ALLOCATION OF FUNDS BY NRHM TO RAJASTHAN, ITS UTILIZATION AND EFFECT ON IMR & MMR

Certificate of Approval

The following dissertation titled **"Allocation of Funds by NRHM to Rajasthan, Its Utilization and Effect on IMR and MMR"** at "National Health System Resource Centre(NHSRC) is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of Post Graduate Diploma in Health and Hospital Management for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

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Certificate from Dissertation Advisory Committee

This is to certify that **Lt Col Udai Singh Udawat,** a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. He is submitting this dissertation titled **"Allocation of Funds by NRHM to Rajasthan, Its Utilization and Effect on IMR and MMR"** at **"National Health System Resource Centre"** in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management.** This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

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In recognition of having successfully completed his
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and has successfully completed his Project on

Allocation of Funds by NRHM to Rajasthan, its Utilization and Effect on IMR and MMR

01 February 2017 to 30 April 2017

International Institute of Health Management Research, New Delhi

He comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning

We wish him all the best for future endeavors

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Suggestions for Institute: —

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INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled "**Allocation of funds by NRHM to Rajasthan, its Utilization and effect on IMR and MMR"** submitted by **Lt Col Udai Singh Udawat** Enrollment No PG/15/081 under the supervision of **Dr A K Khokhar, Director IIHMR** for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from 01 February 2017 to 30 April 2017 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Signature

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Lt **Col Udai Singh Udawat** student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at **National Health System Resource Centre** from 01 February 2017 to 30 April 2017

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.

Dr. A K Khokhar
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Abbreviations

AHS	Annual Health Survey
ASHA	Accredited Social Health Activist
ANM	Auxiliary Nurse Midwife
ANC	Ante-Natal Care
ARI	Acute Respiratory Infection
BCG	Bacille Calmette Guerin
BEmOC	Basic Emergency Obstetric & Neonatal Care
CEmOC	Comprehensive Emergency Obstetric & Neonatal Care
CRM	Common Review Mission
DLHS	District Level Household Survey
DNHP	Draft National Health Policy
DPT	Diphtheria tetanus and Pertussis
FRU	First Referral Unit
FBNC	Facility Based New Born Care
FY	Fiscal year
GoI	Government of India
GDP	Gross Domestic Product
HFS	High Focus State
HBNC	Home Based Newborn Care
HMIS	Health Management Information System
HBPNC	Home Based Pre Natal Care
HFD	High Focus Districts
IEC	Information, education, and communication
IMR	Infant mortality rate

INAP	India Newborn Action Plan
IAPPD	Integrated Action Plan Pneumonia and Diarrhoea
IYCF	Infant and Young Child Feeding
IMNCI	Integrated Management of Neonatal and Childhood Illnesses
ICDS	Integrated Child Development Scheme
JSY	Janani Suraksha Yojna
JSSK	Janani Shishu Suraksha Karyakram
MH	Maternal health
MMR	Maternal Mortality Ratio
MDG	Millennium Development Goal
MTP	Medical termination of Pregnancy
MoHFW	Ministry of Health and Family Welfare
MDR	Maternal Death Review
NRHM	National Rural Health Mission
NUHM	National Urban Health Mission
NHM	National Health Mission
NRC	Nutritional Rehabilitation Centre
NIDDCP	National Iodine Deficiency Disorder Control Programme
NVBDP	National Vector-based Disease Programme
NLEP	National Leprosy Eradication Programme
NPCB	National Program for Control of Blindness
NHFS	National Health Family survey
NGO	Non Government Organization
NSSK	Navjat shishu suraksha Karyakarm
NIPI	Norway India Partnership Initiative
ORS	Oral Rehydration solution

PPP	Public Private Partnership
PHC	Primary Health Centre
PPTCT	Prevention of Parent to Child Transmission
PNC	Pre Natal Care
PCA	Per capita allocation
PIP	Program Implementation Plan
RI	Routine immunization
ROP	Records of Proceedings (for each state)
RGI	Registrar General of India
RMNCH+A	Reproductive Maternal Newborn Child Health + Adolescent
RCH	Reproduction and Child Health
RNTCP	Revised National TB Control Programme
RJSSY	Rajasthan Janani Shishu suraksha Yojana
RTI	Respiratory Tract Infection
STD	Sexually Transmitted Disease
SC	Schedule Caste
ST	Schedule Tribe
SHC	Sub Hospital Centre
SPIP	State Program Implementation Plan
SRS	Sample Registration System
SOSIG	Social Sciences Information Gateway
U5MR	Under-five mortality rate
UIP	Universal Immunization Programme
USG	Ultrasonography
UTs	Union Territories
WOS	Web of Sciences

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1. Introduction

1.1 National Rural Health Mission (NRHM): Government of India (GoI) launched the National Rural Health Mission (NRHM) in 2005 with an aim to increase the public expenditure to 2-3 percent of GDP by the end of the year 2011-12 through an annual increase of 30 percent in budgetary outlays every year.

