is more possibility of ANMs neglecting the conduction of delivery as their key role.

In such scenario, the availability of ANMs for delivery care could be improved through following alternatives:

- a) Redefining the role of ANMs primarily for providing skilled attendance for delivery. Making FP, immunization and other health care functions of secondary importance. If needed hire more workers for these other functions. Second alternative is to assign immunization work to male health workers - who used to do immunization work during small pox eradication program.
- b) Making it mandatory for ANMs to stay at place of posting and the health systems to provide adequate support for housing and safety of the ANMs in rural areas.
- c) When new ANMs are selected - Identifying and inducting high potential candidates from within the village population who have desire to stay in their social settings and serve the society. The ANMs must also sign a bond with government that they will stay at the place of posting. Implementation of this alternative would require modifications in the recruitment policy of the government. In addition the authorities must refrain from transferring recruited local people without consultation of local community.
- d) Better monitoring of MH - especially delivery work done by ANMs. The supervisors of ANMs must review and monitor her work related to delivery care. If needed local women's groups could be assigned the responsibility of ensuring comfortable living arrangement for the ANMs and also monitoring her availability and work (non-technical parts - responsiveness, interpersonal quality etc.) Perks such as good quality housing near the health facility will facilitate ANMs to stay there. This alternative

would require huge investment. Hence, it is difficult to implement. However, accommodations could be hired on lease and provided to such health workers.

Scenario of community-based midwives in other countries: There are five types of scenarios regarding midwives in developing countries and each one may have its advantage and problems. We briefly discuss these here:

- a) Midwives have played important role in MH services in the past - now most deliveries are in Institutions and by GPs or specialist. Eg: Sri Lanka and Malaysia.
- b) Midwife cadre developed but got diverted to other programs like FP & Immunization. Eg. India. Now key issue is how to reorient the role of midwives to MH and who will do the other work.
- c) No community mid-wifery cadre developed but other female health and FP workers available: Eg. Bangladesh - FWA (Family Welfare Assistant) who was developed as FP workers - now doing more and more health work. Is it possible for such workers to become midwives?
- d) No community level midwives and community level workers at all - But strong institutional midwifery cadre. Eg. Tanzania and other countries in Africa.
- e) No community midwives and community level workers, and weak or non-existent institutional mid-wifery cadre. Eg: Tajikistan.
- f)

What the above typology shows that groups of country have somewhat different systems of midwifery and hence issues regarding providing of skilled birth attendance (SBA) is also different in various situations. Thus each country will have to develop its plan for provision of SBA. One model will not fit all situations.

1.2 Availability Of Physicians (GPs): Normal deliveries and majority of MH work can be done by nurses or midwives, but in most countries surgeries like Caesarean section are done by doctors - either GPs or specialist Obgyns. As one moves up the health staffing pyramid - from midwives to doctors, the numbers shrink fast and their

distribution is limited to towns and urban areas. Most doctors are trained for 5 years and can - in theory do all the EmOC procedures including CS. The number of doctors per 100,000 population varies a great deal with only 4 in Nepal to 443 in South Africa. (See table in the annex)

The key issues related to availability of doctors in rural areas are as follows:

1. In India each PHC (for 30,000 people) has 1-2 doctors (MOs). The number of doctors in India is 71 per 100,000 people. But at about half of PHC MOs do not stay at the place of posting. They commute from nearby cities and hence are not available 24 hours. Often they are available at the PHC for 4-6 hours on a working day.
2. Many MOs do not have adequate skills for even Basic EmOC. This is because they are not regularly conducting deliveries at PHCs and dealing with EmOC cases.
3. Evaluation and monitoring of MOs do not include their skills and performance of MH and EmOC functions. Main evaluation of MOs performance is based on meeting FP (sterilization) targets and immunization services. Hence doctors pay little attention to delivery care.
4. Often there are PHCs with only one MO. One MO at a PHC cannot be expected to provide 24 hours 7 day a week EmOC services for 356 days in a year. What happens when doctor goes on leave or on weekends?
5. MOs face Professional isolation in rural areas. This does not auger well in a profession that values professional competencies.
- 6.

The reasons for reluctance to work (and stay) in rural areas emanates not only from physical hardships but also from lack of professional growth opportunities. Rural areas in developing countries awfully lack the basic infrastructure. The rural life offers few of the amenities for which personnel, trained in urban settings are accustomed. Basic amenities like water, electricity etc. is not adequate in rural areas of most of the developing countries. The employment opportunities for spouses and educational opportunities for dependent family members are limited in rural areas. Further, the scope for professional growth through continued medical education; interaction with subject expert etc. is limited in rural settings. These push factors drive people away from rural settings.

The pull of urban setting lies in greater opportunities for earnings, professional growth and quality of life owing to better infrastructure. Hence, even the increased availability of physicians in countries has not assured availability of physicians in rural settings.

Governments of Egypt, Turkey and Dominican Republic adopted a deliberate social policy to train great numbers of doctors. The government of Egypt publicly financed medical education for all the secondary school graduates who wished to become a doctor. In Dominican Republic, the high density of physicians rendered many of them unemployed in 1980s and there was emigration of these physicians. (UNDP Evaluation Study No. 9, 1983). However, the high density of doctors has not significantly improved their availability in rural areas owing to reluctance of these physicians to work there.

The attempts to regulate postings in rural areas through rules have not been very encouraging. Provisions for mandatory public service and compulsory posting of doctors in rural areas in Egypt, Turkey, Dominican Republic and Benin could somewhat improve the healthcare situation in rural areas (UNDP Evaluation Study No. 9, 1983).

