# **Original Research Article**

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# Strategies to improve the maternal health programmes under NHM towards MDG-5: maternal mortality in Karnataka

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#### **ABSTRACT**

**Background:** Since from the inception of safe mother hood programs in India during 1982-1990, there is no enough maternal health initiative and financial resource for funding public health activities. So number of maternal deaths is more in India, presently which is accounted 20% of the world total maternal deaths. The global and national importance has been given during 1990 by forming millennium development goal -5 (MDG) to improve maternal health programs. During these days MMR was high and there has been recognition for Maternal Health Programs since from 1997, when RCH-I, in the year 2005. National rural health mission (NRHM) was launched with the primary and main objective was to reduce infant and maternal mortality rate as per goal and target fixed by the 12<sup>th</sup> five year plan (NHM) and MDG -5. Under NHM enough financial resources envelop has been allotted to states of India as per program implementation plan (PIP), so effective utilization of these strategic and financial resources to reduce MMR. Hence this study needs to form strategies to improve the maternal health programs to reduce maternal mortality ratio as per NHM and MDG.

**Methods:** We used the range of methods, like analytical methods to generate the strategies to reduce maternal deaths due to the particular cause by introducing the maternal health programmes with the strategies.

**Results:** Maternal mortality ratio reduced from an estimated level of 437 in 1990 to 178 in 2010–12. The all India and Karnataka target for 2015 was 109 so far not reached. It has to be reached at least by 2017.

**Conclusions:** Optimal using of resources with the implementation of proper strategies, it will give the exact result for achievement of planned goal. This study is also revealed that all the aspects of maternal health programmes and MMR.

**Keywords:** Strategies, Maternal health, Health programs, Health indicator, Maternal mortality, Millennium Development Goal and Karnataka

# INTRODUCTION

In 1996 maternal health services (safe mother hood) were combined with Reproductive and child health programs. This programs was newly integrated with maternal health components with reproductive health programs (MOHFW: 1997;1998 b) to provide definite basic health services i.e. ANC cares, Institutional Deliveries or Home Deliveries assisted by skill birth attends, PNC: Post natal check-ups-three time after delivery. In the year 2005

RCH-II program has been launched under NRHM (national rural health mission) to provide universal health services to the public with primary and main objectives is to reduce to maternal Mortality Rate. <sup>2</sup> To reduce the MMR as per MDG-5 GOI: MOHFW (Ministry Of Health and Family Welfare) has been launched various maternal health beneficiaries oriented program. <sup>3</sup> Strategies is a top level plan to achieve goals regarding maternal mortality under conditions of uncertainty for the certain periods, by using skill or sub set of specific activities or logistics etc. <sup>4</sup>

#### Maternal health

Physical, mental and social well-being of women during pregnancy and delivery.<sup>5</sup>

## Maternal health programs

Maternal Health Programs play a key role reducing maternal mortality and also infant and child mortality. The maternal Health Programs are; Antenatal care, Intranatal Care, and Post-natal care and Institutional Deliveries. 6

#### **NHM**

National Health Mission to provide and quality universal health services to the public with primary and main objectives is to reduce to maternal Mortality Rate. <sup>6</sup>

#### MDG goal-5

Improving Maternal Health developed or set by the Millennium Summit during 2000, because of Sexual and reproductive health is a prerequisite of all goals.<sup>7</sup>

### Maternal mortality ratio

Maternal Mortality Ratio is the ratio of the number of maternal deaths (women aged15-49 years) during a given period of time per 100,000 live births. Karnataka is one of the states of India facing high Maternal Mortality Rate, when compared to the other southern states.

#### **METHODS**

Depending on the type of data available on maternal health programmes, we used the range of methods, like analytical methods to generate the strategies to reduce maternal deaths due to the particular cause by introducing the maternal health programmes. The comparison of actual Maternal Mortality Ratio trends with estimated millennium development goal -5 by using comparative method to study the sensitivity of national health programs to reduce the maternal mortality rate and also used triangle depended impact methods also studied, maternal health programme introduced under national health mission and the strategies to are required, while implementing these programmes and how it will reduce the maternal mortality rate as per target within time line framed in MDG.