The NRHM seeks to provide accessible, affordable and quality health care to the rural population, especially the vulnerable sections. It also seek to reduce the Maternal Mortality Ratio (MMR) in the country from 407 to 100 per 1,00,000 live births and Infant Mortality Ratio (IMR) from 60 to 30 per 1000 live births within 7 year period (2005-12) of the Mission. The NRHM integrated all existing reproductive and child health programs as well as national disease control programs under one broad umbrella. The NRHM umbrella comprises of a Mission Steering Group (MSG) at the top, with equivalent State and District Health Missions below. Each district in the country prepares a District Health Plan (DHP), which is subsequently integrated into a State Project Implementation Plan (PIP) that is finally submitted by the State Government to the Union Government. The Union Government releases funds directly to the State Health Societies, based on the State PIP.

With the launch of National Urban Health Mission (NUHM) in January 2014 along with the existing National Rural Health Mission (NRHM), under an apex programme National Health Mission (NHM) the focus has just got widened in providing the health coverage, especially, to the poor. The NHM aims to increase the public expenditure on health to 1.87 percent of GDP by the end of 12th plan 2017 March. The funding pattern for NRHM was 85:15 (GoI: state) till 2011-12 and it changed to 75: 25 from 2012-13.

All cities above the population of 50000 are covered under NUHM while the towns with population less than 50000 are covered under NRHM..

Since the introduction of the NRHM, the central funds released by the Indian government for the scheme have been significant. From 2005-06 to 2013-14, the central government released ₹127,760 crore for the NRHM, of which ₹114,931.40 crore was spent by states which is around 89.96%. However, despite the magnitude of the resources allocated to the States by NRHM and its importance to India's development strategy, very few analyses have examined the effectiveness of the NRHM funding scheme and its utilization to health needs. To understand the effectiveness of NRHM funding scheme, their utilization & effects on IMR & MMR, it is necessary to look at one of the High Focus State (HFS) which gets 30% additional funds from NRHM as compared to other Non High Focus State.

For the purpose of the study we have selected Rajasthan as one of the HFS. In the study we will discuss the quantum of funds allocated to Rajasthan with effect from 2007 onwards and its impact on the outcome of IMR and MMR.

1.2 Background information of Rajasthan State

Covering an area of 342,239 sq km (132,150 sq mi) Rajasthan is the largest state in the Republic of India and Jaipur is the capital of the State. The population of the state is 6.86 crore according to 2011 census, which is 5.67 percent of the national population. The ratio of the rural and urban population is 70:30. The growth rate of population in the state at 28.41 % was higher than that of the country 21.34 %. Rajasthan has one of the largest concentrations of SC (17.15%) and ST (12.56%) population in the country. Socio-economic indicators are, in general lower than the country average. 60.41% and 43.85% of its total urban and rural female population respectively is literate, the corresponding figures for India being 64.8% and 53.7% respectively. The sex ratio is

921 (per thousand males) compared to the country average of 933. The maternal mortality ratio (MMR) of approximately 338 per 100,000 live births and infant mortality rate of 68 per 1000 live births in year 2005, the state of Rajasthan contributes significantly to India's burden of maternal and infant deaths. The trends in IMR & MMR have shown a steady increase from 1980-2001 and thereafter uniform decline from 2002 onwards in Rajasthan. However Rajasthan transitioned from unfavorable to favorable state in the year 2005.If this declining trend continues in IMR and MMR, the state would be able to contribute significantly in achieving MDG 4 and 5 by 2023-2024 and 2017 respectively.

1.3 Definition of the key concepts

1.3.1 Infant Mortality Ratio (IMR): is the number of children dying at less than 1 year of age, divided by the number of live births that year

1.3.2 Maternal Mortality Ratio (MMR): is the number of resident **maternal deaths** within 42 days of pregnancy termination due to complications of pregnancy, childbirth, and the puerperium in a specified geographic area (country, state, county, etc.) divided by total resident live births for the same geographic area for a specified

2. Aim and Objective of the study

2.1 Aim: The aim of this dissertation is to ascertain the quantum of funds allotted by NRHM to Rajasthan with effect from 2007 to 2016, its utilization and effect on the results of IMR & MMR.

2.2 Specific Objective

- To find out the state of funds allotted by NRHM and spent by Rajasthan with effect from 2007 onwards.
- To analyze the state of IMR & MMR and ascertain the reasons for increase or decline.
- To make recommendations for achieving set goals.

3. Methodology

3.1 Data Source: This study drew upon data from four main sources of demographic and health indicators as under:

(a) The National Family Health Survey (NFHS)

It is a large scale nationwide multi-round household survey conducted on a representative sample of households throughout India. The survey provides state wise as well as national information on Fertility, Infant and Child Mortality, Maternal and Child Health, Reproductive Health, Nutrition Anaemia, practice of Family Planning, Utilization and quality of health and family planning services. Three rounds of NFHS have been conducted since 1992– NFHS I (1992 – 93) , NFHS II (1998 – 99), NFHS III (2005 – 06).For the purpose of the study data from NFHS III have been used.

