

Research Article

Challenges in a Version of Major Maternal Morbidities and Mortality in Low Resource Rural Women, Community Based Analysis Running Head, Averting Major Maternal Morbidities, Mortality at Community by Nurse Midwives

Chhabra S^{1*} and Jaju UN²¹Department of Obstetrics and Gynecology, Mahatma Gandhi Institute of Medical Sciences, India²Professor of Medicine, Mahatma Gandhi Institute of Medical Sciences, India

***Corresponding author:** Chhabra S, Department of Obstetrics and Gynecology, Emeritus Professor, Mahatma Gandhi Institute of Medical Sciences, Sevagram, Wardha, Maharashtra, India

Received: April 12, 2019; **Accepted:** September 23, 2019; **Published:** September 30, 2019

Abstract

Preventable maternal deaths continue to occur in resource poor countries due to pre-existing poor health, lack of access to safe abortion, safe birth, quality prenatal, and intra-natal, postnatal care. But even with low resources deaths can be prevented by providing community based services with linkage to health facilities equipped for appropriate, effective interventions, quality maternity care.

Were to know persisting challenges share information about rural community based maternal care by nurse midwives in region with low resources. Analysis of records of community based services provided by supervised NM to prevent maternal deaths, severe morbidities was done. Each pregnancy was followed, irrespective of place, type, and outcome. There was change in place of births, more hospital births. Home births eliminated in villages where services were initiated in 1986. In same villages in 2018 there were no home births, 67.84% at referral institute, 32.16% other hospitals. In other villages, 47.36% births took place at home, 44.73% other hospitals, 7.98 at referral institute in 1995. In 2018 1.61% home births, 9.67% at referral hospital 88.70% other hospitals. NM can do a lot in supervised channel for maternal care to rural women with low resources. But quality care at referral is essential.

Keywords: Maternal Morbidities, Mortality

Background

Globally many maternal deaths continue to occur in low resource settings due to complications during pregnancy, delivery, and puerperium. While a lot of research still goes on about many disorders during pregnancy, obvious causes seem to be pre-existing poor health, lack of access to safe abortions and lack of quality prenatal, intra-natal and postnatal care. Almost each of the maternal death is preventable by community based maternal care to those who can not reach health facilities and linking of these women to health facilities which are ready for effective interventions as per the need and as and when needed. It is essential to have supervised channelized system between the communities and the referral health facilities. The international, national organizational capacity and resources do exist for the system. What is needed is the understanding of precisely where to concentrate efforts. Maternal health scenario can be changed with timely identification of disorders, timely decision to transfer the women to referral and refer too and finally providing right treatment at referral. These are the key factors in the reduction of maternal and neonatal morbidities and mortality. An estimated 300,000 women died as a result of pregnancy-related conditions in the world in 2015 [1]. From 1990 to 2015, global maternal deaths decreased by 29 percent and Maternal Mortality Rate decreased by

30 percent based on estimates compiled from data sources from 186 of 195 countries [2]. In 2015, the MMR (maternal deaths per 100,000 live births) for the world was 216, which reflected a 2.3 percent annual decline [3]. In 2015, regional MMRs ranged between 12 for high-income regions to 546 for sub-Saharan Africa. Even for Universal Health Coverage (UHC) maternal health care is a critical component because it directly affects women's lives, their babies, their families, communities and nations at large. As such indicators of reproductive, maternal, newborn and child health also include antenatal and intra-natal care [4].

Objectives

The objectives were to analyse records of community based services provided by NM to rural women of low resource communities to know the efficacy, challenges and share results.

