An action plan to assess the current situation of maternal newborn care at government health facilities in Jharkhand, India

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An action plan to assess the current situation of maternal & newborn care at government health facilities in Jharkhand, India

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Abstract

Maternal and child health care especially safe motherhood services are an important factor in the primary health care and are the responsibility of the government and ministry of health. Consolidating and strengthening health network and quality of primary health care is one of the priority issues of the state and the health department for providing good health care and protection to the population.

Since, long government health facilities, in spite of being the main source of health care services for majority of people, especially for those having low income; has very poor condition. Therefore, it's important to improve the quality of services in the government facility, which can be achieved by stressing on the context of care provided. Situational analyses or facility audit are tools which use various approaches to identify the gaps in the structure and Process of the facility, in order to determine the best intervention to improve the performance.

This study proposes an 'Action Plan' to assess the current quality of care in Govt health facilities in Ranchi, Jharkhand concerning Maternal and newborn care. By using Qualitative and quantitative study Methods like Site assessment, exit interview and focused group discussion. The method aims to identify together with major gaps; the entire minor gaps in the health system responsible for maternal and newborn mortality and morbidity that could be solved at the local level without the involvement of additional resources. The results obtained could be used to frame interventions to strengthen Maternal and newborn care system of Jharkhand.

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Key Messages

What is already known about the study?

- Services were based on the knowledge of the provider and policy maker.
- Quality depends on wider coverage.

What will this study add to the knowledge already known?

- Study will show that quality care depends on structure and process.
- Study will show that quality care depends on the needs of the users.

Abbreviations

Add-PHC	Additional Primary Health Centre
ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
CBR	Crude birth rate
CDR	Crude death rate
CHC	Community health centres
CHC	Community health centre
CINI	Child in Need institute
CSSM	Child Survival and Safe Motherhood
EMNC	Essential Maternal Newborn Care
EmOC	Emergency Obstetric Care
FDG	Focus Group Discussion
FRU	First referral unit
GOT	Government of India
HSC	Health sub centre
ICPD	International conference on Population and development
IDU	Intra uterine device
IMNCI	Integrated management of neo natal and childhood illness
IMR	Infant Mortality ratio
IPHS	Indian public health standard
LHV	Lady Health visitor
MMR	Maternal mortality ratio
NFHS -2	National family health survey- 2
NGO	Non governmental organization
NRHM	National Rural Health Mission
NSSO	National sample survey organization
NVDBDCP	National vector borne disease control program
OPD	Out patient department

PHC	Primary health centre
RCH	Reproductive and Child Health
RGI	Registrar General of India
SC	Schedule Castes
SPSS	Statistical Package for social sciences
SRS	Sample registration Survey
SRS	Sample registration system
ST	Schedule tribes
TBA	Traditional Birth attendant
TFR	Total fertility rate
TTinj	Titanus Toxoid injection
UNFPA	United Nation Population fund
WHO	World Health Organization

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1.0: Introduction:

Healthy Motherhood not only benefits the newborn but influences the global and national development (Fraser A. et al 2004). The international conference on population and development (ICPD), 1994 has stressed on the importance of women's health and especially reproductive health for overall development. For long the international health community and national health planners, have directed their efforts towards increasing the coverage of maternal care (antenatal, delivery and postnatal) but less attention has been directed to the content of the program. As a result, data indicative of high coverage of care were commonly coexisting with high levels of maternal and neonatal morbidity and mortality (WHO, 1994).

The magnitude of maternal and newborn care problems in Jharkhand, India is immense as indicated by various available indicators. This high level of mortality and morbidity, 'cost containment', increased demand for services, focus on effectiveness and efficacy, changes in demography and epidemiological factor' has increased the concerned for good quality, client satisfaction care in the primary health care services (Sundari TK, 1992). The 42nd round (1986-87) and 52nd round (1995-1996) of national sample survey organization (NSSO) mapped a decline trend in both rural and urban utilization of public sector health services in India, for hospitalization and non-hospitalization treatment. Though, use of public health facilities has declined but it continues to be the major health service provider, particularly for reproductive and child health in most part of India. Therefore, it is necessary to create an appropriate and quality mother and child health care and family planning services network, especially in rural areas (Nicholas D, et al 1991).

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The concept of special care services during high risk child bearing period had started in India since the first and second five year plan (1951-56 and 1956-61). Promotion of maternal and child health has been the main aim of Family welfare programme (1969-74) in India. This was followed by interventions like child survival and safe motherhood (CSSM) in 1992-93 which merged with Reproductive and Child health (RCH) programme in 1996.

Although Maternal and child health care services have been working since decades, mostly through Government health facilities, still the magnitude of maternal and newborn care problems in Jharkhand is immense as indicated by the available indicators compared to global and national figures. It has also been seen that government health facilities in spite of being the main source of health care services for majority of people living in rural and urban area, especially for those having low income; has very poor condition. But the core lies in the fact that maternal mortality cannot be reduced unless Obstetric Complications are treated effectively, which requires an integrated health system, continuous from the community to the health facility. This has increased the concerns for quality of care at govt. health facilities. Therefore, it's more important to know what will reduce Maternal Mortality in the population rather than knowing how to prevent mortality.

2.0: Literature Review:

2.1: Background:

The growing concern over the high mortality of mothers and newborns, costs and organisation of the health services have focused the attention of Legislative, professional and public towards Quality of health care.

Globally each year more than 585,000 million women die due to pregnancy and child birth related preventable causes (UNFPA 2004); of these deaths 99% occurs in developing countries and about 1% occurs in developed countries (WHO 2001). In India Maternal mortality ratio is 540/100,000 live births (WHO 2006) and that of Jharkhand state is approximately 451/100,000 (same as in Bihar in 1997); (RGI,SRS,1997-98).This is very high compared to the international scenario like Sweden (8) , UK(11) , Greece(10),and even in neighbouring countries like Sri lanka (92), china(56) and Thailand (44)/100,000 , (WHO 2006).

Similarly, global figure for Infant mortality is about 7.1 million deaths each year; of these deaths half die in the first 28 days after birth (neonatal period). Of the infants dying in the neonatal period about 75% die in the first week after birth (Lawn J.E, et al, 2005). In India, about 2.1 million child death occurs every year, which is the highest number in a single country. (UNICEF 2004). The national under five mortality rate of India is around 85/1000 live births (UNICEF 2006) although there is wide variation between states. In Jharkhand state, the under five mortality rate is 69/1000 live births (NFHS-3 2005-06).

Fourth and fifth millennium development Goals (signed by 189 countries); demands reduction in infant and Maternal Mortality ratio respectively by 2015 ,which has not been possible even after so many years of safe motherhood interventions (initiated in 1987) in developing countries (WHO 1994). Similarly, the condition of Jharkhand too has not improved, even after interventions like child survival safe motherhood programme (CSSM) started in 1992 and Reproductive & Child health programme (RCH) started in 1996-97; still the infant mortality ratio and fertility rate shows a rising trend in comparison to India; where also the situation is not very comfortable. The fertility rate of Jharkhand has increased from 2.8 in 1998-99 to 3.3 in 2005-06, (Appendix- 4 Chart –1). This means increase in life time risk in women and only 5% facilities give EmOC facility round the clock (Table-1), so more risk of maternal death.. Therefore, it's important to find what will reduce maternal and infant mortality in the population of Jharkhand.

This study focuses on quality assessment of maternal and newborn care services. A literature search was done in pub-med, using MeSH terms, also manually in search engines like Google, Scrius and visiting different 'international development' websites. Fifty one articles were found studying various aspects of maternal and newborn care in many developing countries, only few studies focused on the functioning of primary health care and almost negligible studies on this issue is done in Jharkhand, India. The key terms used were: Maternal child health centres, Maternal health services, Maternal Mortality, Obstetric care, Health Facility, Health facility planning, Health services, Quality assurances, outcome assessment, facility audit ,Quality care , newborn care, developing countries and Indigenous maternal health.

2.2: Overview of Jharkhand:

Jharkhand was carved out of Bihar State in 2000 (JISH, 2001)and is situated on the Eastern side of India (Map- Appendix - 1). Jharkhand's bordering states are, Bihar to the north; Uttar Pradesh and Chhattisgarh to the west; Orissa to the south and west Bengal to the east. With Ranchi as its capital; Jharkhand has 22 districts, 33 subdivisions, 211 blocks and 32,620 villages (NFHS-2, 1998-99). A large area of Jharkhand (about 2.38 million sq. km) is covered by forests, rich in enormous amount of mineral resources; supplying one third of mineral resources of India, also large scales industries both private and public sector exists. 75% of the total tribal population of central India are mostly concentrated in Jharkhand, Madhya Pradesh and Orissa. Jharkhand's population consists of 24.8% schedule tribe and12.6% schedule caste (Gupta P.K, 2004).

2.3: Demographic characteristics of Jharkhand:

Jharkhand is predominantly a rural state with 78 percent of its population living in 32,620 villages. Only 22 percent of its population lives in 43 urban settlements, comparatively less than the national average. Literacy difference between Jharkhand (58.6%) and India (67.6%) is moderate but great compared to tribal population (25.9%) and worse with tribal females (14.5%) of Jharkhand (NSSO 1991).

2.4: Tribes in Jharkhand:

Tribes of Jharkhand are the indigenous people of that area. They are also called 'Adivasi' meaning residing from a very early age in India (Thapar R.A, 1990; Govt. of India 1949). The Government of India for administrative purposes uses the terms 'schedule tribes' and 'schedule Castes' for tribes and castes that the government recognises (since 1950) as socially and economically backward and in need of special protection from injustice and exploitation (Govt. of India 1950). In all, there are 31 tribes in Jharkhand.

5. People of Jharkhand, Source: Yahoo Image Search

Each tribal group have their own culture, geographical concentration and distinct social customs. In spite of diversity there are some broad similarities among the groups like style of living, common dialect, cultural homogeneity and unifying social organisation (Basu S. K, 1994).

2.5: Health and Socio-economic Status of Tribals:

Tribal of this region are at different stages of economic development. The Dhebar Commission (1961) observed four layers among the tribal population (Basu S.K, 1993).

Photo: 4 Scene of a Tribal Village in Jharkhand, Source: Yahoo Image Search

The top most layers, e.g. Kherwar whose members are quite affluent and their style of living are similar to non-tribal. The second are the settled agriculturists e.g. Santhals, Mundas, Oraons etc., who are on the way of transforming into the top layer. The third category is of those who have hardly shifted from their habitat and still practice shifting agriculture in the high lands e.g. Khasis. The fourth category (at the base line) are tribal those are extremely underdeveloped,

isolated, encysted in their original habitat and have negligible exposure to the main stream e.g. the primitive tribes such as Birhor.

2.6: Maternal Health:

The status of maternal health in the state of Jharkhand is very grim; evident from - Table: 1. Quite a large percentage of women do not receive ante-natal care(ANC) from any source. Only about 7% women are visited by health worker at home, and at least 10% women get ANC in government health facility. However, relatively good percentages (23.6%) of women get ANC at private health facilities (Gupta P.K 2004). Postnatal care is also very poor (17%). Moreover percentage of functioning Emergency Obstetric care facilities is just 5%. Even Maternal Mortality Ratio Data is not available, it is assumed to be 451/100,000 live birth (MMR of combined Bihar 1991). But Jharkhand Health policy is committed to "reach health care to the last village, the last household and the last person in the State'[1].