(b) District Level Household Survey (DLHS)

It is a nationwide district level survey designed to provide information on health care and utilization indicators on Maternal and child health, reproductive health and family planning. Three rounds of DLHS have been conducted since 1998 – DLHS I (1998 – 99), DLHS II (2002 – 04) and DLHS III (2007 – 2008). For the purpose of this study data from DLHS III have been used.

(c) The report of the Registrar General of India (RGI):

Office of the Registrar General, India, initiated the scheme of sample registration of births and deaths in India popularly known as Sample Registration System (SRS) in 1964- 65 on a pilot basis and on full scale from 1969- 70. The SRS since then has been providing data on regular basis. Based on a dual record system the SRS System in India consists of continuous enumeration of births and deaths in a sample of villages/urban blocks by a resident part time enumerator, and an independent six monthly

retrospective survey by a full time supervisor. The data obtained through these two sources are matched. SRS bulletins ublished annually provide up-to-date data on Birth Rate, Death Rate, Growth Rate and Infant Mortality Rates at National and State Levels. For the purpose of this study data from SRS 2011and SRS 2013 have been used.

(d) Annual Health Survey (AHS):

The AHS is the only survey specifically designed to provide maternal & child mortality at the district level for the nine high-focus states. The AHS was conducted during 2010-11, 2011-12 and the details of the survey design and instruments used in AHS are available in public domain and that has been utilized for this study.

(e) Apart from above data sources, few other secondary data sources used for the study to obtain information are listed as under:

- Data bases such as, Medline, Pub med and Web of Sciences (WOS)
- Search engines – Google.com, Yahoo Search, Social Sciences Information Gateway (SOSIG)
- The web page of World Bank, World Health Organization, NRHM website of GOI & Rajasthan.
- Peer Review Journal on Health Policy.
- CRM Report (1st to 10^{th})

NRHM allocations by budget category were available in the Program Implementation Plan (PIP) of NRHM website of Rajasthan for the fiscal years (FYs) ending in 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, and 2015.

The study is based on aggregate data available in the public domain; therefore, no ethical issues are involved.

3.2 Public Health Expenditure in India:

In India, public expenditure on health is incurred by three tiers of the Government: the Central Government, the State Governments and the local bodies. The Central Government spends directly on health and also provides grants-in-aid to State Governments for incurring health expenditure. The State Governments, in addition to spending out of the grants-in-aid received from the Centre, incur health expenditure directly out of the resources available with them.

As per Economic Survey 2015-16 brought out by Ministry of Finance, public expenditure on health (Centre and States) as percentage of Gross Domestic Product (GDP) for last three years is as under:

(i) 2013-14 - 1.2%

(ii) 2014-15 - 1.3%

(iii) 2015-16 - 1.3 %

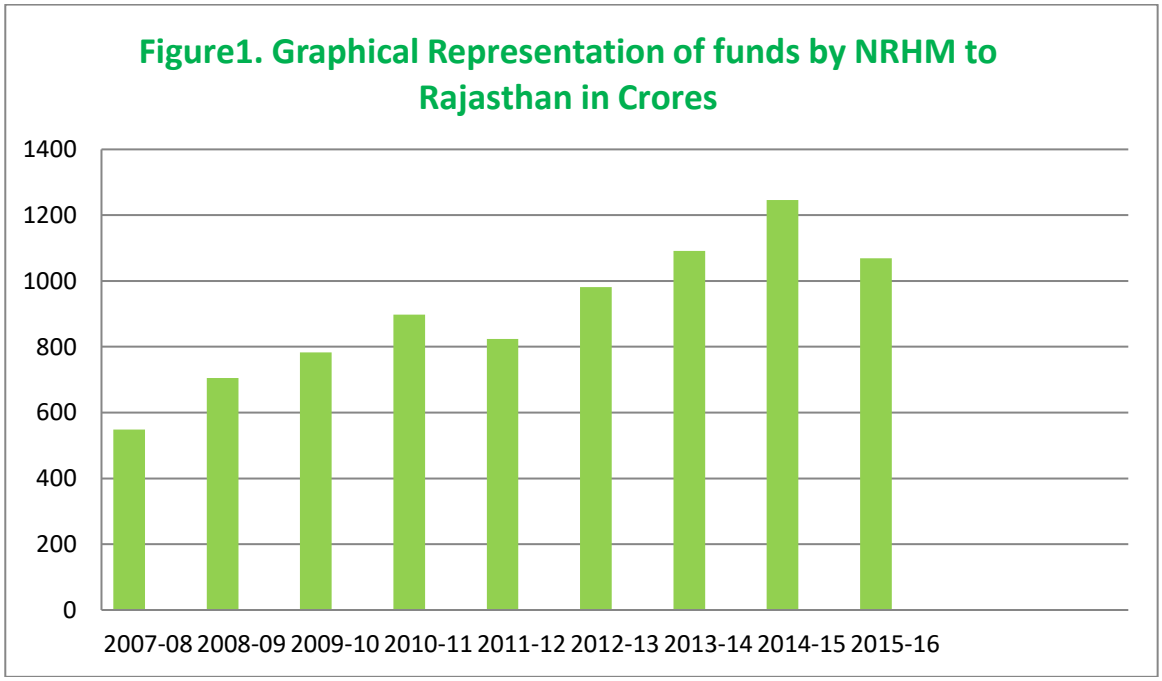
3.3 Allocation of funds to Rajasthan under NHM (NRHM): Health being a State subject, the Central Government supplements the efforts of the State Governments through financial assistance. The funds are released to the States/UTs in lump sum basis pool-wise instead of activity-wise.