Materials and Methods

The analysis of records of community based maternal services by NM, retrained for the job expected, was done. They were advised to provide antenatal care and ensure linkage to health facilities, track outcome of services whatever. Women used private or public health system or study institute. NM stationed at the institute where study was planned and executed, provided services to rural pregnant

women with low resources. NMs visited the villages early in the morning Basic prenatal care was provided with advocacy for referral to those who needed specialised care. For intranatal and postnatal needs advocacy was done. Usually women from three villages were provided care in one visit by 3 NMs, each one covering one village. They were supervised by the health personnel of the referral institute where analysis of records was done and where most of the women with emergency problems sought services. High risk cases were identified and risk prediction was also done at community level by NM. However pregnant women, families and local health workers, volunteers were made aware of possibilities of emergencies during pregnancy, labour and postpartum even in low risk cases and importance of timely transfer to appropriate places for essential services. NM visited each village 5 times in a year because of resource crunch, trying to make it a cost effective venture. So many women were available during pregnancy for maternal care only 3times, some only twice. Volunteers, health workers from the villages not only helped the NM in getting the information about possible new pregnancies and births in each village but provided support also. Each pregnancy was followed, irrespective of the place, type of delivery and outcome. A supervising system was made. The residents under the guidance of the author at the referral institute, (study site), monitored the information of each visit of NM with a checklist for the outcome of each visit to villages. Families of nearby villages were covered under special assurance schemes of the institution [5]. They knew that essential emergency obstetric care was available, either free or at subsidized rates at the institution. Other villages which were little away and where services were initiated later were not directly covered by the schemes of the institute. But these communities were also aware of schemes which could be used to get subsidized services. It was also ensured that villagers either had their own system or were aware of public health system for timely transfer a linkage to appropriate health facilities. Economical delivery kits made in obstetrics and gynaecology of the institute were provided to the families in case of home birth in emergency, like preterm labour or because of the difficulties of transfer for those who wanted home births if everything was normal because the mission was to go with communities with awakened families. Although the women and the families were advised health facility delivery, some still delivered at home. As per the need women were also helped to get economical short stay waiting home within 2 minutes walk from maternity wards of the institute. Base data was collected in 1986 and maternal services were initiated in 1987 in the group of 25 villages within 25-35 kms, which were covered under the rural health assurance scheme of the institute. In other group of 28 villages, 80-90 kms away from the institute, not covered under assurance schemes, base information was collected in 1994 and services were initiated in 1995. The population of the 25 villages was around 27700 and of 28 villages 22500, as some villages were small, others little bigger and each village had only 3-7 deliveries in a year.

Results

There has been change in places of births, with more of health facilities births. Home births have almost been eliminated in villages where services were initiated in 1986. In 1987 there were 36.23% home births, 14.49% at referral institute (where study was done) and 49.27% at other health facilities. In the same set of villages in 2018 there were no home births, 67.83% at referral institute and 32.16%

Table 1: Place of Deliveries in Villages (In%).

Years	Deliveries	Home		Referral hospital		Others PHC/District hospital	
		No	%	No	%		
1987	138	50	36.2	20	14.5	68	49.3
1988	187	40	21.4	40	21.4	107	57.2
1989	155	40	25.8	60	38.7	55	35.5
1990	279	80	28.7	120	43	79	28.3
1991	200	60	30	40	20	100	50
1992	242	82	33.9	62	25.6	98	40.5
1993	329	82	24.9	87	26.4	160	48.6
1994	246	80	32.5	70	28.5	96	39
1995	205	60	29.3	65	31.7	80	32.5
1996	414	114	27.5	200	48.3	100	24.2
1997	339	39	11.5	150	44.2	150	44.2
1998	216	40	18.5	96	44.4	80	37
1999	211	30	14.2	71	33.6	110	52.1
2001	301	107	35.5	150	49.8	44	14.6
2002	217	30	13.8	107	49.3	80	36.9
2003	245	41	16.7	142	58	62	25.3
2004	251	43	17.1	142	56.6	66	26.3
2005	186	16	8.6	130	69.9	40	21.5
2006	186	16	8.6	100	53.8	70	37.6
2007	167	10	5.98	90	53.9	67	40.1
2008	201	30	14.9	71	35.3	100	49.8
2009	245	41	16.7	142	58	62	25.3
2010	301	100	33.2	150	49.8	51	16.9
2011	186	16	8.06	130	69.9	40	21.5
2012	258	80	31	70	27.1	96	37.2
2013	199	1	0.5	126	63.3	72	36.2
2014	207	1	0.48	138	66.7	68	32.9
2015	182	0	0	113	62.1	69	37.9
2016	112	0	0	82	73.2	30	26.8
2017	158	0	0	98	62	60	38
2018	199	0	0	135	67.8	64	32.2