Shortage of doctors in rural areas could be addressed in following ways:

- Rewards for working in rural areas - monetary and non-monetary rewards (professional training, workshops, growth opportunities¹.)
- Re-distribution of roles and responsibilities of doctors and other personnel to provide EmOC-midwives to do BEmOC
- Establishing more medical colleges to enhance the supply of doctors with bond for new graduates to compulsorily serve in rural areas for some years.
- Redistribution of doctors from urban areas and medical colleges or district hospitals to rural areas. This is possible but generally is resisted by doctors.
- Training Assistant medical officers or clinical officers as done in Africa.

1. 3 Availability of Obgyn and Anesthesia Specialists: In India, generally Obgyn specialist performs CS and anaesthesiologist gives anaesthesia. This is not required by law but is becoming a convention and practice due to un-clear government policy, fear of Consumer Protection Act and increasing availability of specialist in cities and the practice in medical colleges where all doctors are trained. As in many countries including developed countries specialists in India want to live and practice in urban areas. Given the very low level of public expenditure on health by government in India there are very few positions of specialists in rural hospital. For example in a typical district with 2 million people there are only 2-4 Obgyns and 1-2 anesthetists in the government District

¹ In an unpublished research it is found that doctors value the continued medical education the most, making it highly effective non-monetary reward (Bhat and Maheshwari, 2003).

Hospital (DH) and CHCs (sub-district hospitals). Recently conducted national facility survey shows that only 10% of CHCs have any anesthetists and 28% of CHCs have Obgyns. Our rough estimate shows that there would be nearly 9000 delivery complications in a rural district in India. Nearly 3000 of them would require caesarean section. An average of 2 obstetricians in a district cannot simply perform all the needed caesarean sections in rural areas. This contributes significantly to the high MMR. If one estimates the total anaesthesias required in a district it would be many times more. And thus just 1-2 anaesthesiologists per million people are ridiculously low.

The common reasons for lack of specialist doctors in rural areas are as follows:

1. Most specialists want to stay in urban areas because of better quality of life, more opportunities for private practice etc.
2. Number of specialist positions in rural areas are limited – eg at First Referral Unit (FRU) and CHC there is no position of anaesthesiologist, and many positions of obgyns are vacant.
3. Number of specialists produced is small as compared to the need in rural areas – especially for anaesthesia.
4. There is no compulsion for specialists to work in rural areas.
5. There are specialist qualified doctors who made to work as GP due to lack of posts
6. Some specialists – due to various reasons, have lost confidence and practice of doing CS or giving anaesthesia and hence work as GPs or health administrators – not doing specialist work.
7. There are gross disparities in numbers of specialists working in medical college hospitals and district hospitals –even if both of the hospitals may have comparable clinical work load².
8. Staffing ratios of hospitals are based on number of beds rather than work loads. But at the same level of facility the workloads may be very different. For example some DH do similar number of deliveries as a medical college hospital and some CHCs do similar number of deliveries as a DH but their staffing is very different as the bed strength is different.

Availability of specialists in other countries: Data on doctor patient ratios for various countries are available – even though they do not give numbers of doctors working in rural public systems per population, which would be much better measure of availability of doctors to people – especially for poor people. We have not seen data on number of

² For example: Dhaka medical college has about 120 obgyns and residents in obgyns (40 obgyns per unit and 3 units) for a work load of about 18,000 deliveries per year, while nearby district hospital in rural area with work load of 3000-4000 deliveries per year has only 1-3 obgyns (these numbers are rough and need checking). In India the numbers are not so wide apart but the disparities are glaring.

specialists working in various countries. But the typology of countries regarding availability of specialists is:

1. Poorer countries in Africa (e.g Ethiopia, Tanzania) have very few specialists in rural areas. Typically a 100-bed hospital is run by one or two GPs (Five year trained) 3-4 Assistant medical officers or Clinical officers and 4-7 midwives. Specialists are only available in the medical colleges or cities. Some expatriate specialists may be available at some places.
2. Countries of South and South east Asia: (e.g India, Bangladesh, Pakistan) have some specialists in rural areas – typically 100 bed hospital will have 1-2 specialists obgyn, but midwifery cadre is very weak – only general nursing or RNRM are available.
3. Countries of former Communist / Socialist block (Russia, Tajikistan, Vietnam): Specialists were available in large number in earlier times of controlled economy – now with changing political systems – availability of specialists in rural areas is going down as specialists are moving to cities and private practice.

Thus as with midwives, each country has some what different situation regarding specialists, and hence has to plan accordingly to ensure availability of specialist services in rural areas.

1.4 Enhancing Availability of Trained/Skilled Personnel to Perform EmOC in Rural Areas-Redefining the Role: While it is difficult to provide lower staff as discussed above, it is even more difficult to provide specialists in rural areas. PHCs are provided for only general doctors. Indian health staff pyramid for a district with about 2 million people is given in the table below. The table also shows who can do what with their basic training and with additional training.

Category	Numbers	EmOC Fncions		
		Basic EmOC	CS	Blood Transfusion
Specialist	3	Can do	Can do	Can do
GP (MO)	70	Can do	Can do with training	Can do
ANMs	400	Can do with training	Can no do	Can do with training

In India nearly 85 % of cases of EmOC require only Basic EmOC (Mothercare, 1996). One could argue with the exact figure but it could vary from 70% to 85%. The basic EmOC can be performed by lower staff like ANM, nurse and MOs under the supervision

of experienced MO or specialists. Caesarean operations are by and large performed by obgyn specialist with the help of specialist anaesthetist.