Table: 1

Health Status of Jharkhand compared with India.			
	Outcome	Jharkhand	India
1	MMR/100,000	451*	540
2	IMR/1000 live birth	69	57
	Maternal Health		
3	Percentage of women who get registered and get • 3antenatal check up • 2 TT INJ. • IFP Tablets	 36.1 50.6 14.6	 50.7 60.0 22.3
4	Institutional Births (%)	19.2	40.7
5	Births by Skilled Attendants (%)	19.9	48.3
6	Complicated pregnancies that get EmOC (%)	-------	25
7	Mothers who receive postnatal care within 2days of delivery (%)	17.0	36.4
8	Mothers not wish to have more than 2 children (%)	64.3	83.2
9	Family planning methods used by women's (%)	35.7	56.3

[1] www.jharkhand.gov.in 15/5/2007

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10	Unmet need for Family planning (%)	23.7	13.2
	Child Health		
11	Neonates who were breast fed with in hours of birth(%)	10.9	23.4
12	Exclusive Breast feeding (%)	57.8	46.3
13	Children 12-35 months fully immunised (%)	34.5	43.5
14	Anaemic children 6-35 months (%)	77.7	79.2
15	Stunted children (%)	41.0	38.0
16	Underweight children (%)	59.2	45.9
17	Children with Diarrhoea in last 2 weeks taken to health facility (%)	32.5	58.0
	Health Facility		
18	Number of facilities operational to provide 24hrs EmOC according to GOI norms (%)	5.0	10.0
19	District Hospitals (%)	20	30
20	Far-Referral units (%)	------	15
21	Community Health Centres (%)	------	15
Source: NFHS-3 2005-06; PIP Jharkhand 2001; MOHFW-2004; WHO. *estimates from data of Bihar(1991); ---- (data not available)			

2.7: Place of delivery:

Most births take place at home (84.8%) and less than one fourth of all deliveries take place in government health institutions (5.0%), while a comparatively higher percentage of deliveries take place in private institutions (10%) in Jharkhand (Gupta P.K 2004). The percentage of skill attendants (i.e. institutional deliveries & home deliveries attended by Doctors/Nurses/Midwifes) in Jharkhand is only 19.9 percent, where as 78% of deliveries are conducted by elders or relatives (Gupta P.K 2004). This is also evident from Table: 1. The national averages are comparatively better. Situation of tribal expectant mothers is worse. Most of them are not inoculated against tetanus due to unawareness. Study done by Maiti S. et al 2005 states that 88% of tribal women compared to 61% Non-tribal Women have not been exposed to any mass media, which has an important role in utilisation of health services. The chief causes of maternal

mortality are found to be lack of hygiene, primitive practices for parturition like mothers delivering alone (Basu S.K, 1993), accessibility and cost of services (Maiti S, et al 2005).

Photo 3: Delivery Room at a PHC in Jharkhand, Source: Yahoo Image Search

Stress on nutritious diet during this period is poor. In fact food intake is reduced by some, thinking it's easier to deliver small baby. Their habit of taking alcohol and regular hard work continues during pregnancy (Basu S, 2000) increasing their risk. Whereas in non-tribal women the rate of consuming alcohol is just 4 %(Tribal women its 31%) (Maiti S, et al 2005). According to Basu S, (1992) together with health programs; overall transformation of society is necessary for improving the health status of underprivileged women.

2.8: Child Health:

Child health conditions are also very poor in Jharkhand and condition of Schedule tribe children is worse compared to the other disadvantaged socio-economic groups(Annual report 2006-07)

Jharkhand's Infant mortality rate is 69/1000 (NFHS-3, 2005-06) and under five mortality rate is 78.3/1000(NFHS-2). More than 60 % of children suffer from Moderate to severe anaemia (Table- 2, point- 14). The prevalence of anaemia is higher among rural children and the disadvantaged section of the society (NFHS-3 2005-06). Immunisation level of children is very low (Table: 2, point- 13) this may be one of the cause of high mortality in under five children. Regarding child care among Tribals, all mothers breast feed their babies, but most of them discard colostrums', give pre-lacteal feeds and delay initiation of breastfeeding. Immunisation of infants and children is inadequate among Tribal groups. In addition, religious beliefs and taboos tend to aggravate the problem. (Basu S, 2000)

2.9: Health facility Situation:

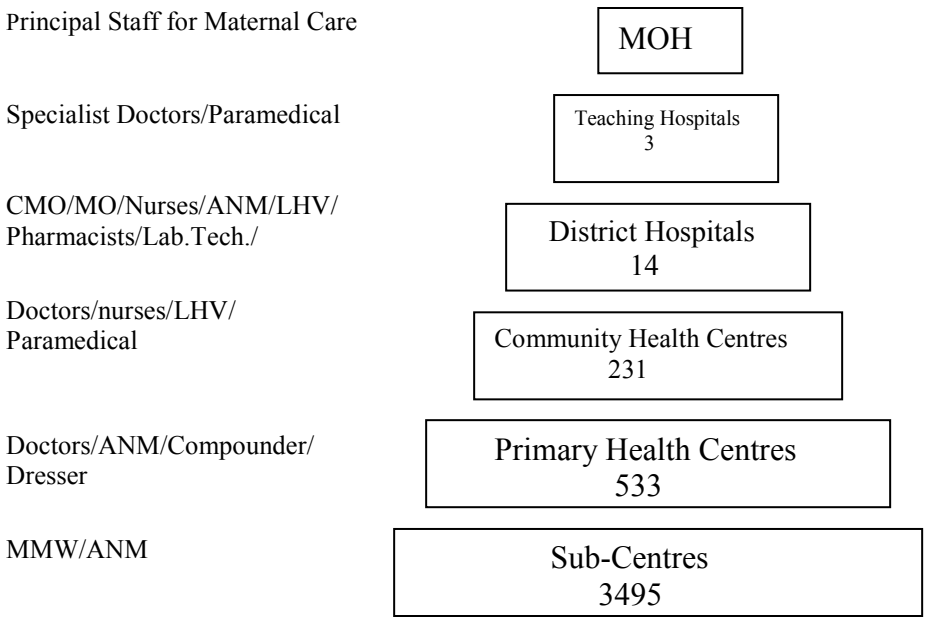
Recommendations of Bhore Committee in 1946 placed Primary Health Centre as the basic unit for providing curative and preventive health care. In Jharkhand, the health planners have used the Primary health centre (PHC) and its sub-centres (SC), as an infrastructure to provide health care to the rural people. The Health system is organised in a triangular referral system with the base consisting of lower level health institutions that refer patients upwards to the apex (Figure-2).

Photo2: PHC indoor in Jharkhand,

Source: Yahoo Image Search

Catchments area limitation of Primary health centre (PHC), sub–centre (SC) and community health centre (CHC) has been fixed, (6th five year plan 1988-89) (Table: 2; Appendix: 2). Based on these limitations, Jharkhand has 533 PHC's, 3495 Sub centres and 231 CHCs. Their functioning standard is set by National Rural Health Mission (NRHM) known as Indian Public Health Standards (IPHS), (DGHS 2005).

Organisation of Medical Care in Jharkhand: Fig- 2



Maternal and child health care, is an additional responsibility of the PHC along with other preventive, promotive, curative and rehabilitative care, based on IPHS norms (Appendix- 3). PHCs' being the corner stone of rural health has four to six indoor beds, and is the first contact point for qualified doctors with the rural population. Recently, Jharkhand govt is planning to upgrade the PHC's to CHCs' which has thirty indoor beds (PIP2005).

Photo: 1 PHC in Jharkhand, Source: Yahoo Image Search

Normally, every district has one district hospital, responsible for providing comprehensive health care, but only 14 out of 22 districts have 'District Hospitals' (PIP2005). Most households in Jharkhand (70%) use services of private doctors or private hospitals or clinics for treatment when family members are ill. Normally, 17% use Public medical facility; 76% use private health facility and 7% use both private and public facility (Follow–up survey 2002-03). Even in households with low living standards; only 16% use public medical health facility. Rating for the quality of services; it's lowest at Public medical Facility, where most of the respondents are critical about cleanliness and behaviour of staff (DCOJ- 2001). Jharkhand's Doctor-Population ratio is 58 per 100,000 and most doctors, including obstetricians, are located in the urban areas (UNDP, 2000). The traditional system of using herbal medicine and the tribal medicine man is very popular but are unable to take care of all the health problems. As government health facilities do not charge fee they are main source of medical help for the poor and marginalised population (PIP2005; Gwatkin D.R, 2003). Jharkhand being dominated by tribal population, most of whom are marginalised (UNPFII 2006; Tomei 2005; Psacharopoulos and Patrious1994); cannot afford to pay the bill of private medical institutions so depend on Government facilities (kutzin 1993). Therefore, due to various factors health and medical services are not easily

accessible and affordable by 78% of rural population, and where available tribals have not benefited much due to illiteracy, ignorance and shyness.

3.0: Maternal health care, the need for Quality assessment & improvement:

It is observed that most of the maternal deaths occur between third trimester and first week of postpartum (Campbell O.M.R, et al 1990; Li X.F, et al 1996). Abortion and Still births also increase the chances of death. (Hoj L. et al 2003). The majority of deaths due to pregnancy and birth related causes are Haemorrhage, Obstructed labour, Eclampsia, Sepsis, and complications arising from spontaneous or induced abortion etc. (Chart -2, Annexure-5). A systematic review of studies by WHO, states that the most dominant causes are bleeding, Hypertensive diseases and sepsis (Khans K.S, et al 2006). The indirect causes also affect the magnitude of maternal mortality but, are largely unknown due to under reporting and inability to diagnose the cause (Fauveau V et al, 1989). But the question is where do these deaths occur? Studies have shown that most of the maternal deaths occur in hospitals or on the way with or without receiving emergency care due to the three delays that is (a) delay in recognizing the problem, (b) Delay in seeking care, (c) delay in receiving care (Thaddeus S, et al 1994). The latter two delays tells about the quality of health care facilities and studies have shown that delay in recognizing and treating life threatening complications contribute directly to maternal death (Harrison K.A, 1997; McCarthy J, et al 1992). Thus emphasising the critical importance of maternal health and care during pregnancy, delivery and postpartum. Therefore, every woman needs access to skilled attendance at delivery and in post partum period also timely referral in complications of pregnancy for emergency care (Campbell O.M.R, et al 2006).

In addition to health care and its availability there are other problems that live in the road to maternal death. These problems begin soon after a baby girl is born and continues throughout her childhood when gender preferential treatment (boys are favoured) in households make her undernourished and more prone to ill health (Borooah V.K, 2004; Walker S.P, 1997; Dashora R, 1995). The road to death continues in her adolescence when she is married early and becomes pregnant before, she has grown fully (Bhatia B.D, et al 1993; Riley A.P, 1994; Alam N, 2000). In adulthood heavy workload, poor nutrition and repeated pregnancies make many women unable to cope with the physical demands of pregnancy, childbirth and lactation (Biernacka J.B, et al 2006; Romito P, et al 1994). Moreover, lack of antenatal care from trained health personals and skilled assistance during child birth and lactation makes matter worse both for mother and infant (Rosenfield A. 1989; Lawn J, et al 2005). Add to this when complications arise, health facilities may be inaccessible or unable to cope with the emergency situation (Maine D, et al 1999) also poverty further add to the problem (Gwatkin D.R, 2000; Kunst A.E, et al 2001). Thus, the main reasons for maternal mortality in developing nations are (a) high fertility (b) poor nutritional status and (c) lack of basic health services (DFID, 2004).

Similarly, in the case of children they are unable to cope with the harsh environment. The most important causes of neonatal deaths are (a) preterm births or low birth weight babies, (b) birth injuries & asphyxia and (c) infections of neonates. The possible solution could be- interventions to improve birth weight which was generally not successful because, many of the determinants are beyond the scope of the health – care System (Susser M, 1981). Birth injuries, asphyxia and infection can be prevented and managed by good screening and either institutional deliveries of the high – risk pregnancies or availability of emergency referral and obstetric care (Rosenfield A,

1989). Although, infant mortality has fallen in many developing countries but, the rate is very slow (UNICEF 1999) the reason being the slow decline in neonatal mortality due to unavailability of essential newborn care. According to WHO 1996 guidelines essential newborn care emphasises on Cleanliness, thermal protection, initiation of breast feeding, early and exclusive breast feeding, eye care, immunisation, management of illness and care of low birth weight infants. Therefore, what's more important is the accessibility, availability ,use and quality of essential Obstetric and Neonatal care for life threatening conditions, including complications after abortion (Maine D et al1999; WHO1994; Inter-agency group for safe motherhood, 1998).