at other hospitals. In villages, little away from study institute where services were initiated later, 47.36% births took place at home, 44.74% at other health facilities 7.98 referral study institute in 1995. In 2018 there were 1.61% home births, 9.67% at referral hospital and 88.70% at other health facilities.

At the community level maternal deaths were 1620/one lac live births between 1986-88, base data. It was not really Maternal Mortality Ratio (MMR) as it included all deaths during pregnancy, births and post birth, irrespective of the cause. It was difficult to know the causes of maternal deaths in base data. As services were initiated maternal deaths occurred one each due to Preterm birth with postpartum Tubercular Meningitis, Cerebral Malaria, Poisoning, Suicidal Burns, and Sub Acute Intestinal Obstruction with Aspiration making 1290 maternal deaths / lac live births between 1989-1991. Later there was

Table 2: Place of Deliveries in New Villages.

Years	Home		Referral hospital		Other /PHC/District hosp.		Deliveries Total
	No	%	No	%	No	%	
1995	90	47.4	15	7.89	85	44.73	190
1996	50	20.4	82	33.5	110	44.9	242
1997	50	25.4	15	7.61	130	65.99	195
1998	70	33.5	30	14.4	106	50.72	206
1999	50	34.7	11	7.64	80	55.56	141
2001	70	34	30	14.6	106	51.45	206
2002	41	19.9	6	2.91	94	45.63	141
2003	113	47.3	11	4.6	114	47.7	238
2004	109	44.1	8	3.24	130	52.63	247
2005	18	10.1	16	8.98	144	80.89	178
2006	44	16.4	116	43.3	108	40.3	268
2007	44	22.2	86	43.4	68	34.34	198
2008	50	34.7	13	9.03	80	55.56	143
2009	113	47.3	11	4.6	114	47.7	238
2010	104	39	9	3.37	154	57.67	267
2011	41	29.7	6	4.2	94	66.66	141
2012	18	10.1	16	8.98	144	80.89	178
2013	1	0.43	12	5.24	216	94.32	229
2014	1	0.44	13	5.7	212	93.8	226
2015	2	1.18	19	11.2	148	87.57	169
2016	2	0.93	18	8.33	170	78.7	216
2017	3	1.89	14	8.86	141	89.24	158
2018	3	1.61	18	9.67	165	88.7	186

one death due to cerebral malaria in 1995 and one suicide during pregnancy in 1998. There was no other death during pregnancy, labour or post partum in the 25 villages (Table 1).

In the other villages (28) where services were initiated in 1995, there was one maternal death due to postpartum haemorrhage on the way to the hospital in 1996 and after that there was no pregnancy or labour related death. However one woman died after Caesarean Section (CS) due to complications of Sickle Cell Disease in 2005 at a referral health facility. There was no significant change in the number of obstetric emergencies over the years. However no woman reported in moribund condition due to septic abortion, retained placenta or rupture uterus. Some cases of obstructed labour did occur due to delay in getting transport at night. After years again, however a woman died at the referral hospital due to secondary post partum haemorrhage post caesarean in the year 2012-2013, a thing to worry (Table 2).