The expenditure through the state budget includes the state share of NRHM released to State Health Societies (SHS) and the expenditure on infrastructure maintenance. The actual expenditure under NRHM comprises state spending on infrastructure maintenance (through state budget) and the expenditure incurred by SHS under NRHM.

The total funds allocated to Rajasthan under NRHM from 2007 to 2015 are given in table (1) and figure 1 in a tabular and graphical form respectively.

Table1. Allocation of funds to Rajasthan under NHM (NRHM) in Crores

Year	Allocation
2007 – 08	548.184
2008 – 09	705.32
2009 – 10	783.07
2010 – 11	897.50
2011 – 12	824.17
2012 – 13	980.98
2013 – 14	1091.20
2014 – 15	1246.07
2015 -16	1069.38



Analysis of the table1.and figure1 indicates that the growth of fund allocation on year on year basis increased during year 2008-09, 2009-10, 2010-11, 2012-13 and 2014-15 while it decreased during the years 2011-12 & 2015-16 over the previous years.

As per Eleventh Five Year Plan (2007-2012) Funds sanctioned to Rajasthan by NRHM were under following five heads:

Part A was for Reproduction and Child Health(RCH), Part B was called NRHM additionalities meant exclusively for strengthening health systems, Part C was for an additional thrust in immunization services, Part D was the disease control programmes and Part E represented funds for action on social determinants and convergence that were to be leveraged from other sectors.

3.4 Goals and Objectives of Maternal and Child Health Programme: According to Short Programme Review(SPR) the government of Rajasthan set few Goals and Objectives of Maternal and Child Health Programme to achieve the set goals of MDG 4 & MDG 5. To achieve better outcomes, the state aimed at strengthening the public health capacity by way of personnel, drugs and transport facilities, cash incentives etc. The programme goals and objectives are as given in the table below.

Table2.Goals and Objectives of Maternal and Child Health Program

Program Goal	**Program Objective**
Maternal Health **RCH II** - Reduce Maternal mortality to 213 by 2010 (State PIP RCH II) - Reduce Maternal mortality to 148 by 2012 (State PIP RCH II & 11th Five-year Plan) **ICDS**	**State Program Implementation Plan** To increase coverage with Antenatal Care to 80% in 2010 – 11 from the level of 60% in 2009-10 (State PIP 2010-11) (ICDS targets 100%) Increase coverage of administering 2 TT injections during Ante natal period from 80%(2009-10) to 100% in 2010-11 Increase the proportion of pregnant women receiving IFA tablets from 30% (2009-

- To bring down anemia among women from current level to 40% by 2010 and 27% by 2012	10)to 50% by 2011 Strengthening **o**f IEC to increase awareness on these issues Increase delivery by skilled birth attendant (doctor, ANM, Nurse) from 80% (2009-10) to 100% by 2011 (State PIP 2010-11). Increasing institutional deliveries from 65% (2009-10) to 90% by 2011 through Janani Suraksha Yojana. (ICDS targets 100%) Increasing access to CEmOC by operationalizing FRUs Increasing access to postnatal care to 60% in 2009 – 10 to 80% in 2010-11 **Urban RCH Program (brief note on urban RCH 2008-09)** Achieving 80% ANCs for pregnant. Achieving 80% institutional deliveries

Newborn Health RCH II - Reduce Newborn Deaths - To reduce the percent of low birth weight babies by 10% by 2012 (from ICDS)	**State Program Implementation Plan** Strengthening of tertiary level newborn care facilities at Medical Colleges Setting up 36 Level II Neonatal ICUs (FBNC – Facility Based Newborn Care Centers) across the state at District Hospitals and all Medical Colleges. Setting up the level I care units called Newborn Stabilizing Units (NSUs) at each FRU to link & strengthen the referral from Home Based (IMNCI) / PHC to tertiary level Phased training of all Medical Officers at PHC/CHCs on basic newborn care and resuscitation under Navjat Shishu Suraksha Karyakram (NSSK) Reducing NMR by providing immediate care at birth to every newborn through NSSK