It is a false belief that most life threatening obstetric complications can be predicted and prevented by intervention like antenatal care and traditional birth attendants in community (Maine D, 1991; Inter – Agency groups safe motherhood 1998; Graham et al 2001; Maine D, et al 2003). However interventions need to be cost effective: so averting maternal deaths by antenatal/community based interventions cost £2 per women where as averting death through Quality essential obstetric care costs £153 per case (Jowett M. 2000; WHO 1996). But for managing obstetric complications like bleeding, sepsis, hypertensive disorders, which is one of the largest killers, a functioning Essential obstetric Care unit is inevitable (Campbell O.M.R, et al 2006). On the Other hand traditional birth attendants, have limited skills and they may keep the women away from life saving interventions due to false assurance. Therefore, Training TBA's for maintaining clean delivery is not a good strategy for reducing Maternal Mortality (Smith J, et al 2000). But, their popularity in the community as seen among the Tribals of Jharkhand can be used for spreading awareness of the danger signs of obstetric complications

and information of availability of Medical Care. The 'Sahiyya Project' started in Jharkhand by Child in Need Institute (CINI) has used this method for helping to provide basic service information to those who are most in need of it. Although, antenatal care and TBAs have limited role in reducing maternal mortality it can provide opportunities for health promotion needed for planning for safe delivery and obstetric care (Rooney 1992; Berg1995; Carroli et al 2001).

In 2000, estimated 53 million women in developing countries gave birth without professional help (UNFPA 2000; Rudoff K, et al 2005). In Jharkhand, about 19.9% deliveries were attended by skilled persons (Table-1) and 78% by elders/relatives (Gupta P.K 2004). A study of new born care in Makwanpur district of Nepal (which is a retrospective, cross sectional study) showed that 90% of women gave birth at home. Only 6% of these women were attended by government skilled attendant and another 6% by traditional birth attendant. Although to reduce maternal mortality, skilled attendant at birth and promotion of clean delivery practices is important (Osrin D et al 2002). But, availability of a functioning emergency obstetric care (EmOC) facility is equally important as 15% of pregnant cases are bound to develop complications (Hibbarol 1978; Hartfield 1980; WHO 1994b) and skilled attendants' cannot function effectively unless attached to a system (Graham et al 2001). It's very difficult to manage cases like haemorrhage without a care system, where time limit is very less. Haemorrhage can kill a woman in an hour if not managed. But, if a Basic Obstetric Care is available within minutes distance, it can provide first aid that can help to transport the patient safely to a Comprehensive EmOC for blood transfusion (Kamara 1992; WHO 1989). In Sri-Lanka, of course there is a high proportion of Births attended by Midwives. But, the decline in Maternal Mortality Ratio occurred because these midwife-

attend births occurred in health facilities with good EmOC and Referral facility (Pathmanathan I et al 2003).

Preventing Maternal and newborn death by technical interventions is well known (WHO 1994) but, the important point is to use this knowledge to improve maternal and newborn health care system. This application of knowledge to improve maternal and newborn care system has helped to reduce the mortality rate in developed countries (e.g. 20/100.000 live births in northern Europe). Until the 20th century, women and families world wide knew that there was always a possibility of women dying during child birth, as for example over 2000 maternal death per 1000000 live births in Europe (Abouzahr C, 1993). With the development of Midwife care and use of clean delivery technique in routine cases caused an initial drop in maternal Mortality in Europe (Loudon I, 1992). However, this country experienced a severe drop in the late 1930's – early 1940's when they targeted at treating the main obstetric complications like Haemorrhage, obstructed labour with transfusion, caesarean section and Sepsis with antibiotics. Once, these interventions were readily available, maternal mortality declined drastically (Appendix- 6, Fig-3; Loudon I, 1992).

According to USAID (2004) maternal and child health strategy should concentrate on two main areas: (i) Maternal and New born care, (ii) Health system strengthening. Both, these strategies are complementary. WHO definition of 'Health System' means "Consists of all the people and actions whose primary purpose is to improve Health" (WHO, 2002). To reduce maternal and infant mortality and ensure that women and new born survive pregnancy, childbirth and postpartum complications, there needs be a holistic approach that favours development of skilled

providers and help to create an enabling environment in the health care system also at the same time mobilize stake holders and link informed communities to safe motherhood services.

It is often thought that success of interventions to reduce mortality is largely dependent on finances. But, poor countries like Botswana, Honduras , Indonesia and Sri-Lanka all were able to reduce newborn mortality by half during 1990's, in spite of Low per capita gross national product (Jose M et al 2005; Rudolf K, et al 2005). The Asian countries like Sri- Lanka and Malaysia experienced decline in maternal mortality only after developing a primary health care system that reached all the population irrespective of ethnicity, financial condition and geographical problems; and had the three key (i.e. skilled attendant at delivery, access to EmOC & referral system) elements of high quality care (Pathmanathan I et al 2003).

Hence, good nutritional status and a continuum of services is required for averting maternal death and disability especially the referral capacity for the management of complications because as stated above biological and social factors affect women's health throughout their life and have cumulative effect. As for example a girl who is not properly fed during child hood will have stunted growth, leading to high risk of complications during childbirth and low birth weight babies. According to Kwest B.E.1996, this will require staff trained in midwifery skills at various levels of Health system, as well as functioning facilities accessible to clients and well equipped with essential drugs and logistics.

The effectiveness of maternal and Child health system is often hampered by Organizations and institutional constrains (Narayan D et al 2000; Haddad S 1995). Moreover, improving access to

good quality maternal health care is a challenge for many developing countries as it requires a functioning Primary Health System in the community and a referral system to the health system capable of providing emergency obstetric care (Rowe A. K, et al 2000; WHO 1998). For example in Guatemala (MMR 153/100,000 and IMR 39/1000) the problems faced were same as in Jharkhand like (i) 80% deliveries at home without skilled birth attendants, (ii) inadequate facility for emergency obstetric care, (iii) early marriage, (iv) frequent child birth, (v) Malnutrition etc. But to bring about improvement in maternal and neo-natal mortality ratio, Guatemala stressed on three objective (a) Essential Maternal and Neo-natal Care improving Maternal and neonatal care; (b) Behaviour Change - increase demand for high quality maternal and Neo-natal services at all levels; (c) Policy change - improve the policy environment for Maternal and Neo-natal survival . These components focused on the demand and supply drawbacks that contributed to maternal and Neonatal health problems. The effort for behaviour changes created more demand for health services and policy changes helped to create an enabling environment. The services were improved through Emergency Maternal and Neonatal care interventions. The effort to improve the quality and performance of the health services was based on the model adopted by international society for performance improvement and standard was set. On this basis the Gap areas between the desired and the actual performance was identified then, a suitable intervention was designed to bridge the Gap responsible for high mortality; which was then implemented and the progress evaluated.

Similar, Comparative study done in Bangladesh, Russia, South Africa and Uganda revealed that Health outcome in pregnancy and child birth are not strictly related with the number of staff or proportion attended by skilled attendant but, relatively more influenced by the structure and

operation of the health centre (Parkhurst J. O, et al 2005). Also there are many factors like local epidemiological profiles, health system capacity, community preferences and equity on which the coverage of services depends (Bryce J, et al 2003). In the Jharkhand state where there is disparity in the socio-economic conditions of the Tribals and other marginalised groups with the rest, to ensure that health is within the reach of everyone will require creatively integrating the new and culturally relevant technologies with a strong system and subsequent behaviour change may bring health equity (Elias C, 2006; Gwatkin D.R 2003). So, it's more important to know what will reduce maternal Mortality in the population rather than knowing how to prevent maternal mortality. Although trained Midwives can shape the quality of care received during pregnancy and child birth but, there are other factors underlying the health system structure and process that are equally important. Moreover, midwives effectiveness and the outcome will be largely influenced by the staff team, resource allocation and accessibility to emergency care (Parkhurst J, et al 2005). Therefore, it is necessary to look into aspects how to improve Quality of care and outcomes (Orchard C, 1994). This requires an assessment of the current situation and Identification of the problems in the health system.

3.1: Concept of quality in Health Care:

In health, quality of care means 'the excellence' in reference to improvement in health status (Gilson, 1995). According to Donabedian, 2003, Quality has been defined as the extent to which application of medical science and technology is expected to achieve the most favourable balance between risks and benefits, were as Roemer and Montoya – Aguilar, 1988 agree that quality is a degree to which resources for health care or the services correspond to specified standards that are accepted to lead to desired results. The institute of Medicine, Washington DC

defines Quality as "The extent to which health services for the individual and population increases the likelihood of desired health outcome and are consistent with the current professional Knowledge" (Institute of Medicine, 1990).

3.2: Why quality of health care is important?

The high level of mortality and morbidity in the field of mother and new born care, in spite of high coverage of the national program for their good health and care, has increased the concern for good quality client satisfaction care in the primary health care services (WHO, 1994). Quality has many dimensions that includes availability of buildings, personnel and supplies, Technical competence of providers, and interpersonal contact between provider and the client; as identified by researchers and programme staff through experience and observation (Bruce J, 1990; Kumar S, et al 1989; Murphy E, et al 1997; Simmons R, et al 1994; Rama Rao S, et al 2003; Ambruoso D.L et al, 2005).

A high percentage of pregnant women in developing countries still receive inadequate antenatal care and deliver at home due to cultural practices (Campbell et al., 1995) and the perceived poor quality of services partly motivate them not to seek antenatal care and to deliver at home (Tamar et al., 2000). For example, in women of St. Peters berg, Russia, it was identified that poor care in a previous pregnancy, long waits, frequent examinations, fear and dislike of visiting doctors as the main reasons for delay in seeking prenatal care (Dennis et al., 1995). On the other hand a study done in Cebu, Philippines showed that improved quality, as measured by - the availability of services and supplies, provider training, facility size, degree of crowding, price and distance

increased the probability that all women used formal services (Hotchkiss, 1998; Rama Rao S, et al 2003).

Similarly, in Kenya certain reproductive healthcare facilities in low-resource settings perform better than others. The study examined the characteristics, behaviours and coping strategies of high performing reproductive healthcare facilities. These facilities were found to have characteristics like: knowledge and skills, infrastructure, equipment and supplies, leadership and management system and motivation. The high performing facilities also provided client and community focused services. Clients interviewed indicated that they choose to use the clinic not because it was the closest one to their homes or because they had no other options but, because they received what they came for (e.g. supplies, services) at a place that was clean and where the staff treated them with friendliness and respect. Waiting times were also acceptable and affordable to most clients. Client feedback was addressed on a regular basis, means that services continually shifted to meet community needs (Rawlins B et al 2003). Also high quality care apart from attracting more clients reduces per capita cost of services and ensures sustainability. As in Bangladesh 'Women Health Coalition' attracts its clients by giving a wide range of services at one point. This helps the clients to avail many services in one visit. Moreover, the well trained paramedical staffs perform many examinations (pelvic examination, IUC insertion and menstrual regulation) rather than doctors doing it. Due to the high volume of clients the coalition is able to serve more people at a lower cost (Kay et al 1991; Kols et al 1998). Also by strengthening innovative decision making and problem solving capacity of mangers and providers, the quality and efficiency of healthcare delivery facility could be sustained (Rawlin B

et al 2003). Thus quality and efficiency improvement of healthcare delivery facilities could bring desired outcome.