In many countries trained general doctors perform caesarean sections. Basic EmOC is also done in many countries by nurses and midwives. Blood transfusion can be done safely by technicians and nurses who have been trained. However, in India and many other countries ANMs and nurses are not legally allowed to do BEmOC functions. Also GPs are not encouraged to do CS or Blood transfusion. Freedman (2002) suggests anaesthesia performed by specially trained nurses may be slightly less safe for individual patients but given the higher number of nurses available the overall mortality in the community will be lower due to more women needing the services will get them and be saved.

Blood transfusion is even much simpler technique than giving anaesthesia. And hence delegating it to MOs or ANMs/ Nurses at basic level could save even more lives. This logic could be extended to CS and other skills. Lower staff with suitable training can perform some of the Basic EmOC functions. For example, the decision regarding administration of parenteral antibiotics, parenteral oxytocic drugs, parenteral anticonvulsants for pregnancy-induced hypertension could be taken by trained ANMs after proper training and using standard evidence based protocol. Now with new mobile telephone technology being available in many areas if the ANM has difficulty she can consult the GP or specialists on phone. This will bring EmOC services closer to the place of stay of the women.

Barriers to delegating authority to perform EmOC functions at lower level: Even though the arguments for delegating the EmOC functions are logical in India and some other countries delegation does not seem to be happening. The reasons are follows:

1. Many program managers and policy makers do not have background in public health to understand the logic of delegation given above.
2. Such logic has not been presented to them in clear terms. Even though the logic of delegation is not new in public health – it started with primary health care (1977), and before that with concept of Village level health workers doing many things that doctors and nurses were supposed to do.

3. Many health managers and policy makers have not moved from ANC and high-risk, TBA training approaches to EmOC strategy. So they are working on delegation by training TBAs and provision of ANC by nurses to prevent maternal deaths.
4. Data regarding distribution of specialist, GPs and Nurses are not well presented to support the arguments of delegation. For example in India only in 1999 for the first time any data on availability of anaesthesiologist and Obgyns were collected in any survey nationally.
5. The specialists and their associations are not confronted by government with data to show the need of EmOC services in rural areas. Hence the associations tend to oppose any delegation fearing the loss of private practice to its members.
6. In India – where the legal system is more developed and laws like Consumer Protection Act have ushered in era of defensive medical practice – opposition to delegation will be more.
7. Mass media highlight deaths in the facility while ignoring many more deaths in the community, builds pressure not to delegate functions to lower levels.
8. Human rights perspective on public health is new and not yet widely understood or accepted by health policy makers, and legal profession in many countries. See annex 3 for Human Rights perspective on MH.

Does Delegation Work? Is there experience to show that Delegation of higher level functions in MH works or had been done? We know of following examples:

1. In countries with low availability of specialists, delegation of basic EmOC functions to non-physicians has been experimented. Evidences show that non-physician teams can be trained to undertake functions at the basic EmOC and emergency operations. For example, in Nepal and Mozambique where the availability of specialists is extremely low, the policy is to train other personnel to perform functions regarded historically as those of specialists.
2. In Mozambique trained medical technicians (less qualified than GPs) perform caesarean sections. They have successfully provided CS for many years now and complication rates are same as CS done by Obgyn specialists.
3. Medical officers were allowed to perform surgeries in Tanzania and many African countries. And they provide CS on regular basis.
4. Several Countries in Asia such as Bangladesh, Pakistan, Bhutan and Nepal have been training MOs to do CS and Anaesthesia. This is now being done using Competency Based Training Methodology developed by JHPEIGO with AMDD support. India also had pilot efforts in this direction.
5. In Africa (Tanzania and Ethiopia) midwives are doing BEmOC for many years.
6. With AMDD supported project midwives in Nepal are trained and doing BEmOC functions in remote areas.
7. In Africa and developed countries like USA, nurse anaesthetists are being trained and allowed to give anaesthesia for many years. Nurse anaesthetists are also being trained and practise in remote areas in India.

8. There are also examples of delegation in other areas - for example female sterilization and induced abortion is routinely done by GPs in India.

Key points to make delegation successful: For successful delegation of the functions to lower level staff following points need to be paid attention to:

1. Careful and hands on training is needed. Not only skill acquisition is needed but also building of confidence of the lower level staff in performing that function is equally important. There have been experiences of training the staff but they are not able to perform as they lack the confidence and skills.
2. Thrusting delegation of functions on unwilling staff rarely succeeds. The staff must be willing to take on more responsibility.
3. Staff should be recognised and compensated for additional responsibility and work they are doing due to delegation.
4. The additional risks (social, legal, financial) if some things go wrong must be effectively covered. The system should back the risk takers - no witch hunts if complications develop.
5. Support of professional bodies is crucial in implementing delegation. Avoiding their opposition is the minimum that is needed.
6. Delegation should not build over confidence or dilute the quality of services so as to be dangerous to the clients.

Thus who can do what and delegation of EmOC functions is important to achieve higher access. But it must balance access with quality of services so that overall outcomes improve in the whole community - not just for those who seek care at the hospitals or health centers.

1.5 Effects of Policies on Availability, Roles, Quality of Care and Commitment of Staff for EmOC:

National and state level policies of the government affect the availability, nature of work, quality of work and commitment of the staff for EmOC. We discuss these issues one by one with some examples. Here we interpret policies in wider senses, which includes, regulation, guidelines, program strategies and some times just conventions or past practice.