#### RESULTS

The millennium development goals (MDGs) were set at the 2000 Millennium Summit to accelerate global progress in development. Sexual and reproductive health is a prerequisite of all goals, particularly those related to gender and health. The most direct link is with MDG 5 of improving maternal health. Progress towards MDG 5 is monitored through achievement of targets and their associated indicators for monitoring under MDG 5.

Reduce by three quarters (3/4), between 1990 and 2015, the maternal mortality ratio.

Table 1: Showing the year wise and district wise details of maternal deaths in Karnataka.

Sl.	Name of the	Deaths du	ıring						
No	District	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
1	Bangalore (U)	64	59	36	87	78	66	17	23
2	Bangalore (R)	17	10	16	14	10	7	10	4
3	Ramanagara	7	14	6	4	3	3	3	5
4	Chitradurga	39	59	59	28	24	21	15	25
5	Davanagere	37	49	39	29	32	19	24	15
6	Kolar	30	39	28	16	20	15	19	15
7	Chikabalapur	38	43	34	29	13	20	21	26
8	Shimoga	33	36	29	27	28	23	26	26
9	Tumkur	44	49	56	45	14	28	26	20
10	Mysore	21	18	20	37	29	10	15	15
11	Mandya	17	27	14	13	8	5	10	7
12	D Kannada	14	28	21	25	20	21	5	22
13	Chikmagalur	13	21	12	13	10	15	7	3
14	Chamrajnagar	13	25	13	11	8	4	7	7
15	Kodagu	7	12	12	11	7	4	7	5
16	Hassan	12	29	15	10	15	9	18	12
17	Udupi	5	12	7	6	6	5	10	2

18	Belgaum	112	118	125	83	94	61	60	75
19	Bagalkot	41	38	31	28	29	25	17	20
20	Bijapur	50	68	44	36	30	27	29	36
21	Dharwad	60	42	46	72	78	82	84	74
22	Gadag	27	35	44	22	17	13	21	14
23	Haveri	32	53	31	21	13	19	11	18
24	U.Kannada	24	28	15	17	9	12	5	6
25	Gulbarga	86	92	89	73	52	38	47	39
26	Yadgiri	0	0	26	34	28	26	27	22
27	Koppal	29	44	63	29	17	29	25	16
28	Bidar	47	42	44	30	24	21	21	20
29	Raichur	59	63	66	44	37	51	48	30
30	Bellary	55	74	93	61	63	43	10	46
	Total	1033	1227	1134	955	816	722	645	648

Table: 2: Showing the declining in MMR of Southern states of India.

Estimates of MMR as per various health survey of Southern States of India										
State	NFHS-2		IIHFW	SRS						
State	1982-86	1994	1998-99	1998	2001-03	2004-06	2007-09	2010-12	2011-13	
Southern States										
Andhra Pradesh	-	-	341	151	195	154	134	110	92	
Karnataka	379	383	364	225	228	213	178	144	133	
Kerala	-	-	262	92	110	95	81	66	61	
Tamil Nadu	-	-	284	89	134	111	97	90	79	
South Sub Total	-	-	-	-	173	149	127	105	93	
India	580	544	466	348	301	254	212	178	167	

Estimates of MMR as per :NFHS: National Family Health Survey, IIHFW: Indian Institute of Health and Family Welfare - Hyderabad, SRS : Sample Registration Survey. 18

Table: 3: Showing the target for Karnataka State to reach MDG-5.<sup>30</sup>

Projection of MMR for NHM:	Indicator	Base line SRS data (2011-13)	2013-14	2014-15	2015-16	2016-17
1	Maternal mortality ratio	133	125	115	109	100