Moreover after the failure of the hypothesises: (a) that obstetric complications could be prevented or predicted by good care during pregnancy and delivery (Maine et al 2003) and (b) that obstetric complications could be predicted by screening for known risk factors and then these high risk women could be carefully monitored and treated. There is an international consensus that instead of wasting the scarce resources in predicting which women will have life threatening complication, instead its better to consider all pregnant women at risk (Safe Motherhood initiative, 2003). To reduce maternal mortality as desires by Millennium development Goals (i.e. a drop by 75%) all women must have access to high Quality delivery care. The care must have the Three Key elements (a) A skilled attendant at delivery, (b) Access to Emergency Obstetric Care (EmOC) in case of complication and (c) A referral system to ensure that those who develop complication can reach the appropriate EmOC in time. However, maternal mortality reduction scenario does not totally depend on Obstetrician or other specialists nor does it require that all women should deliver in Comprehensive EmOC facility, which could be great misuse of resources, misbalancing the little improved capacity of care in high mortality countries (Miller S. et al 2002). Rather, what is most required is a functioning Health System from the household to the appropriate care centre with complement EmOC at each level (Maine D, et al 2003).

In 1978, the Alma Ata declaration issued by the WHO general assembly identified that primary health care as the means of achieving ‘health for all’ by the year 2000. Studies have shown a

favourable association of primary health care systems to a variety of health outcomes (Macinko J et al 2003). This has also been observed in a study conducted by UNICEF - India that health sub-centre strengthening is the key to success in achieving Health (UNICEF, 1999). The stronger primary care means better health outcomes (Starfield B, 1992; Shi L, 1992; Shea S et al 1992). But in developing countries the correlation between increased primary health care spending and improved health outcome is not strong due to the inherent difficulty of disaggregating socio-economic and health system interventions (Filmer D, et al 1997). Health care needs are to be looked in context with the local setting, political will and the choices of the people whose life is at stake (Penn-Kekana L, et al 2006) before framing an intervention. If the public health system is unable to provide service to the poor in order to reduce the gap between rich and the poor, poverty cycle can not be overcome and so no reduction in maternal deaths (Mehrotra S, et al 2002).

Although, the primary health care (PHC) has been a major strategy for pursuing improvements in the health status of the population in developing country over the past decades, few studies have been undertaken to assess how PHC services are actually implemented on the ground. The performances of the PHC services have usually been assessed in terms of coverage of services and very little stress on the quality of services provided (Reerink et al, 1996), which is essential for mortality reduction and Maternal Mortality can tell about the functioning of the health system (Mc Donagh M, et al 2001). Some studies have been undertaken in the 1990 (Kim et al, 1992, Zeitz et al, 1993) on the quality of PHC services but, in countries such as India where maternal mortality is Quite high and resources scarce to form appropriate strategies to reduce maternal mortality, it will be critical to find out how the three key elements of care are related so that

quality care can be accessed by all as it is seen that in every country where maternal mortality is low they have stressed in all the three elements of quality care (Pathmanathan et al, 2003) in relation to maternal and newborn care. The underlying philosophy for improving quality of care recognizes the need to ensure that health care providers have the knowledge, skills, resources (in terms of equipments and supplies) and attitudes that are responsive to the client's individual, social, cultural and medical needs (WHO, 1994). Making the health system purposeful and client friendly to improve its utilization and outcome, quality of health care is important for reducing mortality and morbidity.

3.3: Determinant of Quality of care:

The measurable attributes of good quality health care varies with the level of assessment (Donabedian, 1988; Gilson, 1995). Measuring Quality is difficult so framework is developed that enables the measurement of quality. Framework has two uses firstly they help to structure a situational analysis for knowing the quality of care provided in an institution. Secondly, it's a tool that helps to improve the quality of care by examining the activities in comparison to a set standard so that, changes could be made accordingly to bring care provided closer to the set standard. In literature search the following frameworks were found: (a) The Bruce framework (1990) - has six fundamental elements of quality of care (Appendix: 7 fig- 4) which focus on the interaction of client and service deliver point and less emphasis on the concept of access to the services to the woman and families (Bruce J 1990). This framework is more relevant to assess Family planning services. (b) Kwast framework suggests six major categories of quality care determinants for program development, which is a holistic approach to reduce maternal and neo-natal morbidity and mortality and are linked to the outcomes (i.e. to improve the health of

women through out their life cycle). These determinants are political environment, financing, socio-cultural factors, health system, training & education, interaction and collaboration (Kwast, 1998). (c) Hulton L.A, et al (2000) proposed a framework consisting of ten elements to assess quality of maternal health care. Six elements of which, stress on provision of care and the remaining four stresses on user's perception (Appendix - 8, Fig - 5). (d) The US agency for international developments office of population and its partner agencies (2001), designed the maximizing access and quality initiatives (MAQ). These MAQ researchers developed a framework of 25 indicators to assess quality of care in clinical practice (Measure Evaluation, 2001). (e) Donabedian, 1979 suggested an approach with three components (structure, process and outcome) for assessment of quality of care. In this approach the **structure** refer to the situation under which care is provided, which included firstly, human resources i.e. number, variety and qualification of professionals and support personnel. Secondly, material resources, such as facilities and equipments and thirdly, organizational characteristics such as the organization of medical and nursing staff, the presence of teaching & research functions, kinds of supervision and performance review, method if paying for care etc. The **process** means the activities that constitute health care - including both technical and interpersonal dimensions and principally capturing the content and method by which health providers deliver services to their patients. The **outcome** means changes (both desirable and undesirable) in individuals and population that can be attributed to health care, which includes firstly, changes in health status. Secondly, changes in knowledge acquired by patient and family members that may influence future care. Thirdly, changes in behaviour of patients or family that may influence future health and fourthly, satisfaction of patients and their family member with the care received.

The modified model of Donabedian model which incorporates variable like infrastructure as part of the structure (Adeyi and Morrow, 1996), Consumer's perception as part of outcome (Sauerborn R, et al 1989) etc. can be made to fit to different circumstances. Figure-6 in Appendix-9: shows the modified Donabedian concept with its determinants.

3.4: How is quality of health care assessed?

While monitoring and evaluating quality of care a set standard and criteria is developed to assess quality of care (Donabedian, 1982; Brown et al 2000). The standards are described as clear statements that specify the desired or achievable level of performance to be achieved and compared against actual performance. Whereas criteria are variable, that is indicators to determine whether set standards have been met (WHO, 1994).

Currently there is a substantial body of literature in reproductive health on how to assess some components of quality of care both quantitatively and qualitatively. In family planning mainly quality of care has been described (Bertrand et al, 1995, Hardee et al, 1993, Miller et al, 1997) and in other conditions also (Trykker H, et al 1994; Islam M T, et al 2005).

There are many methods of assessing quality of care:

I. Facility base survey for the assessment of quality of services this tool has been applied in many developing countries as a method of monitoring and evaluating quality health care (Bryce et al, 1992, Garner et al, 1990).
II. Rapid assessment method for assessing maternal and child health services, including obstetric services had been applied by the WHO in many countries (WHO, 1995). It covers

the availability of staff, supplies, instruments, records, interview staff and focus group discussion at the village level. This method of assessment was superseded by safe motherhood need assessment that facilitated the development of guidelines for mother baby package (WHO, 1994).

III. Patient flow analysis is a method for quality assessment developed by the centre for disease control in Atlanta, USA. This method has been applied in various countries like Africa, Asia and Latin America (WHO, 1991).

IV. Confidential enquires; verbal autopsies and audits are all other methods of assessing quality of care (Baker R 1995; Camphell S. M 2002).

V. The Prevention of maternal mortality network (PMMN) in West Africa worked with support from a team from Columbia University – 'Centre for population and family health' and with the support of Carnegie Corporation of New York has developed 'indicator' for quality assessment (Maine et al, 1997). This was later adopted by UNICEF, WHO & UNFPA, 1997 known as 'process indicators' to assess the availability, utilization and Quality of essential obstetric care (EOC). Unlike confidential enquiries, verbal autopsies and audits these indicators can not tell the detail reasons for individual deaths or specific management problem that may affect drug supply or physician's placement. Instead, these indicators can give information's relevant to the broader aspect of the Health system, enabling policy makers to monitor overall progress (Wardlaw T et al 1999). Especially, in situations where vital statistics are not available and obtaining data's are both expensive and difficult. Also, in conditions where the actual current situation is not known, the process indicators have been advocated as an easy means of getting information on the

events that affect Maternal mortality as well as activities needed to prevent it (UNICEF,WHO & UNFPA 1997).

3.5: Summary:

It is already established by many studies that skilled attendants are primary for reduction of maternal mortality (Cunningham F.G et al 1993; WHO 2001; McCormick M, et al 2002; DRHR, 2000; DRHR 2002; SMI 2003; Bernis L.D, et al 2003). It is also equally important that skilled attendants must be able to refer complicated cases to emergency obstetric care facilities (Graham W, et al 2001; Murray S et al 2001; Macintyre K. et al 1999). But, the question is do these emergency Obstetric Care facilities (EmOC) really exist and functioning? (Schuler S, et al 2002; Schellenberg J, et al 2003). This concerns existence of information on transportation, facilities, financial barriers, relationships between facilities and communities and socio-cultural birth practices (Schuler S, et al 2002; Ronsmans C, et al 2001). Evaluation with 'Process Indicators' (also known as 'UN Process Indicators') for functioning of EmOC in several high mortality countries indicated that although there is sometimes adequate coverage of Comprehensive EmOC, but grossly inadequate coverage of Basic EmOC facilities (Appendix – 10, Table - 3) and the 'Met Need' (it measures the coverage and utilization of facility) for EmOC is often less than 20% (AMDD 2002; Bailey P, et al 2002). Hence, the three 'Key Elements' necessary for high quality care, is indispensable for reducing maternal mortality that forms an important part of the primary health care infrastructure and is the main 'King Pin' to be assessed in a Maternal and Child health care facility.

Studies suggest (Bryce et al, 1992; Sikosana P L 1994; Kwast, 1998) that it is best to include elements of structure, process and outcome that help us to know why outcomes are different from expectations so that we can take steps to improve the situation. Inferences about quality are said to be impossible unless there is a pre determined relationship among the three approaches, so that structure influences process and process influences outcome, of course in a much more complex reality than a linear relation (Donabedian, 2003).

What is important for safe motherhood program and for other components of reproductive health care is a process that identifies problems in all area of structure, process and out come in order to assist program manger to implement changes and improvements on both the supply and demand side (Kwast, 1998). Various practical factors will finally influence the choice of assessment methods such as - what are the study objectives, what data can be collected, what resources are available to give care? Which levels of health care service are to be assessed etc?

A number of tools for quality assessment of primary health care with respect to maternal and new born care where found in literature, and our aim is to assess the current facility situation in government health care centres in relation to maternal and newborn care. Thereby, identify the gap areas in relation to set standards that are critically responsible for the high mortality ratio in Jharkhand area.

Based on this inference an Action Plan is proposed for Knowing the current availability of essential obstetric and neo-natal Care facilities necessary for reducing Maternal and New born mortality in government health facilities at Ranchi district of Jharkhand State in India.

4.0: Research Proposal:

Action plan for assessing the quality of maternal & newborn services at government health facilities in Ranchi, Jharkhand

4.1: Research Question:

What is the current situation regarding quality of maternal and newborn services at Government health facilities in Ranchi, Jharkhand?

4.2: Aim:

To assess the current situation of maternal and newborn care services provision, in terms of capacity and quality, in government health facilities in Ranchi District of Jharkhand.

4.3: Objective:

1. To assess the current service situation in all government health facilities providing maternal and newborn care services; based on the framework of Donabedian (1979) , in terms of (a) **Structure** -
    - Human resources (staff)
    - Material resources (equipment, facilities &guidelines)
    - Health system Characteristics (referral system)

    (b) **Process**
    - Interactions (provider-client relation)

    (c) **Outcome**
    - Patient satisfaction

2. To improve record keeping to enable key indicators of mother and infants health to be monitored regarding:
    - Antenatal care & complication
    - Delivery & complication
    - Postnatal care & complication

3. To identify the gaps in maternal and newborn care services compared to the Indian Public Health Standards (IPHS) set by the National Rural Health Mission.