- a. *Policies that govern who can do what:* Policies prohibit trained general doctors to perform caesarean sections in some countries. Similarly, trained ANMs are prohibited from performing Basic EmOC signal Functions. In India nurses are not even allowed to give IV injections as per the nursing council guidelines. But in practice they do it all the time under direction of doctors. Such policies delay treatment in cases of emergencies, causing crucial time loss. Generally such policies do not make distinction between routine care and emergency situations. And hence they affect access to EmOC much more than they affect routine care.

For example, India general physicians at district or sub-district hospitals do not perform caesarean sections. They tend to refer such cases to nearest teaching hospitals. Contrast this with policy in Sri Lanka where CS is allowed to be done by GP who is trained by a consultant Obgyn.

In other professions like engineering, law and management, experience is highly valued. Experienced diploma holding graduates grow in organizations to perform highly specialised activities, reaching the top management positions. A lawyer with basic qualification can represent clients in any level of court- even in supreme court. What is needed in the MH field is to develop adequate training and certification norms for staff to qualify for doing EmOC services. Such system of skills development, linked with such professional growth will instigate motivation in staff to learn and perform in the lower level staff members. The LSS course by ACNM and CBT training by JHPIEGO steps in this direction.

- b. Policies governing posting and transfer of staff:** Postings and transfers in most of the states are highly centralised in India. The senior doctors have no involvement in deciding the team at their work unit. It adversely affects the commitment of doctors in the health sector (Bhat and Maheshwari, 2003). Unplanned postings and transfers are known to disturb EmOC teams and provision of EmOC services. Some times posting of qualified or trained staff at Non-EmOC facilities such as dispensaries in urban areas wastes the skills of highly qualified human resources. In the AMDD supported projects in India, we have observed that doctors with anesthesia qualification were posted at PHCs or in urban dispensaries where there is no operative work. Some times more qualified staff are attached to or posted to urban hospital while rural hospitals are having staff shortages. For example one urban hospital in a country in Africa had 48 midwives while a similar size district hospital in rural areas in the same zone had only 6-7 midwives who were overburdened.

Why are posting and transfer policies so unmindful of needs of EmOC services? Our reasons are as follows:

1. Few health administrators and policy makers realise the need to ensure round-the-clock EmOC services in rural areas.
 2. Some staff who have special qualification such as in anaesthesia or obgyn are working in the post of MOs. Hence the health system does not recognise their special qualifications for making posting decisions. The staffing decisions are primarily driven by seniority and political concerns. The concerns for skills and attitude of the personnel and needs of the area are secondary in staffing decisions. For example, in a newly formed state in India transfers of health staff require approval of the Chief Ministers.
 3. Some doctors have personal reasons or preferences to live in urban areas or at a particular location and hence they resist postings to other places.
 4. Posting and transfer data are not routinely collected, analysed or published so that there is no pressure from the community or media.
- c. Do policies affect quality and commitment of human resources?** Policies affecting continuous medical education, licensing of health professionals, accreditation of training and teaching institutions can affect the quality of HR in health. But in most developing countries such mechanisms are weak. AMDD's experience shows that

many of the medical colleges and other training centers themselves need quality improvement before they can conduct training of lower level staff. Very few countries have policies which mandate use of evidence based protocols, standards or clinical audits.

Policies of rewards, recognition, compensation and promotion, and protection against social and legal risk closely influence the commitment of staff to take up new activities such as EmOC. It is likely that many staff who are trained but do not perform the EmOC procedures because they do not see any personal benefit from providing additional services to the community when there are no policies to compensate them for the additional work they are doing and risk they are taking.

- d. Policies related to private practice, choice of location and emigration of health staff:** Various countries and states in India have different policies for allowing private practice to government doctors. These policies have very powerful influence on behaviour of doctors. When private practice is allowed the key challenge is to ensure that the doctors devote adequate time to seeing patients in public sector, do not charge the public sector patients and do not push patients from free public system to fee-for service private practice. These issues are very profound and need much more detailed analysis, which is beyond scope of this paper.

Policies allowing staff a choice of location (urban - rural), public vs. private hospital employment and option of emigrating to other countries or states also affect the availability of skilled staff in rural areas. In this area the policies also interact with market forces, which provide alternatives to the professionals. For example with in AMDD supported projects we have been seen that some critical staff such as nurse anaesthetists and obgyns have left the rural public sector jobs for more lucrative private sector employment in urban areas, thus rapidly worsening the access to skilled care in rural areas. Simultaneously, not to allow staff to take up better opportunities in urban areas and in other countries would infringe on their fundamental rights.

2. COOPERATIVE BEHAVIOUR OF HEALTH PERSONNEL

The essential cooperative behaviour is an outcome of competencies, commitment and accountability of personnel. These three variables are influenced by social context, HR policies and practices and the organizational structure (Figure 1).

2.1 The Context: The social status of health professionals in India is high (Bhat and Maheshwari, 2003). This high social status contributes to professional commitment of health professionals.

In India, the rising individual centric human right ideology is creating unique conflict of interests. Consequently, the professionals have started seeking safer route like excessive investigation fear of error of judgement and confining to narrow scope of specialization. It has increased the cost of treatment and prohibits many patients to undertake treatment in the absence of persons with relevant specialization. Though it is the beginning of this

trend, this pattern has to be closely monitored. The application of “Consumer Protection Act 1986” to health sector has further added to this trend.