Child Health **RCH II** - Reduce Infant Mortality Rate to 37 by 2011 (State PIP RCH II 2010-11) - Reduce Infant Mortality Rate to 32 by 2012 (State PIP RCH II & 11th Five Year Plan) - Reduce the prevalence of malnutrition among children under 3 years to 25.3% by 2011 (11th 5-year Plan) **NVBDCP** - Proportionate reduction in Malaria Mortality among under -five children by 50%. (State PIP NVDBCP 2010-11)	**State Program Implementation Plan** To increase coverage with complete immunization to 85 % by 2010 (State PIP 2010 -2011) (ICDS targets 90%) Complete coverage of IMNCI across the state with implementation in all districts except Chittorgarh as it is the control district (State PIP 2010-11) Improving access to clinical care among children with diarrhea, ARI and Childhood illness (90% by 2010) Increasing the proportion of ORS use among children with Diarrhoea (60% by 2010) Increasing the proportion of Children getting Vitamin A Supplementation (90% by 2010) To Increase IFA administration among children to at least 50% by 2010(State PIP 2010 –2011) Urban RCH Program (brief note on urban RCH 2008-09) Increase in the coverage of fully immunized children by 25% in 6 months of start of program and 50% by one year of start of service in the selected slum 100% immunization in the slum.

ICDS - To bring down percentage of severe and moderate malnutrition among 0 – 6 years of age to 10% and 15 % respectively by 2012 - To reduce the prevalence of mild malnutrition among children 0 – 6 years to 20% by 2012 - To bring down anemia among children from current status to 60% by 2010 and 39% by 2012	**ICDS** To promote exclusive breastfeeding and increase the number of mothers initiating early breastfeeding to 50% by 2010 and 75% by 2012 To increase the quality complementary feeding rate and feeding care to 45% by 2010 and to 75% by 2012 To ensure 100% coverage of children aged 6 months to 6 years for availing age appropriate supplementary nutrition To expand the availability of age appropriate micronutrient enriched – RTE foods to the beneficiaries by up-scaling successful and cost effective interventions

3.5 Key Interventions at Level of GoI: To achieve the programme goals and programme objectives of maternal and child health programmes, government of Rajasthan implemented following key interventions under taken by government of India(GoI) in close coordination with states to accelerate the pace of decline in IMR and MMR.

- Promotion of institutional deliveries through Janani Suraksha Yojana (JSY).

- Operationalization of sub-centres, Primary Health Centres, Community Health Centres and District Hospitals for providing 24x7 basic and comprehensive obstetric care services.
- Name Based Web enabled Tracking of Pregnant Women to ensure antenatal, intra- natal and postnatal care.
- Antenatal, intra-natal and postnatal care including Iron and Folic Acid supplementation to pregnant & lactating women for prevention and treatment of anaemia.
- Engagement of more than 8.9 lakhs Accredited Social Health Activists (ASHAs) to generate demand and facilitate accessing of health care services by the community.
- Village Health and Nutrition Days in rural areas as an outreach activity, for provision of maternal and child health services.
- Health and nutrition education to promote dietary diversification, inclusion of iron and folate rich food as well as food items that promote iron absorption.
- Universal Immunization Programme (UIP): Infants are immunized against seven vaccine preventable diseases every year. The Government of India supports the vaccine programme by supply of vaccines and syringes, cold chain equipment and provision of operational costs.
- Home Based Newborn Care (HBNC): Home based newborn care through ASHA has been initiated to improve new born practices at the community level and early detection and referral of sick new born babies
- Capacity building of health care providers: Various trainings are being conducted under National Health Mission (NHM) to build and upgrade the

skills of health care providers in basic and comprehensive obstetric care of mother during pregnancy, delivery and essential newborn care.

- Management of Malnutrition: Nutritional Rehabilitation Centres (NRCs) have been established for management of severe acute malnutrition in children.
- India Newborn Action Plan (INAP) has been launched to reduce neonatal mortality and stillbirths.
- Newer interventions to reduce newborn mortality- Vitamin K injection at birth, Antenatal corticosteroids for preterm labour, kangaroo mother care and injection gentamicin for possible serious bacillary infection.
- Itegrated Action Plan for Pneumonia and Diarrhoea (IAPPD) launched in the state.
- Janani Shishu Suraksha Karyakaram (JSSK) entitles all pregnant women delivering in public health institutions to absolutely free and no expense delivery including Caesarean section. The initiative stipulates free drugs, diagnostics, blood and diet, besides free transport from home to institution, between facilities in case of a referral and drop back home. Similar entitlements have been put in place for all sick infants accessing public health institutions for treatment.
- To sharpen the focus on vulnerable and marginalized populations in underserved areas, 184 High Priority Districts have been identified for implementation of Reproductive Maternal Newborn Child Health+ Adolescent (RMNCH+A) interventions for achieving improved maternal and child health outcomes.

Under National Rural Health Mission, out of the total funds allotted to Rajasthan (Refer table 1 and figure 1) the portion of SPIP approved and expended funds

under maternal and child health for F.Y. 2011-12 to 2014-15 are listed in table 2 & 3 respectively.