4. To propose appropriate interventions to improve the quality of services to mother and newborn care in government health facilities.

5.0: Study site and Population:

The study site is all the Government facilities providing Maternal and infant care services in Ranchi district; table 4 & 5 shows the demographic and health indicators respectively of Ranchi. Although, Ranchi district the capital of Jharkhand is gradually transforming into an urban area with railway station and airport connecting it to metro cities of India (i.e. Bombay, Delhi, Kolkata and Madras) but, still most of its population (comprising mainly of scheduled tribes and scheduled castes) resides in rural areas with poor accessibility due to natural and manmade reasons. Further more, the limited infrastructure and scare manpower have made the government health system unable to provide health care services to the 'last person in the last household of the last village'[2] as evident from its health indicators (Table: 5).

Maternal and child health services are provided by the government to the population through the net work of District hospital, Primary health centres (PHC) and Health Sub-centres (HSC) in the area. The Reproductive and child health (RCH) programme was launched in Jharkhand in 1996-97 with one of its main aims is to provide quality MCH care but, still maternal mortality and infant mortality ratios remain high in Ranchi.

[2] PROD number 182: www.cbhi-hsprod.nic.in/info.htm

Table: 4, showing the demographic characters of Ranchi district.

Demography of Ranchi	
Area	7,573,68 sq.km
Population	27,83,577
Rural Population	18,06,682
Urban Population	9,76,895
Male Population	14,36,423
Female Population	13,47,154
Maternal Mortality Ratio	375/100,000
Infant Mortality Ratio	50/1000 live births
Sex Ratio	938/1000 males
Female Literacy (%)	52.77
Girls Marrying below 18 yrs (%)	39
Crude Birth Rate	32
Number of Primary health centres	20
Number of Add-Primary health centres	30
Number of Health sub-centres	502
District Hospital	1
Number of Villages	2110
Source: www.ranchi.nic.in / www.jharkhand.gov.in	

Table: 5 Showing MCH situation of the population of Ranchi.

S/N	**Health Indicators**	**percentage**
1	Women with no antenatal Check ups	31.0
2	Women with any antenatal check	69.0
3	Full antenatal care	6.9
4	No tetanus toxoid injection to mothers	28.6
5	Institutional delivery	24.7
6	Delivery at Home	74.7
7	Initiation of Breast feeding within an Hour	26.8
8	Women discarding colostrums	44.8
9	Exclusive breastfeeding for At least four months	2.3
10	Children aged 12-35 months Fully immunized	51.3
11	Children aged 12-35months not receiving any vaccine	16.3
12	Birth orders 3+	56.1
13	Women who use Govt. facilities for treatment of Postpartum complications	25.3
14	Women who use Govt facilities for treatment of pregnancy complications	15.4
	Source: www.ranchi.nic.in / www.jharkhand.gov.in	

5.1: Methodology:

Three methods will be used to assess the situation of quality of care they are: (1) Site assessment, (2) Exit interview, (3) Focus group discussion. Table 6 (Appendix-12) is a summary of the data source and instrument needed for assessment.

5.1.1: Site assessment:

This is the process[3] of knowing the gap present between the desired care and the actual care given in a facility; that is objectives 1 (a & b), 2 and 3. The tool used is Facility audit.

What to assess?

To evaluate the (a) availability of: (i) Human resources i.e. staff necessary for providing care services, (ii) Material resources i.e. Equipment, facilities & guidelines necessary for carrying out care work for mothers and newborn care, (iii) Health system Characteristic that is the referral system needed to provide emergency care services to mother and newborn. (b) Interactions between the providers and clients to know how friendly and respectful are their relationship in the process of care. (c) Review the records of maternal and newborn care indicators related to Antenatal, delivery and postnatal care; necessary for monitoring, Evaluation and improvement of interventions.

[3] Method is based on the tools developed by MNH programs in 1998, www.mnh.jhpiego.org

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Process for conducting assessment:

(a) Meeting the staff identifying and selection of internal assessment team members, preferable those members who hold good knowledge of the concerned area. This internal assessment team will then meet with their concerning staff to ask about how standards are met. To get an honest account of the situation of the services provided, identify the gap and make suggestions for addressing the gap. If the facility is big the assessment team can break into smaller units; each unit concentrating in the specified area.

(b) Physical tour of the area - Each assessment team will visit their concerning area to see the layout , number of clients and providers, lighting, water, cleanliness and other facilities available before conducting a detailed assessment of the facilities using a pre-tested checklist.

(c) Observing Clinical practices - Although observing the staff in action is a good way of finding out if standards are met. But the drawback of this method is that staffs become very conscious and it's difficult to know their normal daily action. However, if they are assured that the purpose of assessment is to help them improve of their weakness and not to take action and the assessment results will be told to them. Then situation may be different. One to one talking with that staffs who do not like to speak up in front of seniors can also help to know the real fact; keeping great care on confidentiality and trust. However, in situations where maintenance of records is poor this is the best method of knowing the facts.

(d) Case reviewing – This is also a good way of finding out if standards are met. The assessment team can select to discuss on any clients condition and management to see if the management

confirms the established performance standard. Or they can select cases from the record and review the management process to know the fact. But in Jharkhand where record keeping is very poor it's very difficult to trace the sequence of events, so this method is of limited to those centres where records are available.

(e) Review of records and reports - The review of available records like quarterly/monthly reports, stock records, labour and delivery records, antenatal and postnatal care records etc. can give an idea of what is going on in the facility with women who come to deliver. But, in situations where record keeping is poor like in many PHCs and HSCs of Jharkhand not much can be expected from these reviews.

5.1.2: Exit interviews:

It mainly assesses objectives 1 & 3. This is interview of clients, exiting from the facility after receiving service, at the antenatal or delivery or postnatal section of the respective PHC, HSC and district hospital in the study area.

What to assess?

It mainly assesses objectives 1 & 3 i.e. to assess (i) clients satisfaction with the services received and (ii) the quality of care by knowing their views about providers behaviour, cleanliness, availability of services & supplies, privacy (both visual and audible), waiting time, and follow up services.

Process for conducting assessment

By asking pre-structured questionnaire to clients coming out after receiving care services from either the antenatal care unit or delivery unit or postnatal care unit; after obtaining their consent.

5.1.3: Focus group discussion:

Apart from assesses all the objectives , main stress is on objective 1, 3 & 4 by Group discussion with the community living in the catchments area served by the facility; which will help to understand their perceptions of the quality of care at the different providers and understand the reasons why they go to some providers over others. Issues coming up in case studies could also be discussed.

What to assess?

(a) Community's perception of the quality of care at the facility and their needs;

(b) Reasons for their preference for particular providers;

(c) Burden on their pocket for accessing care at the nearest facility;

(d) Role and demand of govt village health worker;

Process for conducting assessment:

The groups would be made of participants (8-10) preferably from all the ethnic groups residing in the catchments area (after obtaining their consent) to discuss on issues concerning maternal and new born care quality. The interviewer group consisting of two members who will guide the discussion on the topic and all conversation will be recorded or taped for analysis.

5.2: Sample size:

5.2.1: Site assessment:

The total government health facilities providing maternal and newborn care in Ranchi ,Jharkhand are (i) Health sub-centres 502 (ii) Primary health centres(PHC) 20, (iii) Add-primary health centres (Add-PHC) 30 and (iv) District hospital – 1 (Table- 4). Assessing the Sub-centres, PHCs and district hospital will give a picture of the situation at the rural and urban settings. Moreover, this will help to know the continuum of service along with referral facilities from the basic care centre to the comprehensive care centre.

Thus for study purpose, facilities to assess will be:

- **One District hospital** available in Ranchi
- **Sixteen PHCs**. Eight Primary health centres and eight add-primary health centres selected out of fifty; selected by stratifying the Primary health centres and additional-primary health centres by distance from the district hospital. Then randomly choosing from them.
- **Thirty two sub-centres** selected out of five hundred and two. The sub-centres should be linked to the selected PHCs i.e. two sub-centres/ PHC. The sub-centres will be first stratified by distance from the PHC and then randomly selected, of which one will be close to the PHC and the other further away.

5.2.2: Exit interview:

In order to have a representative sample, assessment should be done on clinic day or village market day when many clients visit the centres for antenatal and postnatal care. Regarding delivery services in government health facilities in Jharkhand, it's mostly conducted in the District hospitals where it's easy to get clients round the clock. But, it's very rare to get delivery case clients at the PHCs and Add-PHCs. Similarly, even though sub-centres do have one - two beds but, delivery is not conducted there in majority of facilities. Thus, with this anticipation table 7 shows the distribution of sample to be collected with a total sample size of **five hundred and fifty exit interview**.

Facility	Antenatal care Clients number	Delivery care Client number	Postnatal care Client number	Total interviews
District Hospital (1)	10	50	10	70
Primary health centres (8)	5/PHC= 40	--------	5/PHC= 40	80
Add-Primary health C. (8)	5/Add-PHC = 40	----------	5/Add-PHC = 40	80
Sub-centres (32)	5/Sub-centre = 160	--------	5/sub-centre = 160	320
	250	50	250	**550**

Table- 7: Showing the number of interview samples to be collected at District hospital, PHCs, Add-PHCs & Sub-centres.

5.2.3: Focus Group:

In order that the discussion group represents the community and considering the barriers both natural and manmade, also to avoid biases there should be one group Primary health centre, consisting of eight to ten participants. Thus, there will be **sixteen focus groups** in total.

5.3: *Participants:*

The main participants for the study are: (1) Care providers i.e. Nurses/Midwifes/ Doctors/ health workers. (2) Clients i.e. Women of reproductive age using the services/living in the catchments area.

5.4: Facility selection:

In Ranchi all government health facilities providing antenatal, delivery and postnatal care to mothers and newborn are the District hospitals, Primary health centres with add-primary health centres and Sub-centres. Therefore, these facilities will be selected to know the current situation of quality of care.

5.5: Selection Criteria:

5.5.1: Site assessment: All government facilities in the study area providing maternal and newborn care service will be selected for assessment.

5.5.2:Exit interview: Women in reproductive age who have been observed using the maternal and newborn care services of the respective government facility will be interviewed.

5.5.3: Focus group discussion: women in the reproductive age group living in the catchments area

5.6: Data analysis:

5.6.1: Site assessment:

After completion of the site assessment using a pre-tested checklist, all the data collected will be entered using the computer package 'ACCESS' to reduce error and analysis of the data will be by the programme 'SPSS'.

The assessing team along with the staff then meets to discuss on the Gaps so identified between the desired and the actual performance and find out the 'root cause' for every criterion marked 'NO' using 'WHY WHY Method[4]' and by forming a "Why diagram" also known as "Why tree" or "Fish bone" Diagram. This method consists of the following steps:

- Problem is stated on the left side of the paper.
- To the right of the problem all the causes identified by asking 'why' are listed
- To the right of each of there causes again a list of causes written by asking 'why'
- This process is repeated till sufficient details are obtained to identify the root cause or causes.

Thus this process helps to identify the gap and the root cause for objectives 1a, 1b, 2 and 3, so that appropriate intervention to bridge the gap could be applied.

[4] JHPIEGO/MNH program guide and WHO integrated management of pregnancy and childbirth (IMPAC) series. These are manuals based on evidence and developed by international experts in the field.

5.6.2: Exit interview:

The Completed questionnaire of clients leaving the facility (antenatal, postnatal and delivery units) on the day of survey will be entered using computer package 'ACCESS' and then analyse using package 'SPSS'. Thus analyzing study objective 1c i.e. patient satisfaction, 1a & b and 3 i.e. about the quality of care in the facility in comparison to set standards.