Indian Medical Council Act 1956 authorises the Medical Council of India to prescribe minimum standards of medical education for granting degrees. It also prescribes standards of professional conduct, etiquette and code of ethics. Historically, the Council has adopted individual centric approach. The rules try to respond to, “What is in the best interests of the Patient.” Consequently, societal concerns have been neglected. These approach constraints the services in low resource settings.

Health laws in India are scattered over various enactments. **Bhore Committee** in its analysis identified that provisions in law are not adequate to facilitate efficient administration and implementation of health programmes. The laws need to integrate the expectations of the society and promote self-regulatory medical councils.

Public expenditure on health in India is less than 1 % of GDP (Table 1). It is one of the lowest in the world. There is shortage of equipments and drugs in the health sector in India. Simultaneously, available equipments are not adequately used in some of the states for the want of technical people. It was found by the authors in one of the states that there were many X-Ray machines that have not been used even once since their purchase more than 3 years back owing to lack of technicians to operate the machines.

Since the last decade, health sector in India is getting corporatized. Large speciality hospitals in big cities get many concessions in the form of cheap land, tax exemptions and import tariff waiver on equipments. This practice indirectly transfers funds from primary health sector to corporate hospitals that are driven by profit motives and interests of influential urban middle class. Hence, strengthening of EmOC requires a review of current policies regarding expenditure on Primary Health System.

2.2 Sector design and work environment: The structural arrangements of the sector and HR practices are the major intervention tools that need to be undertaken to achieve required service capability in the health sector. In our view following elements of structural design need immediate attention of policy makers.

Socialization: Cooperation between doctors can be developed in India where public and private health systems co-exist through socialization network. Socialization that is meant for indoctrinating organizational norms and values is a strong control mechanism. They are also strong levers to enhance commitment of people.

It is suggested that district level administrative boards be created for local administration, suggested earlier, where all service providers interact at least once in a month. Such socialization processes enhance both the professional and organizational commitment.

Roles and Responsibilities: Health professionals in most of the countries perform two distinct activities as listed in table 2. These three activities require different behavioural pattern.

Table: Roles and Responsibilities in Health Sector

Activities	Regulatory and administrative	Providing Care
Expected behaviour	Repetitive and predictable behaviour High concern for quantity and numbers Authority driven paternalistic leadership Top-down communication	Cooperative, interdependent behaviour High concern for quality of care Influence driven benevolent leadership Bottom-up and Top-down communication
Supportive structure	Centralised decision-making High power distance between different levels Long hierarchy	Empowerment at lower levels Low power distance between different levels Short hierarchy
Assumptions behind the structural design	Do not trust people unless proved worthy of that Do not leave things to chance	Trust people unless proved unworthy of that
Roles and Responsibilities	Relatively fixed and explicit job description that allows little room for ambiguity Narrowly designed jobs and career paths	Explicit but changing job description High level of employee involvement in deciding immediate work conditions and job itself

Effective execution of service functions requires organic instead of mechanistic, free flowing instead of controlled, interactive instead of top-down relationship between

service providers. However, health professionals are expected to perform the other way in their regulatory role. It creates confusion and anxiety among the physicians at different levels. Two roles require two different patterns of behavior, structure and communication process. As regulation is the most dominant act of the government, mechanistic structure and systems prevails in government. Low involvement of employees, stable job descriptions and highly rules and procedure bound functioning of state directorate lowers the organizational commitment of health care providers. Health sector reforms in UK in last decade have tried to resolve this problem by separating the administrative and service components into two different cadres.

The other central issue of structure relates to Monitoring. Centralized monitoring has proved ineffective. As suggested by Bhore Committee, creation of community health councils, composed of representatives of a cross-section of the people in the community, to develop and control primary health care would improve the monitoring and quality of care. To make it effective, states would create forums for socialization of officials and community representatives to facilitate the development of their mutual trust and relationships. It is important as trained health professionals currently find themselves in the environment with draconian, unsupportive management and ill-defined obstetric protocol in many countries.

The district level plays a pivotal role in public health department since it is a self-sufficient entity. In the recent study (Bhat and Maheshwari, 2003) it was found that district level officials felt helpless to decide most of the matters. It adversely affected their commitment. Such centralization of decision-making facilitates regulatory functions. However, activities such as EmOC require empowerment of decision-making at lower level. Creativity to find solutions to local problems gets adversely affected by such centralization.

Owing to administrative reasons the administrative tasks and responsibilities are reasonably well communicated to health personnel in India. However, explicit statement regarding the quality of care does rarely exist. It adversely affects the team functioning.

Integration of expectations of multiple stakeholders i.e. women and their families, professional bodies, activists and NGOs, and regulators in the job description of health personnel would be important. Resolving inherent conflicts in job descriptions would help health officials communicate health priorities in unambiguous terms. Different stakeholders and their primary interests are tentatively listed below in table 3.

Table 3: Tentative list of interests of different stakeholders

Stakeholders	Interests of stakeholders
Women and their families	Women's survival and health Survival and health of new born Low cost of health care Quality healthcare at convenient location
Activists and NGOs	Protecting the rights of women Welfare of the targeted groups Seeking visibility to secure funds from donor agencies
Professional bodies	Protecting role-domain of professionals Protecting members from rising human right concerns
Regulators	Enforcing laws of health care
Donor Countries	Promoting health objectives Enhancing their visibility

The classical conflicts between the interests of Human Right activists, women and medical practitioners are crippling the system. Medical professionals refrain from undertaking the risky activities in emergencies owing to fear of human right activists, thus affecting EmOC. Hence, there is a need for collective role negotiation to describe roles and responsibilities of stakeholders in the health system accordingly. The suggested local health councils should be able to confront these conflicts effectively.