Discussion

The world seemed to be ignorant of the risks associated with pregnancy and birth until the first global estimates of maternal mortality were made by WHO in 1987. After it was known that half a million women died each year following pregnancy, abortion and birth related causes [6], Maine [7], the International Safe Motherhood Initiative was launched in Nairobi in 1987. One of the objectives of

the initiative was to reduce maternal mortality by 50% by the year 2000 [8]. Unfortunately records revealed that there was an increase in maternal deaths. Probably the scale of the problem was significantly greater, than had originally been suspected and that closer to 600,000 maternal deaths occurred each year with the overwhelming majority in the developing countries. The target made was 75% reduction in deaths by 2015 from 1990 levels, how to reach the target continued to be a question for governments, policy makers, programme managers and others. Targets were not achieved in most of the countries though there was a change globally. It was realized that every pregnancy, birth anywhere in the world, faced risk because an estimated 10-15% of pregnant women developed life threatening complications [9]. Researchers also estimated that more than 40 percent of pregnant women experienced obstetric disorders that were not immediately fatal (Weil and Fernandez, 1999). It was concluded that vital managerial change, including formulation of therapeutic protocols for primary obstetric health services were required to have impact on saving women's lives [10]. Deaths could be prevented if women had access to basic and emergency medical care during pregnancy, birth and the post-birth period. In Indian cultural milieu, birth has always been considered second birth, however maternal deaths have also continued to occur. The major problem has been lack of appropriate, timely care to those who needed it. Major factors responsible for this included delay in recognizing that there was a problem, making the decision to seek care, reaching care and in receiving appropriate treatment once at the health facility [11]. If the situation has to change, action at all levels is essential. In India only 34% of deliveries took place in health facilities in rural areas and in some regions three out of four births took place at home (www.whiteribbonalliance_india.org). Need was of identifying and use interventions that were shown to achieve the best outcomes with available resources and services. The same was being attempted in the villages near the referral rural institution. Attempts were made for linkage of communities to health system in emergencies including public health system or referral institute. Three wheelers were arranged by villagers with pooled temple funds to be used for livelihood of unemployed youths as well as helping women in emergencies. For averting deaths, disorders, hundred percent pregnancies needed to be taken care and supervised. Unwanted needed to be timely and safely taken out; others needed to be given appropriate timely advice/care with the system for essential emergency obstetric care. The same was tried and there was success. For intra-natal and post-natal disorders advocacy was done. Women were supervised, advised and helped for safe abortion at safe places for unwanted pregnancy. Basic prenatal care was attempted at community by skilled NM. Traditional birth attendants and village health workers and NMs did advocacy to women, families, communities about disorders, especially emergencies during pregnancy and postpartum, (bleeding, convulsions, fever, foul smelling vaginal discharge and so on) and the need of referral. Also awareness of timely transfer to appropriate places was done. Change has been observed, in the places of deliveries, with more of health facilities deliveries and less home deliveries which was also because of availability of transport and better roads. The villages helped were small, but the results do encourage to do big. In the era of rising costs and limited budgets, if more high tech assistance is given to some and basic health services are not given to others, desired equilibrium will not be achieved which is imperative for healthy communities. Present analysis revealed that system

does exist to help. It needed strengthening. Given social, economic limitations, to raise a replicable model, using cost effective expertise of the medical institutions to govern and supervise health care, utilize the expenditure on medical education for improving primary health care services and bridge health and education, seemed a feasible option for equity. Governments ask doctors to work in villages and doctors do not wish to work. Even if they go, there is retention problem. So there is no sustainable system. A study revealed that early detection of pregnancy complications by skilled professionals and timely referral to a facility was beneficial in saving the majority of babies as well as mothers lives in resource-poor teagardens with a considerable access barrier to health facilities (Biswas, et al 2018). NM who have linkage to educational referral institute can provide, services and do bridging (https://www.unicef.org/infoby country/india_latest.html).