5.6.3: Focus group discussion:

After each focused group discussion (FGD), all field notes will be completed to prepare a full report of the discussion. Together with the field notes and recorded tapes a transcript will be prepared by note taker and quality checked by facilitator. This transcript will then be coded and analysed manually. Therefore, analyzing the study objective 1c and 4, that is patient satisfaction and community perception of quality care so as to propose a suitable intervention to bridge the gap.

5.7: Outcome and dissemination of results:

The gaps identified in the quality of essential maternal and newborn care (EMNC) services will be of great help to the providers, planners and policy framers to plan out appropriate interventions to bridge these gaps. There will be some Gaps that can be solved at the respective facility level without much interventions and resources. This will bring momentum in the staff for improvement in quality of services provided.

The results of the research will not only be written in report also discussed in workshops & seminars with Government personnel, stakeholders, doctors and political leaders for an exchange of ideas and experience which can be used to formulate a locally suited intervention to reduce maternal and newborn mortality in Jharkhand.

5.8: Limitations:

Generalization of the study result is limited firstly due to prevailing geographical, socio-economical and cultural variations and sample consistency. Secondly, there can be selection bias for group discussion, as tribal people are very introvert and shy, they do not like to open up quickly. Thirdly, Language problem may act as a barrier to understanding the actual essence of what the members want to say even though interpreter may try to translate very accurately. Fourthly, complete records may not be available at certain facilities therefore to trace the sequence of events in case studies may be difficult. Thus limiting the validity of the results

5.9: Ethical approval:

- The study will be done after approval by the research ethical committee of the Institute of child health and Government of Jharkhand.
- Clients and providers consent will be taken before interviews, observations and recording of Discussion.

5.10: Confidentiality:

5.10.1: Site assessment: data's will contain some of the very vital information's of the respective facility which cannot be made available to all, documents will be coded and real names kept with team leader. Therefore, each team leader of the respective unit will be responsible for the confidentiality and custody of the data's. Finally, all data's will be handed to the core team.

5.10.2: Exit interview: All forms will be coded, so that all details (name and address) are kept separately. Only coded forms will be handed to the data entry assistant.

5.10.3: Focus group: All discussion tape/video recordings will be in safe custody of the research team leader.

5.11: Time Frame:

The study will take approximately six weeks and about a fortnight for data analysis, shown in appendix 13, figure 9; the following activities in order and estimated time are proposed.

(1) Meeting with Government of Jharkhand officials, In-charge of PHC and Add PHC, supervisory staff and Identification of Core team. -------- 1 day.

(2) Selection and training of (a) twenty assessment teams each consisting of two doctors, two male supervisors and two lady health visitors (LHV), two Auxiliary nurse midwife(ANM) and (b) five interviewer team of two members in each team. --------- 15 days.

(3) **Facility audit (including root cause assessment) and exit interview**/primary health centre ---------- 1 week and four days for health sub-centre. Thus, in total it will take about six weeks to complete all the 49 facilities (district hospital 1 + PHC-8 + Add PHC-8 + HSC-32) under study.

(4) **Focused group discussion**/PHC ---------2 days and about 3 weeks for conducting 16 discussions in sixteen PHCs that is one FGD per selected PHC.

(5) Data analysis ---------- 2 weeks.

(6) Conclusion meeting with Government of Jharkhand officials, In-charge of PHC and Add PHC, supervisory staff.-------- 1 day

(7) Conclusion meeting with assessment teams ---------- 1 day.

5.12: Research team:

There are four types of team, (1) **Core team** – that acts as a co-ordinator and facilitator for the assessment activity. It consists mainly of Stakeholders, researchers, health secretary, reproductive health programme officer and other departmental heads. In total there are five to eight members. (2) **Facility assessment team** is mainly concerned with facility audit and exit interview of clients (mainly trained to assess facilities). In total twenty teams will be identified from among the Medical officers, supervisory staff, nurses and midwives posted in Ranchi district. This will not only reduce research cost but will train them for monitoring and evaluation of their units in future. Each team will consist of two doctors, two supervisors, two lady health visitors and two ANMs. (3) **Interviewer team** mainly responsible for conducting focused group discussion (FGD) in all the sixteen primary health centres (one FGD/PHC). There will be five Team each team consisting of two members, who are not linked with health department.(4) **Data**

entry team mainly responsible for collecting, entering, maintaining, and analysis of all the data's. It will be a six member team (one statistician, three data entry assistants, one general assistant and one driver).

5.13: Budget:

Main expenditures for the project are mentioned in tables: 8 & 9. Total expenses towards salary or honorarium of staffs are Rupees 443,800 and other expense which includes stationary/travel/computers etc. is Rupees 160,000. Therefore, the total budget is 603,800 rupees or 7,548 Pounds.

Table: 8 Total expenses on Salary					
s/n	Facility assessment team	number	period	Rate(rupees)	amount
1	Doctor	40	6weeks	50/day	84000
2	Supervisors	40	6weeks	40/day	67200
3	Lady health visitor	40	6 weeks	40/day	67200
4	Nurse/midwives/ANM	40	6 weeks	40/day	67200
				Total-(1)	285600
s/n	Interviewer team	Number	Period	Rate(rupees)	amount
1	Voluntary worker	10	3weeks	40/day	8400
				Total –(2)	8400
s/n	Data entry Team	Number	Period	Rate(rupee)	Amount
1	Statistician	1	14 weeks	30000/month	105000
2	Data entry assistant	3	8 weeks	100/day	16800
3	Assistant	1	14 weeks	5000/month	17500
4	Driver	1	14 weeks	3000/month	10500
				Total-(3)	149800
				Total (1,2&3)	443800

Table : 9 Budget		
	Amount(Rupees)	Total
Travelling	40000	6,03,800 Rupees or £7548
Stationary and printing	40000	
Incidental & miscellaneous expenses	30000	
Computer and Audio-visual Aids	50000	
Salary	443800	

5.14: Conclusion:

Maternal and newborn care is an important factor in the primary health care system, which needs to be given the first priority for reducing mortality. Much attention has been given with the introduction of safe motherhood in 1987. No significant fall in maternal and infant mortality rate had been observed although data indicates high coverage of care. There is a wide disparity in the Mortality rate between developed and developing countries. This difference can be attributed to the 'quality of care' and 'continuum of care'. Much stress has been given on the coverage of primary health care for improving the quality of care. But, quality improvement also requires keeping into account the needs of the users, skilled attendance, availability and accessibility to functioning health facilities. The decision on managing resources should be based on systematic 'assessment of needs' of the local population and the Gaps in the health care system. This means to take into account local demography, the epidemiology of health problems, evidence on the effectiveness of health care system and preference of the local population to know the gap areas. Achieving quality in health facilities requires the proper performance of the interventions according to prescribed standards (Gilson et al 1995). Therefore, program planners and policy makers should focus more on issues related to structure, process and outcome with emphasis on health providers training, appropriate use of standard case management guidelines, and development and implement of protocols for systemic supervision.

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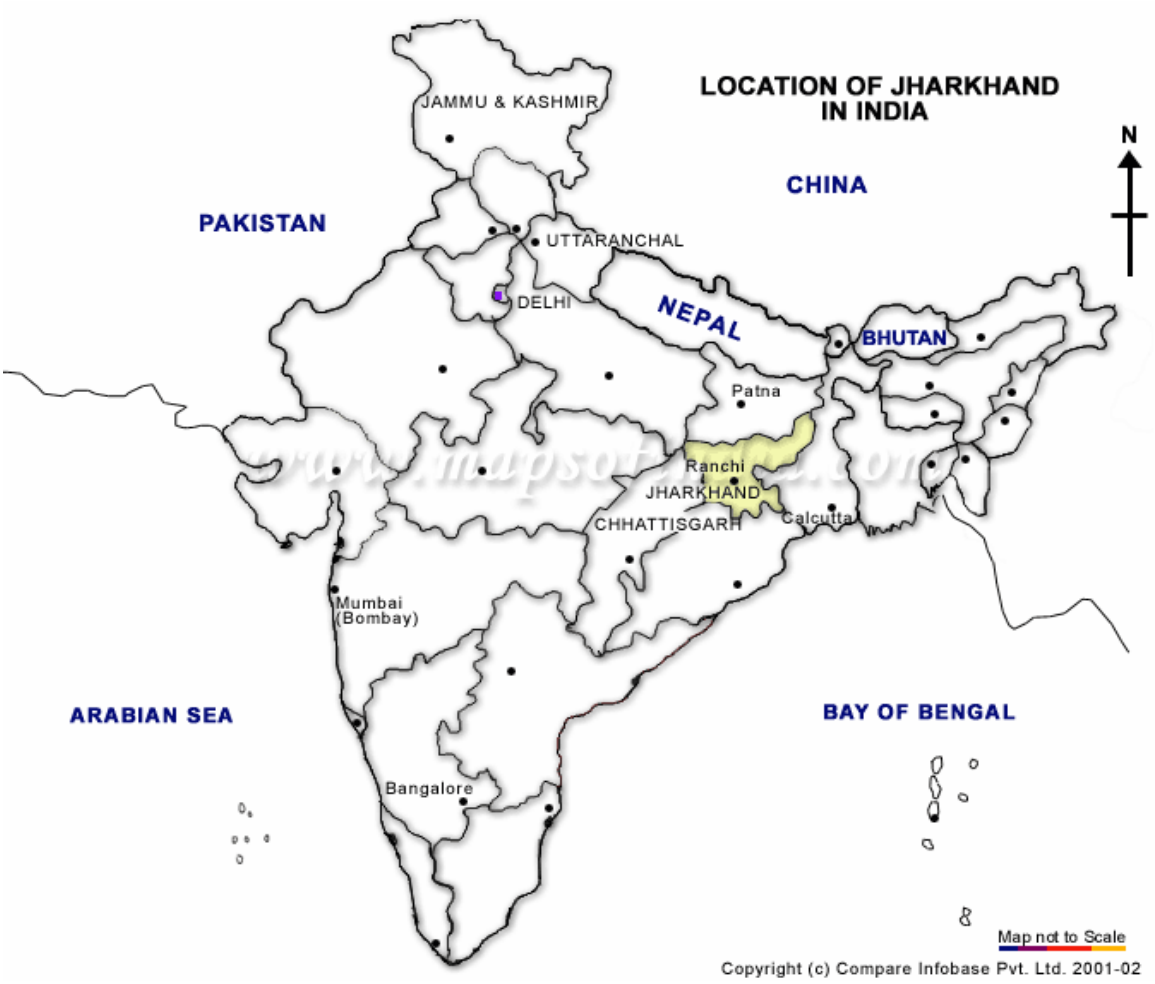
6.1: Appendix:

6.1.1: Appendix: 1

Fig: 1 Map showing location of Jharkhand in India.