Staffing: At the local levels, owing to regulatory framework of management of health services as discussed above, transfers and postings of health personnel is centrally controlled in most of the states in India. Consequently the commitment of personnel and team functioning gets adversely affected. To enhance the quality of EmOC, it is essential to involve personnel in field in staffing decisions.

Training and development: There are two broad components of training; technical and behavioural.

Technical Training: As realised, one of the ways to extend EmOC to rural setting would require trained general doctors and other health workers. It is suggested that induction training be given to ANMs to provide limited EmOC. The training of general practitioners in life-saving skills and basic surgical/obstetrical skills is relied upon by many developing countries to provide EmOC. Prioritising these modules in in-service training for GPs may be a key maternal mortality reduction strategy. Training can also be used as a tool to attract people to work in rural areas.

Behavioural Training: The pre-service education and training of physicians, nurses and other personnel in India does not adequately include socio-behavioural dimensions of care. The integration of social sciences in both the pre-service and in-service medical educational programmes is important for addressing team functioning issues of EmOC.

The concern for life-long education of doctors can be addressed by developing specialised institutions of repute with international collaboration in developing countries. The efforts to train nurses, midwives and other health personnel should also be addressed by these institutions.

Career Growth: One of the major weaknesses of the career system in most of the countries refers to the movement from clinical settings to administrative settings owing to the superiority of administrative positions over clinical positions. Consequently scarce health professionals are lost from service delivery. Reforms in UK separated the two cadres, while maintaining the superiority of personnel in clinical setting over those in administrative settings. Such cadre interventions along with professional growth opportunities are vital for high organizational and occupational commitment of health personnel for EmOC.

Rewards and Incentives: Among the greatest obstacles to provide adequate EmOC is the low level of salaries paid to personnel at higher levels in developing countries. Salaries are relatively better at lower levels in public health system than in private health settings. Consequently, staff turnover is low at lower levels; it is high among specialists in public health system. Some of the destinations to these specialists have been the developed countries. Recent open invitations by developed countries for nurses and other such staff instigated migration at these levels too.

Another feature of reward and incentives is the absence of their linkage with performance. Though it is not desirable for EmOC to provide for significant performance linked rewards, some linkage would be helpful. Very high linkages adversely affect the team functioning, hence could be avoided. However, recognition in the form of specialised trainings, attractive roles etc. would be desirable for these professionals. It will facilitate development orientation, thus the organizational commitment.

Socialization and Teamwork: EmOC requires close coordination between different trained health workers. Lack of teamwork would significantly reduce the quality of EmOC. The issue gains importance as these skills are not developed among these personnel in pre-service training. The development of these skills requires training programmes for the purpose and enhanced socialization among the team members. Formal mechanisms such as seminars, conferences, and knowledge sharing meetings, social get-to-gathers should be encouraged to develop teamwork among the people. As suggested earlier in the paper, meetings at the district levels would be extremely useful. These socialization forums should also be used for indoctrinating the organizational values and beliefs. Value based control and commitment is a viable alternative for the sector as direct monitoring is not possible in service sector, especially in rural areas.

Code of Conduct: There have been debates in health sector whether to have code-of-conduct for professionals in health sector. Professional bodies have been resisting the

attempts to develop norms for the sector due to their fear of losing the flexibility. Human rights and other such agencies have already made it imperative for professionals to adhere to the certain basic norms. In some of the cases, judicial interventions have taken place when the community was not responding enough.

SUMMARY AND CONCLUSIONS

Summary and Conclusion: Maternal mortality continues to be high in developing countries and can be addressed only by the timely, effective and quality delivery of EmOC. For the effective implementation of EmOC, a country needs to address the HR issues and challenges that it gives rise to. This paper analyzed the Three Delay model for EmOC reform and brought out relevant HRM concerns. The foremost among these is the non availability of personnel like trained dais, ANMS, Nurses, general and specialist doctors. Each of these cadres have different reasons for not working in rural areas/, providing EMOC care and/or not to work at optimal level.. This can be dealt by adopting suitable HR policy with regard to recruitment, appropriate incentives and structural changes. For instance not only dais and ANMS need to be properly recruited but also complemented by adequate training and incentive schemes. In contrast Doctors are confronted by various push and pull factors and have more professional commitment. Thus the need here is to encourage them by proper career development mechanisms . In resource scarce developing countries alternate ways of cost effectively delivering EmOC has to be taken care of by such measures as training of general doctors for caesarean section, nurses for giving anesthesia, different and shortened curriculum for a specialized cure in maternal health etc.

The second issue of concern is the low quality of services provided by existing personnel and the lack of creativity and innovation to solve management problems on the field. This paper discussed these issues by forming a framework in which the context and Sector design and work environment affects the pro social behavior which in turn leads to stakeholder satisfaction. Maternal health is influenced by the social environment in which there are various stakeholders like regulators, professional bodies, NGOs and the public at large. The departmental context of monitoring, resources also impacts the

delivery of EmOC services. The main issue brought out is the contradictory roles and responsibilities that health professionals have to carry out and the conflicts that these give rise to. The regulatory role needs relatively fixed and explicit job description that allows little room for ambiguity and narrowly designed jobs and career paths. This is a contrast to the role as a provider of care which requires explicit but changing job description and high level of involvement in decision making. The provider role is more relevant and appropriate for the effective delivery of EmOC services. Policies which give due importance to the provider role needs to be formulated and existing policies modified. Thus the HR agenda for successful implementation of EmOC services should deal with staffing, training and development (both technical and behavioral), career growth, socialization and teamwork and proper incentives.