Table: 4: Showing the maternal health indicators of Karnataka and India. 19

Sl. No.	Indicator	DLHS-2 1998-99		DLHS-2 2002-04			DLHS-3 2007-08		
110.		India	Kar	India	Kar	India	Kar	India	Kar
1	Registration within 12 weeks	65.30	88.90	73.60	91.50	75.20	71.80		82.20
2	3 Antenatal check ups	44.20	78.00	50.40	80.00	49.80	81.30	ole	86.30
3	Consumption of IFA for 90 days	48.70	72.60	20.50	33.30	46.60	40.70	available	47.30
4	Safe deliveries	40.20	59.90	48.00	66.60	52.70	71.50	ot a	92.20
5	Institutional delivery	34.00	50.00	40.90	58.00	47.00	65.10	ı not	89.00
6	Home delivery	65.90	49.60	58.60	41.90	52.30	34.10	Data	10.30
7	Post natal care within 2weeks of delivery	NA	NA	NA	NA	49.70	74.20	. H	93.80

## Maternal mortality ratio (per 100,000 live births)

This means, according to SRS, all India's Maternal Mortality Ratio reduced from an estimated level of 437 in

1990 to 178 in 2010–12. The all India target for 2015 is 109 which vary largely from the likely targeted rate in 2015 (Delhi State Report 2014: Millennium Development Goals). <sup>29</sup>

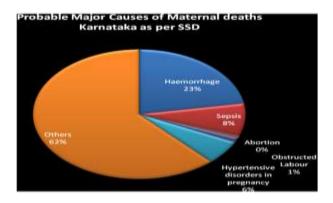


Figure 1: Pie diagram showing the probable major causes of maternal deaths.

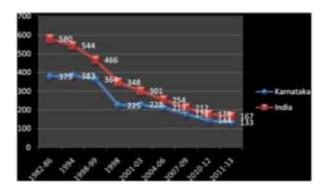


Figure 2: Flow chart diagram showing the comparison of MMR of India and Karnataka from 1982 to 2013.<sup>28</sup>

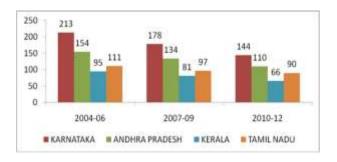


Figure 3: Bar Diagram showing the comparative MMR of Southern States of India.

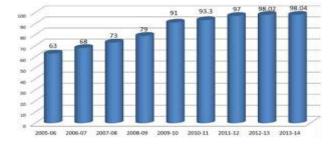


Figure 4: Bar Diagram showing the improvement in institution deliveries over the year (As per health management information system.

This Health Mission was launched on 5th April 2005 and is continued until 2012 as National Rural Health Mission and in 2<sup>nd</sup> phase it is renamed as National Health Mission still continuing until 2017. It is a Government of India Flagship health program. The aim of the NHM is to reduce maternal mortality ratio is 100 by 2017 and create affordable, accessible, accountable, effective and reliable health care via the Accredited Social Health Activist (ASHA) and Village Health Sanitation and Nutrition Committee (VHS&NC) who covers a population of 1000 in rural area. (Framework for Implementation:2005-2012/www.mohfw.nic.in).

Maternal health is focused around the globally and nationally under the millennium development goals (MDG-5) and 12th Five Year Plan respectively (2012 – 2017 under NHM). During 1990s as per WHO estimates that 5, 36,000 maternal death occurring globally and 1, 36,000 take place in India. This is accounted 25% of the maternal deaths around the globe, even if the safe motherhood policies have been launched at the national level before 20 years.

To reduce the maternal mortality the data reveals that 56000 mothers are dying in India which accounts to 20% of the maternal deaths around the world. Karnataka reported 645 maternal deaths during the year 2014-2015. It is therefore to ensure that, to reach the MDG-5 certain important maternal health strategies should be adopted. Hence a main objective of study is to examine the strategies to improve the maternal health programs under NHM towards MDG-5 Maternal Mortality in Karnataka.

Maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. (definition by WHO).<sup>21</sup>

As per the MDG-5 and 12th Five Year Plan, the target taken up for the Maternal Mortality Ratio (MMR) is 100 per 1 lakh live births for India and Karnataka. As per the latest SRS data (2011-2013), the maternal mortality rate for India 167 and Karnataka is 133 per lakh live births. Karnataka continues to rule the roost as far as Maternal Mortality Rate (MMR) is concerned, in entire South India. Highest numbers of maternal death cases are registered from North Karnataka districts such as Belagavi, Kalburgi, Yadgir and Raichur. While Kerala, the neighbouring state has 61 maternal deaths per lakh, Karnataka registered MMR 133 maternal deaths per lakh. This has been attributed by the experts to lack of human resource and minimal awareness on need to institutional delivery, coupled with anaemia and late referrals. Though government has been providing folic acid and other supplements to girls, anaemia continues to be the leading cause for maternal deaths.<sup>32</sup>

CN	T P 4	2012 12	2012 14	2014.15	2015 16	2017 15 D 1 1 1
S.No.	Indicator	2012-13	2013-14	2014-15	2015-16	2016-17 Projected
1	Registration within 12 weeks of pregnancy	87.09	90.00	92	95	97
2	3 Antenatal check ups	92.54	93.54	95	97	99
3	% of Pregnant women received TT2 & booster	91.13	90.00	90	95	100
4	Institutional delivery	98.02	98.08	99	99.5	99.5
5	Home delivery	1.98	1.92	1	0.5	0.5
6	% Newborns breast fed within 1 hour of birth to Total live birth	88.9	93.2	100	100	100
7	% of PW received PNC check up within 48 ours	75.30	79.4	82	85	90
8	% of PW received PNC check up between 48 hrs and 14 days	83.53	89.4	92	95	98
9	Proportion of PW who are not severely Anemic (Hb<7)	95.80	95.3	96	96	97

Table 5: Showing the maternal health programs indicators (out comes).

As per Figure 3, the following goals envisaged for maternal health of Karnataka is to see our women go through pregnancy, childbirth and the outcome of pregnancy safely in terms of maternal and infant survival, the outcome of which is reduction of MMR. The main objective is to reduce the MMR to less than 100 per 1 lakh live births by 2017 (NHM and 12th plan goal).

As per Table 3, Maternal Health Programs play a key role reducing maternal mortality and also infant and child mortality. Maternal Health Programs are crucially important in an India and Karnataka, which having high Maternal mortality Ratio then some of other country and state

To reduce maternal mortality as per MDG-5 needs to study the analysis of maternal health indicators of Karnataka.

From the Table 4, it has been seen that, important maternal health indicators is Institutional Deliveries, due to the increase in this indicator over the year MMR has been reduced as per district level household survey data. As per the HMIS data the increase in IDs are quite high due to covering and all public and private institutions for HMIS reporting every month as comparing survey data sample was representing small group of population. This has been shown in Figure 4.

As per the Table 5, the state has been implementing several maternal health programmes initiative since from 2005: such as adopting RMNCH+A strategies (reproductive maternal neonatal, child health and adolescent), creation of MCH (maternity and child health) wings in delivery points i.e. Community Health Centers, 24/7 Primary Health Centers, Sub Divisional Hospitals, District Hospital and in Medical College Hospitals and regular review of maternal deaths. The

beneficiaries schemes likes JSSK (Janani Shishu Suraksha Karyakrama), JSY (Janani Surkasha Yojane), madilu kits, prastuti araike, thayi bhagya, thayi bhagya plus and nagu magu (drop back facility).<sup>29</sup>

#### DISCUSSION

The resources available to achieve these goals are limited. Strategy has been defined as setting goals, determining definite actions to achieve the goals and mobilizing and integration of resources to execute the actions. A strategy describes how the ends (goals) will be achieved by the means. (From: Wikipedia, the free encyclopedia).