6.1.2: Appendix: 2

Table: 2: ***Health Centre Population Coverage Norms***

Centre	**Population Norms**		**Number of Beds**
	Plain Area	Hilly/Tribal Area	
Sub-centre	5.000	3,000	non
Primary Health Centre	30,000	20,000	six
Community Health Centre	1,20,000	80,000	thirty
Multi purpose Worker	5,000	3,000	----------
Source: (MOHFW 2004)			

6.1.3: Appendix: 3

Figure: 8: Services given at Primary Health Centre for Maternal and Child Health Care including family planning: IPHS

a) Antenatal care:

i) Early registration of all pregnancies ideally in the first trimester (before 12th week of pregnancy). However, even if a woman comes late in her pregnancy for registration she should be registered and care given to her according to gestational age.

ii) Minimum 3 antenatal checkups and provision of complete package of Services. First visit as soon as pregnancy is suspected/between 4th and 6th month (before 26 weeks), second visit at 8th month (around 32 Weeks) and third visit at 9th month (around 36 weeks). Associated Services like providing iron and folic acid tablets, injection Tetanus Toxoid etc (as per the "guidelines for ante-natal care and skilled Attendance at birth by ANMs and LHVs)

iii) Minimum laboratory investigations like haemoglobin, urine albumin, And sugar, RPR test for syphilis

iv) Nutrition and health counselling

v) Identification of high-risk pregnancies/ appropriate management

vi) Chemoprophylaxis for Malaria in high malaria endemic areas as per NVBDCP guidelines 9.

vii) Referral to First Referral Units (FRUs)/other hospitals of high risk pregnancy beyond the capability of Medical Officer, PHC to manage.

b) Intra-natal care: (24-hour delivery services both normal and assisted)

i) Promotion of institutional deliveries

ii) Conducting of normal deliveries

iii) Assisted vaginal deliveries including forceps / vacuum delivery Whenever required

iv) Manual removal of placenta

v) Appropriate and prompt referral for cases needing specialist care.

vi) Management of Pregnancy Induced hypertension including referral

vii) Pre-referral management (Obstetric first-aid) in Obstetric emergencies that need expert assistance (Training of staff for emergency management to be ensured)

c) Postnatal Care:

i) A minimum of 2 postpartum home visits, first within 48 hours of delivery, 2nd within 7 days through Sub-centre staff.

ii) Initiation of early breast-feeding within half-hour of birth

iii) Education on nutrition, hygiene, contraception, **essential new born Care** (As per Guidelines of GOI on Essential new-born care)

iv) Others: Provision of facilities under **Janani Suraksha Yojana (JSY)**

d) New Born care:

i) Facilities and care for neonatal resuscitation

ii) Management of neonatal hypothermia / jaundice

e) Care of the child:

i) Emergency care of sick children including Integrated Management of Neonatal and Childhood Illness (IMNCI)

ii) Care of routine childhood illness

iii) Essential Newborn Care

iv) Promotion of exclusive breast-feeding for 6 months.

v) Full Immunization of all infants and children against vaccine preventable Diseases as per guidelines of GOI.

vi) Vitamin A prophylaxis to the children as per guidelines.

vii) Prevention and control of childhood diseases, infections, etc.

f) Family Planning:

i. Education, Motivation and counselling to adopt appropriate Family Planning methods.

ii. Provision of contraceptives such as condoms, oral pills, emergency Contraceptives, IUD insertions.

iii. Permanent methods like Tubal ligation and vasectomy / NSV.

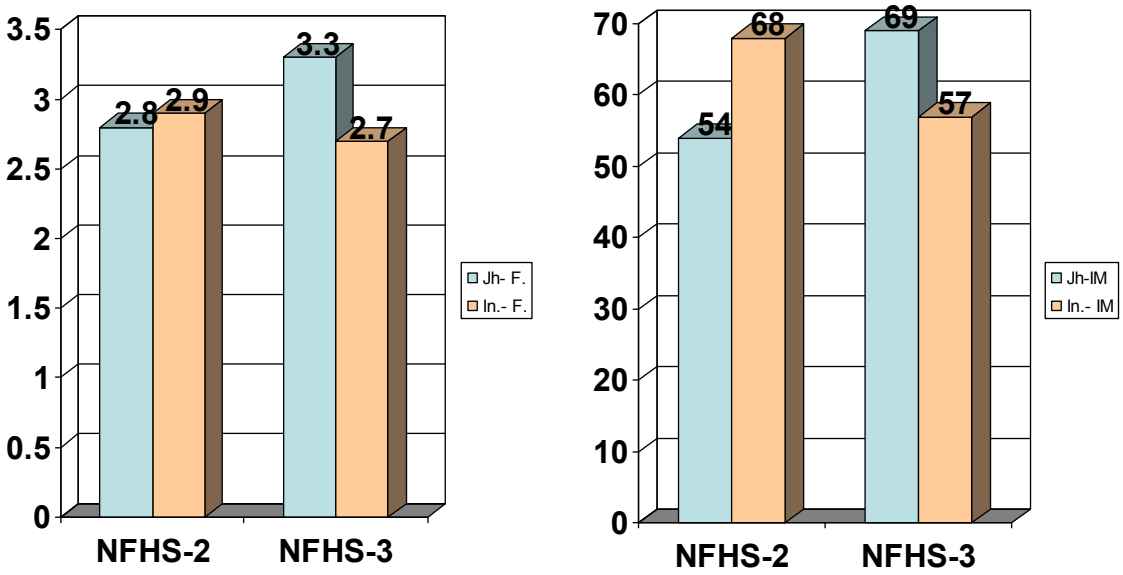
iv. Follow up services to the eligible couples adopting permanent methods (Tubectomy/ Vasectomy).

v. Counselling and appropriate referral for safe abortion services (MTP) for those in need.

vi. Counselling and appropriate referral for couples having infertility.

6.1.4: Appendix: 4

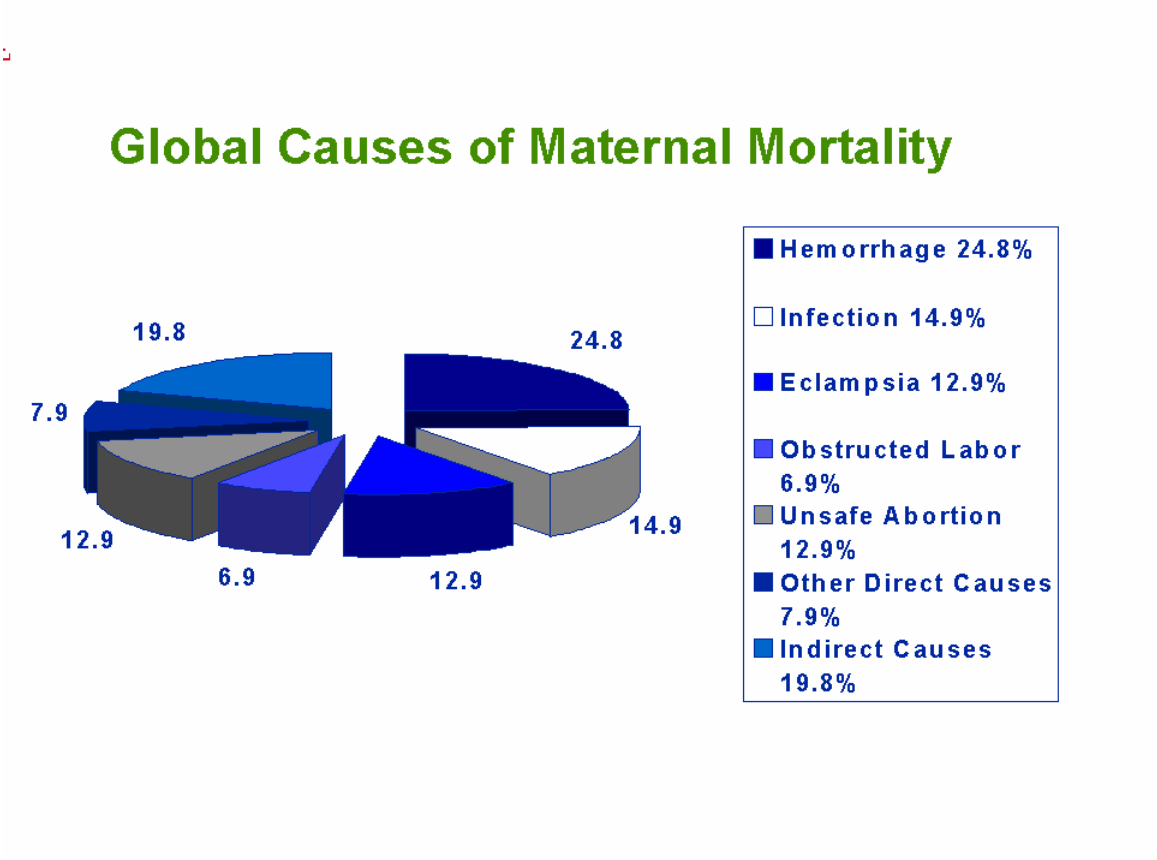
- Charts-1: showing the trends in fertility (F) rate and Infant Mortality Ratio (IM) in Jharkhand (Jh) and India (In) in NFHS-2 (1998-99) and in NFHS-3 (2005-06).
- Source: - NFHS-3 (2005-06) Fact sheet. MHFW-India



Fertility &Infant Mortality Trend in Jharkhand &India

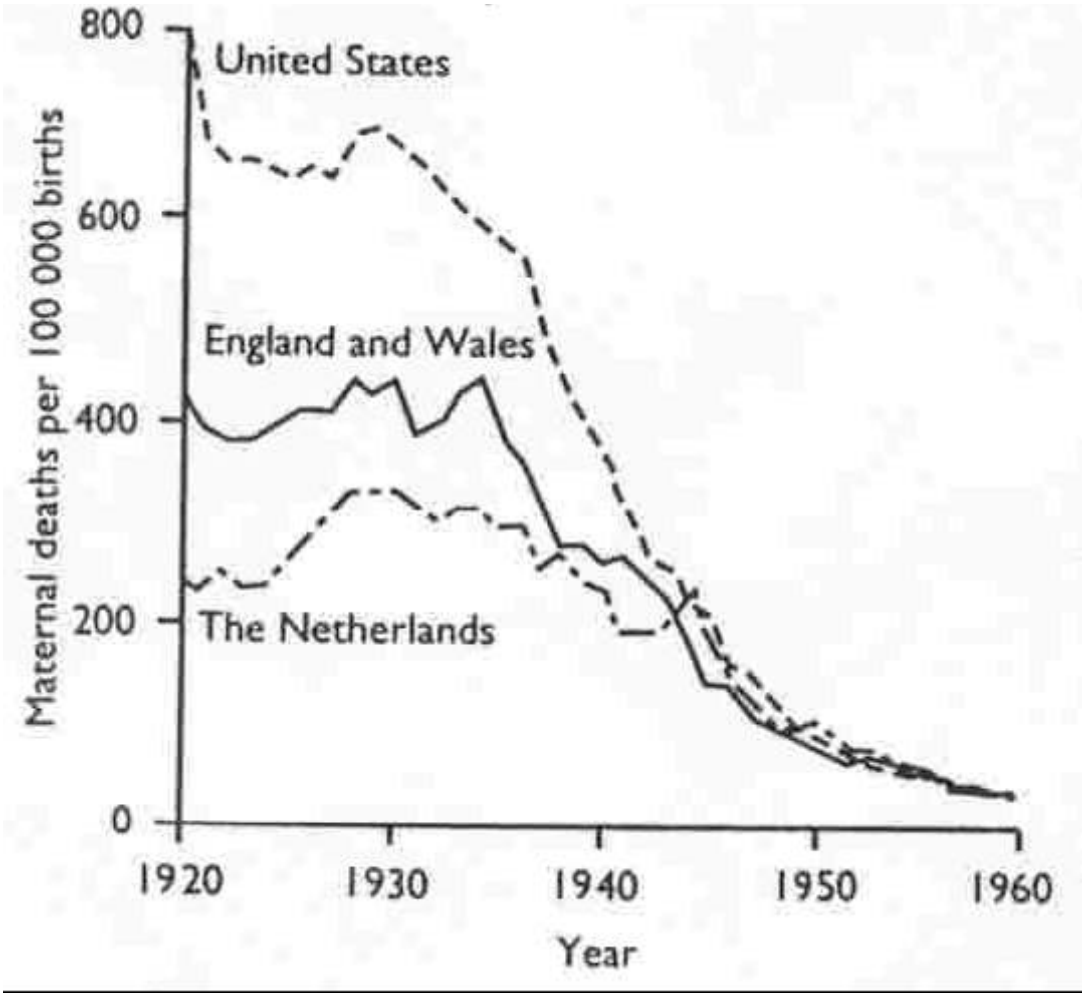
6.1.5: Appendix: 5

- Chart: 2: showing causes of Maternal Mortality
- Source: Maine D, 1999. & WHO 1999.