In the public health system in India NM who live in villages, one each posted at sub centre has the responsibility for five villages, around 5000 population (3000 in hilly area) with difficulties of travel, supervision and retraining, accountability and linkages. So they face limitations and results are evident. In spite of the huge health network maternal mortality has been high. When rural public health care seems choked nationwide for numbers (Rural health mission 2007 www.india together.com), any successful program is welcome. The linkage of community to referrals, proper supervision with space for change in the system as per the need can do a lot. Maternal deaths have implications to the whole family, an impact that rebounds across generations, so must be averted by all sustainable means. However there are challenges of dangerous disorders like Sickle cell Disease and, Post-Partum Haemorrhage (PPH). Also quality care is becoming an issue. Maternal death because of PPH on 4th day after caesarean section at referral health facility in recent past was a sad reminder of every day watch. So everyone has to be always ready to do the best. Recently maternal health task force also reported that midwifery care has to be part of the conversation whenever we are looking at maternal and new-born health outcomes anywhere in the world. By applying the International Confederation of Midwives' standards on a country-by-country basis, along with the MISS scoring system, to understand how to better utilize midwives to address some of the most challenging problems in maternal and new-born health can be understood (Kayla 2018). Medical colleges or referral health facilities can become backbone of maternal care with supervised channel to avert maternal deaths, severe sicknesses till the time, the needed services will be available in villages too [12-14].

Conflict of Interest Statement

There was no conflict of interest and funding for study. It was analysis of services provided for elimination of maternal mortality and severe morbidities.

References

1. Alkema L, Chou D, Hogan D, Zhang S, Moller AB, Gemmill A, et al. Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. *Lancet*; 2016; 387-462.
2. Kassebaum NJ, Barber, R.M., Bhutta, Z.A., Dandona, L., Gething, P.W., Hay, S.I, et al. 2016. Global, regional, and national levels of maternal mortality, a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*, 1990 - 2015: 388, 1775-1812
3. Louie, J.K, Acosta M, Jamieson DJ, Honein MA, California Pandemic (H1N1). Severe 2009 H1N1 Influenza in Pregnant and Postpartum Women in California. *N Engl J Med* 2010; 362-427.
4. Godina, E. Reduction of Maternal Mortality. A Joint WHO/UNFPA/UNICEF/World Bank Statement. Pp. 40, available in English, French and Spanish. (World Health Organization, Geneva, 1999.) US\$12.60, ISBN 92-4-156195-5. *Journal of Biosocial Science*. 2002; 34, 287.
5. Sevagram Medico Friend Circle. Health is not the villager's chief priority. *World Health Forum* 1983; 4, 365-367.
6. AbouZahr CL. WHO in Action: Lessons on safe motherhood World Health Forum, An international Journal of Health development. 1998; 19, 253-260.
7. Maine, D. & Rosenfield, A., The Safe Motherhood Initiative: why has it stalled? *American Journal of Public Health*, 1999; 89,480-482.
8. Brouwere VD, Tonglet R, Van Lerberghe W. Strategies for reducing maternal mortality in developing countries: what can we learn from the history of the industrialized West? *Tropical Medicine and International Health*, 1998; 3,771-782.
9. Fact Sheet. USGS reference materials population reference Bureau 2017.
10. Kayat, E.S.A.-, Maternal Mortality in cities of Iraq for Three Years. *International Journal of Current Microbiology and Applied Sciences*, 2016; 5, 590-611.
11. Thaddeus, S. & Maine, D., Too far to walk: Maternal mortality in context. *Social Science & Medicine*, 1994; 38, 1091-1110.
12. Sarma, S. & Rempel, H., Household Decisions to Utilize Maternal Healthcare in Rural and Urban India. *World Health & Population*, 2007; 9, 24-45.
13. Unicef.
14. Godina, E. Reduction of Maternal Mortality. A Joint WHO/UNFPA/UNICEF/World Bank Statement. Pp. 40, available in English, French and Spanish. (World Health Organization, Geneva, 1999.) US\$12.60, ISBN 92-4-156195-5. *Journal of Biosocial Science*. 2002; 34, 287.