Table.3. SPIP Approval and Expenditure under Maternal Health for F.Y. 2011-12 to 2014-15

In Crore

Year	Allocation	Expenditure
2011-12	185.147	188.0625
2012-13	323.77	257.39
2013-14	345.059	270.84
2014-15	330.0011	105.65

Table.4. SPIP Approval and Expenditure under Child Health for F.Y. 2011-12 to 2014- 15

In Crore

Year	Allocation	Expenditure
2011-12	2.70	3.40
2012-13	34.16	8.082
2013-14	21.87	11.14
2014-15	24.40	5.41

On analysis of the table 2 it appears that the allocation of funds under maternal health has been higher than the funds expended in all years except once in 2011-12. Also the growth of fund allocation on year on year basis increased except in 2014-15.Even the expenditure of funds has been lower than the fund allocated except once in 2011-12. It may be possible due to late release of funds by NRHM to SHS.

Analysis of table 3 indicates that fund allocation under child health is higher than the fund expended except once in 2011-12. Also the growth of fund allocation was highest in 2012-13 but it decreased in subsequent years. Also the funds allocated under budget head child health is much lesser than maternal health.

From 2007 onwards, when funds started coming to Rajasthan under central government resources the utilization of government resource funds has been done in a very systematic way to achieve set goals of MDG 4 & 5 stipulated time period. Prior to 2007, the state was getting major portion of funds from WHO funded schemes which

got stopped in 2009. However, just to give a glimpse of how NRHM resource funds increased year on year basis, a detailed description of distribution of NRHM funds under different budget head is shown in table 4.for the period 2007 to 2015.

Table5. Distribution of NRHM funds under different budget head

In Crore

Budget Head	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
RCH Flexi pool	111.82	145.62	148.73	217.60	227.07	272.64	295.44	387.13
NRHM Flexi pool	174.54	126.85	131.24	228.54	279.57	338.74	350.75	451.20
Immunization flexi pool	24.55	_	Incl in RCH	Incl in RCH	11.52	13.34	13.35	13.36
NIDDCP	-	0.18	0.18	0.18	0.24	13.61	13.75	0.35
IDSP	3.25	1.43	1.37	1.45	2.77	20.79	21.50	3.25
NVBDCP	18.96	19.38	7.66	1.81	12.39	11.00	11.00	9.12
NLEP	1.25	1.41	1.50	1.65	1.65	1.35	1.45	0.76
NPCB	6.29	18.00	13.04	13.00	11.76	3.00	11.75	11.50
RNTCP	12.69	14.06	15.04	17.27	19.62	0.24	34.25	36.54
Direction & adm	-	190.32	189.45	235.83	242.99	290.81	300.80	217.04
P II OP Control	-	18.06	-	19.63	14.58	15.46	10.05	16.23
Total Resource	548.18	705.32	783.07	897.50	824.17	980.98	1091.20	1246.07

Note- The column of fund details for the period 2013-14 is left blank since details are not available in public domain.

3.6 Key Schemes at the Level of Government of Rajasthan: In addition to the implementation of the key health interventions of government of India (GoI),Rajasthan also implemented following schemes through the guidance and support of NRHM and MoHFW. These schemes and programmes have also played a significant role in decline of IMR and MMR at district level.

3.6.1**Rajasthan Janani Shishu Suraksha Yojana (RJSSY):** All the pregnant women in the state are provided with free delivery, free caesarian section, free drugs &

consumables, free diagnostics (Blood, Urine tests & USG etc.), free diet during stay (up to 3days for normal delivery & 7 days for C-section), free provision of blood, free transport from home to health institutions, between health institutions in case of referrals and drop back home. Also exemption from all kinds of user charges .The implementation of RJSSY in the state led to significant increase in the institutional delivery. As per AHS 2012-13 fact sheet under mentioned percentage of mothers availed financial assistance for institutional delivery.

Table6. Janani Suraksha Yojna (JSY)

In Percent

	Rural	**Urban**	**Total**
Mothers who availed financial assistance for delivery under JSY(%)	**60.9**	**54.3**	**59.5**
Mothers who availed financial assistance for institutional delivery under JSY(%)	**80.0**	**61.5**	**75.5**
Mothers who availed financial assistance for government institution delivery under JSY(%)	**94.2**	**91.3**	**93.6**

3.6.2 Provision of Skilled Birth Attendance and Emergency Obstetric Care

Rajasthan is the state with second highest mother maternal mortality in India. Approximately total number of deaths of pregnant ladies in Rajasthan in one year is equivalent to total number of deaths of pregnant mothers in five years in Kerala. World over it has been observed that delays at three levels are the reasons for the deaths

of the pregnant mothers. Most of the deaths of pregnant mothers can be averted by addressing these delays.

- **First delay: -** Occurs at house hold levels in taking decision to seek medical help and there is no preparedness for delivery of the baby.
- **Second delay: -** Occurs during the transportation of the pregnant lady to the appropriate place. Many a times either vehicle is not available or the money is not available to hire the vehicle. There is lack of knowledge regarding the right place where the pregnant lady should be transported in case of emergencies
- **Third delay: -** Occurs at the facility level, when a pregnant lady reaches at facility either trained manpower, equipments or drugs are not available. Hence initiation of treatment is delayed.