6.1.6: Appendix: 6

- Fig:-3: Showing the Trend in decline in Maternal Mortality Ratio in US, England and Netherlands.
- Source: Loudon I, :(1992): The transformation of maternal mortality: British Medical Journal: 305:1557-1560

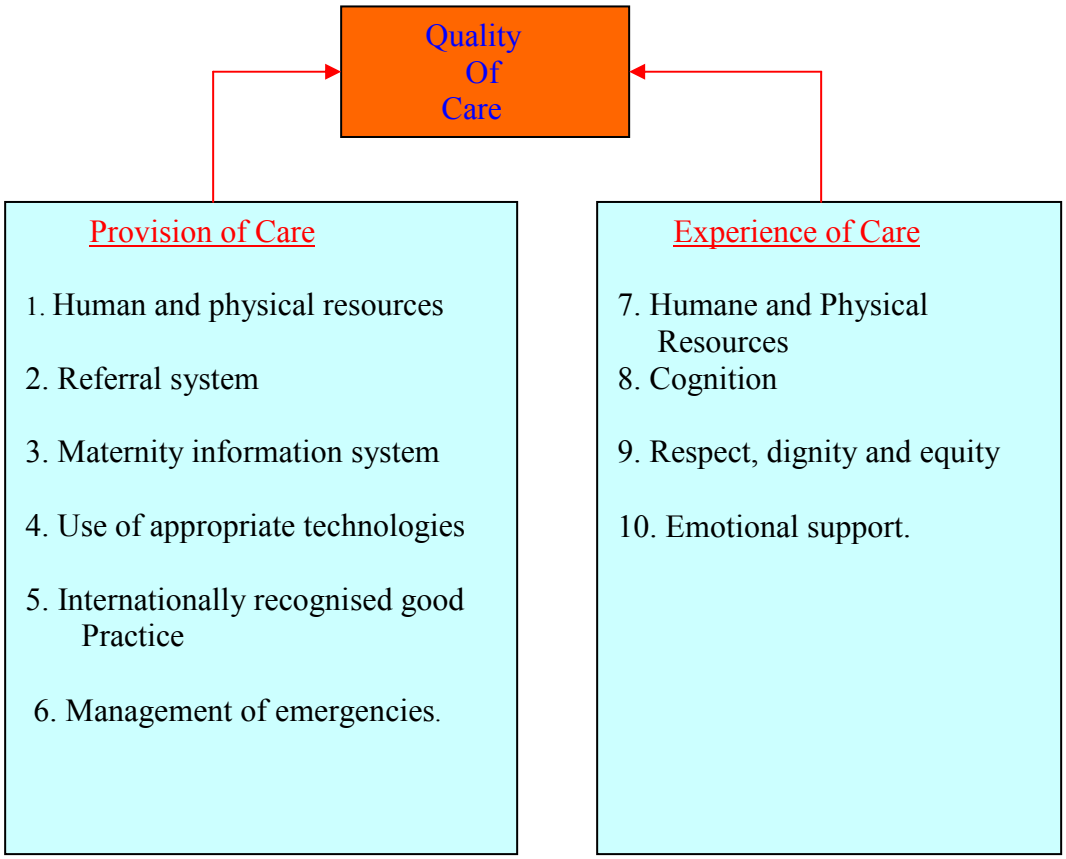


6.1.7: Appendix: 7

Figure: 4: Quality Assessment Framework: Bruce (Family planning program)
Source: Bruce J (1990)

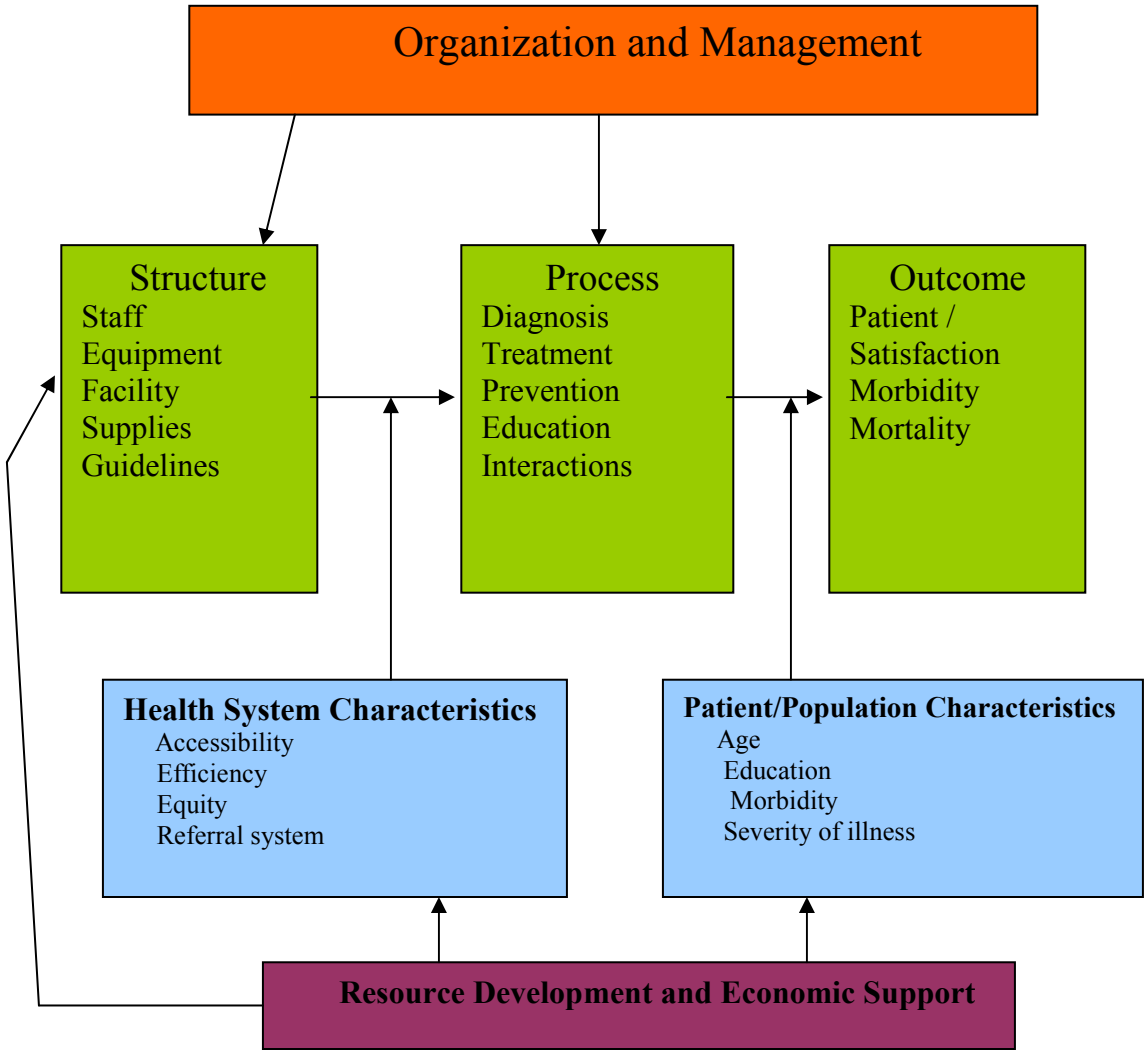
6.1.8: Appendix: 8

- Figure:-5: Quality Assessment Framework: Hulton
- Source: Hulton L.A, et al (2000).



6.1.9: Appendix: 9

- Fig: 6: **Quality assessment framework: Donabedian:** (Modified concept with its determinants)
- Source: (Adeyi and Morrow 1996) and Sauerborn R et al 1989)



6.1.10: Appendix: 10

- Table: 3 **Showing single functions of Basic and Comprehensive EmOC Services.**
- Source: Maine D, et al: Guidelines for Monitoring the availability and use of obstetric Services. 1997: New York, UNICEF.

Facility level	Single Functions
Health Centre	Basic EmOC= • Administer parental antibiotics • Administer parental oxytocic drugs • Administer Parental anti- convulsants for Pre-eclampsia and eclampsia • Perform manual removal of Placenta • Perform manual removal of retained products (eg manual vacuum aspiration) • Perform assisted vaginal delivery
District Hospital	Comprehensive EmOC= • All those included in the basic EmOC plus: • Perform Surgery (caesarean section) • Perform blood transfusion.

6.1.11: Appendix: 11

- Fig: 7: WHO Definition of Skilled Attendant
- Source: Reduction of maternal mortality: A joint WHO/UNICEF/World Bank/ statement. Geneva: WHO, 1999.

"The term 'Skilled Attendant' refers exclusively to people with midwifery skills (for example Doctors, Midwives , Nurses) who have been trained to proficiency in the skills necessary to manage normal deliveries and diagnose , manage or refer complications .Ideally , the skilled attendants live in , and are part of the community they serve. They must be able to manage normal labour and deli vary, recognize the onset of complications, perform essential interventions , start treatment and supervise the referral of mother and baby for interventions that are beyond their competence or not possible in a particular setting

6.1.12: Appendix: 12

Table: 6 Presenting a summary of Objectives, information, data source, tools and Method in Quality assessment of Maternal & newborn Care services

s/n	Objective	Who	What	Method
1	Structure 1. Staff 2. Equipment 3. Facilities 4. Guidelines 5. referral system	DH PHC Sub-centre	1. Availability of drugs, supplies, equipments, blood, guidelines etc. 2. Condition of building, water, electricity etc. 3. Availability of referral system. 4. Standard of care compared to IPHS norms.	1 Facility Audit. 2.Why Why Method.
2	Process • Provider-client relation	1. Care providers/ Doctors/Nurses/midwifes. 2. Clients	1. Providers behaviour with clients; if friendly and respectful.	1. Exit interview. 2. FGD. 3.Facility audit.
3	Outcome • Patient satisfaction	1.Clients 2. Community in catchments area. 3. Providers	1. Clients satisfaction with the care received. 2. Quality of care received.	1. Exit interview 2. FGD 3 Facility Audit.
4	Improving records for monitoring and evaluation of antenatal, delivery and postnatal care.	1.Managers of facility 2. Prividers of care. 3.Clients	1. To know the current situation of indicators of maternal and new born care related to ANC, Delivery and PNC; for monitoring and evaluation.	1. Facility Audit. 2.Why Why method
5	Identify Gaps in the Health system relating to mother and Newborn care	1.Managers of facility 2.Providers of care 3.Clients	1. Know the actual standard of care compared to the set standard by IPHS.	1.FGD 2. Exit interview 3 Facility Audit. 4.Why Why method
6	Propose intervention for improvement in Maternal and Newborn care quality	1. Clients. 2. Managers of the facility 3. Providers of care. 4. Stakeholders. 5. Ministry of health	1. Interventions best suited for population (i.e. Culturally, geographically and soci-economically) to reduce maternal & Newborn Mortality.	1. Exit interview 2. FGD. 3 Facility Audit.

6.1.13: Appendix: 13

Figure: 9 showing Time Frame for Quality assessment at District hospital, Primary Health Centres and Health sub-centres

Steps	Name of Task	weeks	W1	W2	W3	W4	W5	W6	W7	W8	W8	W9	W10	W11	W12	W13	W14	W15	W16
1	Core team formation	2days	→																
2	Administrative arrangements	1 week	→																
3	Selection and translation Of interview questions	1week	→																
4	Preparing and securing budget	3 week	→	→	→														
5	Setting timetable and Work plan	1 week	→																
6	Selection & Training Of assessment team/ Interviewer team	2 weeks	→	→															
7	Translating and Printing Questionnaire	2 weeks	→	→															
8	Facility audit & Exit interview (PHC/ Add PHC/district hospital).	2 weeks				→	→												
9	Facility audit & Exit interview (HSC)	4 weeks						→	→	→	→								
10	Focused group Discussion	3 weeks				→	→	→											
11	Data Entry	6 weeks				→	→	→	→	→	→								
12	Data Analysis & interpretation	2 weeks										→	→						
13	Report and feedback meeting	1week																	
														→					