The first and foremost thing is infrastructure and human resources, so strengthening of public health delivery system: in terms of infrastructure, HR, Training and equipments.<sup>1</sup> The fully functionalization of primary and second tertiary care first referral units, community health centers and 24×7 primary health centers by filling all critical vacancies of maternal and child health care Specialist, Medical Officer health, Staff Nurses and other staffs, which are in needed.<sup>20</sup>

Quality Ante-natal, Intra-natal & Post-natal care: Early registration of pregnancy and timely issue of Thayi Cards after that giving quality ante, intra and postnatal care and Expected Date of Deliveries list has to be prepared by junior health worker Female and Accredited Social Health Activist to promoting institutional deliveries (ANM and ASHAs).<sup>3</sup> Tracking and follow up of severe anemic and high risk pregnancy: Through line listing of anemic and High Risk Pregnancy cases. <sup>4</sup> Provided the EDD list to 108 Ambulance for early tracking for institution deliveries.<sup>5</sup> Referral services & drop back facilities: by State, 108 and nagu magu ambulance and integration of all ambulance services in one front. <sup>6</sup>

To promoting institutional deliveries strengthening of old maternity and child health (MCH) wings and creates new MCH wings where ever needed. If incase safe abortion services is needed: Medical Termination of pregnancy is a major service provided by the MCH wings and follow up these cases for next pregnancies. Timely release and payment of schemes- janini surksha yojane (JSY), janani shishu suraksha karyakrama (JSSK), madilu, prasoothi araike, thayi bhagya & thayi bhagya plus to the concerned beneficiaries and strictly auditing and monitoring physical and financial progress every month.

If the maternal death is happened, review of maternal death both at facility and community level: Analysis of these deaths can identify the delays that contribute to maternal deaths at various levels and the information used to adopt measures to fill the gaps in service. Monitoring and supportive supervision: need for close supervision and monitoring of the programme implementation. 11

The result of present study shows that, the importance of formation of strategies is to reach the maternal health programme goals fixed by National Health Mission and as per MDG - 5. Until and unless formation of suitable strategies as per the maternal health programmes, all the resources allotted for achieve the particular objective has not possible.<sup>13</sup> Optimal using of resources with the implementation of proper strategies it will give the exact result for achievement of planned goal. 14 This study is also revealed that all the aspects of maternal health programmes and MMR, this is very helpful to the public health facilities to effective implementation of these strategies and analysis of all the maternal health programme interventions to reduce MMR as per the National and State target, while delivering the public health delivery i.e. especially with pregnant women is in complicated in nature. 15 Hence the analysis of health programmes and strategies is to be needed. 16 All the public health facilities run by the GOI and GOK should be followed these strategies relating to the maternal health programmes to reach the MDG-5 by using the resources under the National Health Mission, a big health project of Government of India and Government of Karnataka.<sup>27</sup>

#### **CONCLUSION**

Maternal health is one of the crucial components of public health and the public health delivery systems have been facing lot of problems, while implementing the maternal health services to pregnant women. the resources allotted this programme is maximum under national health mission since from 2005 to 2017 to reduced maternal mortality rate as per NHM and MDG-5, but many states in India have not reached these goals. This study made an attempt to analyses the influence of suitable strategies on maternal health prgorammes to reduce Maternal Mortality Rate. Maternal health and service indicator has been cross analyzed to find the

strategies to implementation of maternal health programmes in public health facilities. This study advance the knowledge of District Programme Implementing officers, hospital prgoramme managers, health professional and relevant academic professional and the research scholar to analyze the maternal health programmes with strategies and also helpful to medical officer health of all public health facilities to increase the knowledge to implementing these maternal health programme with suitable strategies. So overall objective of this study is to reduce MMR and to reach MDG-5 and sustainable development goal by 2030 and it is useful all the states implementing maternal health programmes under NHM.

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