To address all these delays and problems faced by a pregnant lady, Rajasthan has developed a multi pronged strategy .The following activities are planned and are being implemented by the Government of Rajasthan for reducing maternal mortality in the state.

(a) Training of field staff, posted in remote & far flung areas.
(b) Strengthening of referral transport.
(c) Awareness generation in the communities for preparedness of delivery of the baby.
(d) Strengthening of facilities to provide comprehensive and basic emergency obstetric care services round the clock throughout the year.

As per the UN process indicators a total number of 128 CEmOCs and 459 BEmOCs are required to provide emergency obstetric care services to all the pregnant ladies, of the state. In this regard a total number of 187 institutions have been identified to provide comprehensive emergency obstetric care services in the state keeping in view the geographical conditions and population of the state. These institutions have been strengthened in a phased manner, in the first phase 137 institutions have been strengthened and remaining 50 institutions will be strengthened in the second phase. Similarly a total of 173 institutions are identified to provide basic emergency obstetric care services by the end of this year.

3.6.3. Reproductive and Child Health (RCH II): The overall goal of RCH program is to reduce infant and maternal morbidity and mortality in the state. These will be achieved through improvement in quality, enhancing accessibility and availability, and coverage with the reproductive and child health services.

There are few key strategies identified by Rajasthan for RCH II are:

- Strengthening project management structure at state and district levels.
- Strengthening infrastructure at various level of health care delivery.
- Human Resource development and capacity building.
- Improving quality of care and strengthening referral system.
- Strengthening and improvement of logistics and supply system.
- Strengthening Health Management Information System (HMIS)
- Behavior change Communication for increasing demand for RCH and Contraceptive services.
- Specific interventions in maternal health such as: RCH camp target, Dai target, Night delivery facility at all PHCs and CHCs, Hiring of contractual staff (PHN

& LT) at CEmOCs, Provision of 1321 additional ANMS at 10 desert and tribal districts, STD/RTI drugs for PHCs.

- Specific interventions in Child health such as: IMNCI launched in 9 districts, Mal Nutrition corner at all 237 blocks, Purchase of ORS.

The expenditure under Reproductive Child Health component (which includes Maternal and Child Health) was found to be high in Rajasthan from 2011-12 to 2013-14 (Refer Table 6).

Table7. Allocation, Release & Expenditure under RCH Flexible Pool For F.Ys. 2011-12 to 2014-15

In Crore

Year	Allocation	Release
2011-12	**227.07**	**299.07**
2012-13	**272.64**	**204.48**
2013-14	**295.44**	**254.07**
2014-15	**387.13**	**127.75**

Note:

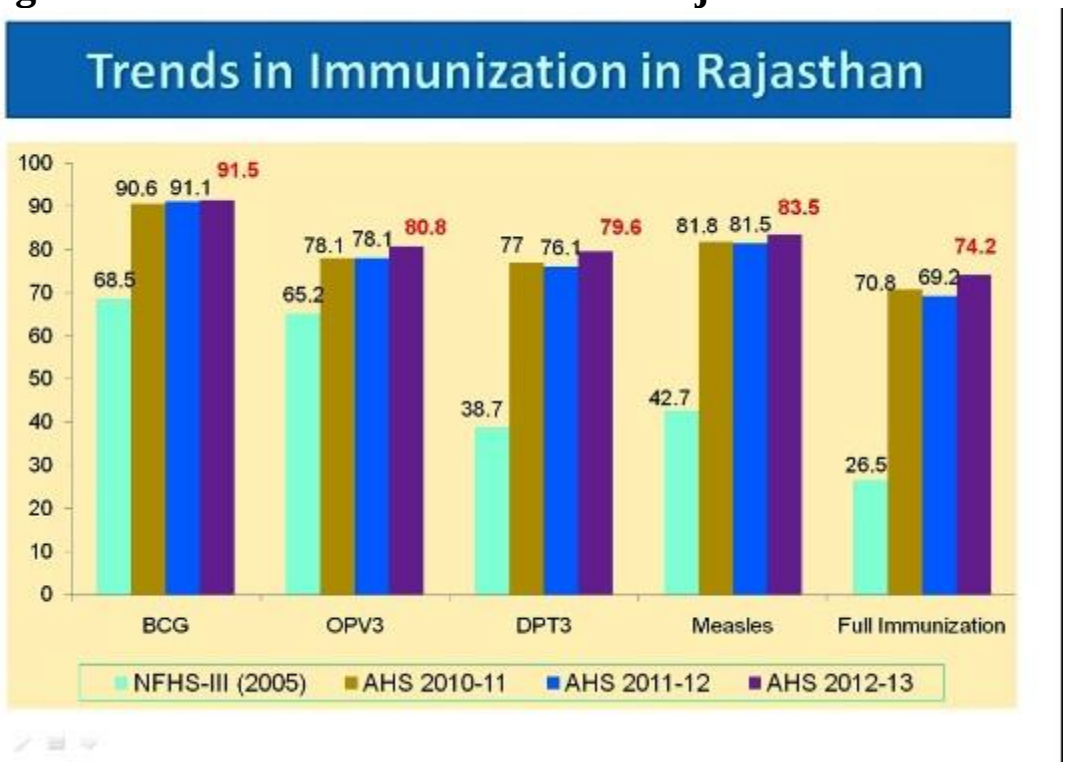
- Expenditure includes expenditure against central Release, state release & unspent balances at the beginning of the year.
- Release figures for the F.Y. 2014-15 are updated upto 30.06.2014
- The above Releases relate to Central Govt grants & do not include state share contribution.