Annex 1:

Table 1: Availability of Physicians in different countries (Source: UNDP, 2003)

Countries	HDI Rank	Physicians (Per 100,000 population Year: 2000)	Health Expenditure		
			Public (as % of GDP) Year: 2000	Private (as % of GDP) Year: 2000	Per capita (US\$) Year: 2000
South Africa	111	443	3.7	5.1	663
United States	7	276	5.8	7.3	4499
Mongolia	117	254	4.7	2.0	120
Egypt	120	218	1.8	2.3	143
Dominican Republic	94	216	1.8	4.6	357
Japan	9	197	5.9	1.8	2009
United Kingdom	13	164	5.9	1.4	1804
Brazil	65	158	3.4	4.9	631
Singapore	28	135	1.3	2.3	913
Turkey	96	127	3.6	1.4	315
India	127	48	0.9	4.0	71
Sri Lanka	99	41	1.8	1.9	120
Bangladesh	139	20	1.5	2.6	47
Bhutan	136	16	3.7	0.4	64
Nepal	143	4	1.6	3.6	64

Annex 2:

Definition of EmOC and Signal Functions: EmOC is defined as management of an obstetric complication, which is potentially life threatening to the mother or foetus or both. It refers to the functions, called Signal Functions, necessary to save lives. These functions include:

- a) **Basic EmOC:** They are performed in a health centre without the need for an operating theatre. The functions include administering parenteral antibiotics, administering parenteral oxytocic drugs, administering parenteral anticonvulsants for pre-eclampsia, performing manual removal of placenta, performing removal of retained products and performing assisted vaginal delivery.
- b) **Comprehensive EmOC:** They require an operating theatre and are performed in district hospitals. They include all Basic EmOC functions plus performing caesarean section and performing blood transfusion.

Annex 3:

Human Right Perspective: Human Rights as a philosophy is premised on the equal valuing of every individual human life (Freedman, 2002). This individual-centric perspective fails to address the unequal reach of different populations to health services. The prevalent Human Right philosophy augers well in the context where services are adequately available or could be made available. However, in developing countries MMR indicate massive deprivation of fundamental rights. Hence, individual-centric approach of Human Rights should give way to population-centric approach till the services are adequately available.

Annex 4:

Structure of the Public Health System in India: At the central level the union Ministry of Health and Family Welfare (MOHFW) has three departments; department of health, department of family welfare and the department of Indian System of Medicine each headed by secretary to the government of India. A Cabinet Minister, ministers of state and deputy health ministers head the ministry. The Directorate General of Health Services, an attached office of the MOHFW, is its principal adviser (Park, 2000).

The state governments have to function within the parameters of the national health policy laid down by the union government in 1983 (Gupta and Gumber, 1999). The Central council of Health coordinates between the Center and the states in the implementation of programmes. It consists of Union minister as chairman and state health ministers as members. Also the government of India provides the link and regulates the relation between the state governments and international agencies.

The broad administrative structure for health in various states is more or less similar except with some minor variations. At the headquarters in a state capital, there are two levels, the secretariat and the directorate of health services. Minister of health and

Deputy Minister head the State Ministry of Health. The Health Secretariat is the official organ of the state Ministry of health and is headed by a secretary and his assistants. The Director of Health Services is the chief technical adviser to the state Government on all matters relating to medicine and public health. For administrative reasons the states are divided into a number of zones or regions through which the directorates supervise and control the field operations.

The district level plays a pivotal role in public health department since it is a self-sufficient entity. It is also the most appropriate level of decentralization. The effective implementation of various health policies and programmes largely depends upon the supervision and control exercised by the district officers over the management of health centers in the district. The district collector or Zilla parishad president co-ordinates and supervises all other relevant departments. In districts, the district health officer/chief medical officer is the in-charge of managing medical and health services and family welfare. The district hospitals are usually under the charge of civil surgeons (Gupta and Gumber, 1999).

Annex 5:

The facility survey done in 1999 under RCH program quantitatively confirmed that staffing was a major problem in many FRUs and also in some district hospitals – which was a surprising finding. The survey also showed that the staff also lacked specific trainings. See table below.

Table: Percent of health care establishments having specific staff³

Percent having Staff			
Staff category (N)	DH (210)	FRU (760)	CHC (886)
Obstetrician/ Gynaecologist	78	48	28
Paediatrician	78	37	19
RTI/STI specialist	35	08	03
Pathologist	45	10	06
Anaesthesiologist	70	22	10
Laboratory Technician	93	86	74
Staff nurse	94	93	87
Pharmacist	96	92	88
Training of medical officers in specific skills			
Sterilization	32	28	21
IUD insertion	25	27	22
Emergency Contraception	19	17	11
RTI/STI	24	26	21
New born care	21	22	17
Emergency obstetric care	19	17	11

DH=District Hospital; FRU=First referral unit; CHC=Community health centre

³ International Institute of Population Sciences. Facility Survey (under Reproductive and Child Health Project) Phase I, India. Mumbai: IIPS. March 2001. Sponsored by Ministry of Health and Family Welfare, Government of India

Table: Maternal health indicators in NFHS 1 and 2 surveys (7,10)

Maternal Care Indicators	NFHS 1 1992-93	NFHS 2 1998-99
<u>Antenatal Care according to source of ANC Care</u>		
At home by health worker	12.8%	5.6%
Doctor	39.8%	48.6%
Other health professional	9.3%	10.9%
TBA	0.3%	0.2%
No ANC	36.8%	34.0%
<u>Number of ANC visits</u>		
None	36.8%	34.0%
1 visits	6.1%	8.2%
2-3 visits	29.3%	27.6%
4+ visits	26.9%	29.5%
<u>Stage of pregnancy at first ANC visit</u>		
No ANC	36.8%	34.0%
I trimester	24.0%	33.0%
II trimester	27.2%	25.2%
III trimester	11.4%	7.4%
<u>Tetanus toxoid vaccination (of mother)</u>		
None	39.0%	24.1%
One	7.1%	8.2%
Two or more	53.8%	66.8%
<u>Iron and folic acid tablets or syrup</u>		
Any iron and FA acid tablet or syrup	50.5%	57.6%
Received supply for 3+ months	NA	82.5%
Consumed all the supply	NA	80.5%
<u>Place of delivery</u>		
Public health facility	14.6%	16.2%
Private health facility	10.9%	17.4%
Home (own)	61.6%	53.2%
Home (parents)	11.9%	12.2%
<u>Assistance during Delivery</u>		
Doctor	21.6%	30.3%
ANM/nurse/midwife	12.6%	12.0%
TBA	35.2%	35.0%
Relative/ other	29.5%	22.4%
None	0.6%	NA
<u>Complications at delivery</u>		
No complication	87.9%	NA
Caesarean section	2.5%	7.1%

Note: Don't know or Missing Values not given which was less than 1 % for all indicators.

NFHS=National Family Health Survey; TBA=Traditional birth attendant; ANC=Antenatal care; NA = Not available

References:

World Health Organization, (1997). "Coverage of Maternal Care: A Listing of Available Information, Fourth Edition." Geneva:WH

Lee, Hyun-Jung (2001). Willingness and Capacity: the Determinants of Prosocial Organizational Behaviour Among Nurses in the UK, *International Journal of Human Resource Management*, 12(6): 1029-1048.

Thaddeus, S. and Maine, D. (1994). Too Fear to Walk: Maternal Mortality in Context". *Social Science Medicines*, 38(8).

Maine, D. (1995). Maternal Mortality: A Misunderstood Problem, *Public Health Magazine*, 5(1).

Smith, Jason B.; Coleman, NII A.; Fortney, Judith A.; Johnson, Joseph De-Graft; Blumhagen, Dan W. and Grey, Thomas W. (2000). The Impact of Traditional Birth Attendant Training on Delivery Complications in Ghana. *Health Policy and Planning*; 15(3): 326-331.

World Bank (1993), 'World Development Report 1993-Investing in Health', Washington D.C: Oxford University Press.

United Nations Population Fund, Reducing Maternal Mortality and Morbidity. *Programme Advisory Note*. No 5. New York: UNFPA

Government of India, (2002), 'Health Information of India 1999', Central Bureau of Health Intelligence Ministry of Health & Family Welfare, New Delhi: MOHFW. pp.xxxxvii

Mavalankar, Dileep (1999). 'Human Resources Management: Issues and Challenges'. In: *Implementing a Reproductive Health Agenda in India: The Beginning*. New Delhi: Population Council. Pp 179-200

Mavalankar DV (1997). Auxiliary Nurse Midwife's changing role in India: Policy issues for Reproductive and child Health. (Unpublished)

Mavalankar, Dileep (1999). 'Promoting Safe Motherhood: Issues and Challenges'. In: *Implementing a Reproductive Health Agenda in India: The Beginning*. New Delhi: Population Council. pp 519-538.

World Bank, (1999). 'Investing in Health. Development Effectiveness in Health, Nutrition and Population Sector'. Operations Evaluation Department. Washington D.C.: World Bank

Mother Care, (1996). 'Child Survival and Safe Motherhood Programme Review and Assessment: Lessons Learned and Recommendations'.- An Evaluation Report Prepared

for the Ministry of Health and Family Welfare of India. Arlington: MotherCare, John Snow Inc.

World Bank, (2003). 'Investing in Maternal Health. Learning from Malaysia and Sri Lanka'. Human Development Network. Washington D.C.: World Bank.

United Nations Development Programme (2003), 'Commitment to health: access, services and resources.' In: *Human Development Report 2003*,

Mavalankar, Dileep (2002). 'Policy and Management Constraints on Access to and Use of Life-Saving Emergency Obstetric Care in India'. *Journal of American Medical Women's Association*. Vol 57 No 3. Summer 2002:165-168

Freedman, Lyn P(2002). 'Shifting Visions: "Delegation" Policies and the Building of a "Rights-Based" Approach to Maternal Mortality'. *Journal of American Medical Women's Association*. Vol 57 No 3. Summer 2002:165-168

Smith, Jason B, Coleman, Nii A et al. (2000). 'The impact of traditional birth attendant training on delivery complications in Ghana'. *Health Policy and Planning*. Vol 15 (3). London: Oxford University Press .pp 326-331

Bhat, Ramesh and Maheshwari, Sunil Kumar (2003). Health Sector Reforms: HR Agenda, Unfinished Research Paper.

Gupta, Devendra B and Gumber Anil, (1999). 'Decentralization: Some initiatives in Health Sector'. *Economic and Political Weekly*. Vol 34(6): 356-362

Park K. (2000). 'Park's Textbook of Preventive and social medicine'. 16th edition, Jabalpur: Banarsidas Bhanot.