3.6.4 Immunization: Complete immunization of a child is an important step towards the good health status of the child hence immunization has been kept as a major strategy. The complete immunization in Rajasthan is poor as reported from number of surveys .However on comparing the immunization coverage as reported by NHFS III 2005-06 and AHS fact sheet 2012-13 it appears that significant improvement has been made towards immunization coverage.

Table 8.Comparison of Immunization coverage in %

ANTIGEN	NFHS III 2005-06	AHS- 2010-11	AHS-2011-12	AHS-2012-13
Fully Immunized	**26.50**	**70.8**	**69.2**	**74.2**
Measles	**42.70**	**81.8**	**81.5**	**83.5**
DPT 3	**38.70**	**77**	**76.1**	**79.6**
BCG	**68.50**	**90.6**	**91.1**	**91.5**
3 Dose Polio Vaccine	**-**	**-**	**-**	**80.8**
Immunization card	**-**	**-**	**-**	**77.5**

Figure2. Trends in Immunization in Rajasthan



3.6.5. Additional Interventions under NRHM ASHA

The Government of India and Government of Rajasthan have launched a National Rural Health Mission to address the health needs of rural population, especially the vulnerable sections of the society. The sub center is the most peripheral level of contact with the community under the public health infrastructure. This caters to the population norm of 3000 - 5000. The worker in sub center is an ANM who is directly involved in

all the health issues of this population, which is spread over the wide area of many kilometers and covering 5 to 8villages.Many a times the villages are not connected by public or private transport system making it more difficult to achieve the objectives and goals of providing quality health care for the poor and oppressed sections of the society. So the new band of community based functionaries, named as Accredited Social Health Activist (ASHA) is recruited in the NRHM who serve the population.

ASHA is the first port of call for any health related demands of deprived sections of the population, especially women and children. She is the link between the community and the health care provider.

Department of Medical and Health at State and at Center is looking at ASHA as a change agent who will bring the reforms in improving the health status of oppressed community of India. The investment on ASHA will definitely result in to better health indicators of state and at large the country.

3.6.6 Roles and Responsibilities of ASHA Sahayogini

- **Create awareness-**Health, Nutrition, basic sanitation, hygienic practices, healthy living and working conditions, information on existing health services and need for timely utilization of health, nutrition and family welfare services.

- **Counseling-** Birth preparedness, importance of safe and institutional delivery, breast-feeding, immunization, contraception, prevention of RTI/STI. Nutrition and other health issues.

- **Mobilization-**Facilitate to access and avail the health services available in the public health system at Anganwadi Centers, Sub Center, PHC, CHC and district hospitals.

- **Village health plan-**Works with the village Health and sanitation Committee to develop the village health plan,

- **Escorts/ Accompany-**Escorts the needy patients to the institution for care and treatment. She accompanies the woman in labor to the institution and promote institutional delivery.

- **Provision of Primary Medical Health Care-** For minor ailments such as fever, first aid for minor injuries, diarrhea. A drug kit has been provided to ASHA

3.6.7. Maternal Death Review (MDR)

In a notification on the website of the state health department in the first week of July 2016, Rajasthan announced a reward of Rs 200 mobile recharge to anyone who informs the government of a maternal death. The toll free 104 number could be used for the purpose, or the government could be intimated over e- mitra website.

If a woman dies in the course of pregnancy, during delivery or within 42 days of giving birth, it is counted as a case of maternal mortality. A survey of 2011-13 said 244 maternal deaths occurred for every one lakh live births in the state

1375 maternal death reported (982 in 2010-11 and 393 in 2011-12).

Causes of Maternal Deaths:-

• 66% obstetric causes

• 26% medical

• 8% others

3.6.8 Provision of Safe Abortion Services

Abortion services were legalized in India in 1972, however, the access to safe abortion services is restricted, especially in rural areas. In the government sector, most CHCs and PHCs do not provide abortion services due to lack of doctors trained to carry out medical termination of pregnancy (MTP). For example, in 10 districts of Rajasthan, only 39% of the CHCs and 0.5% of the PHCs provided MTP services in 2007-2008 (data collected by ARTH from offices of health authorities in 2007-2008). After 2003, the use of medical abortion increased over the years and ultimately accounted for 99 % of all abortions in 2014. About half the women returned for a follow-up visit, while the proportion using contraceptives declined from 74 % to 52 % from 2001 to 2014.

3.6.9 Other Schemes for Maternal Health Promotion:

• Balika Sambal Scheme - Bond of Rs. 10000/- to maximum two girl child, if parents undergo sterilization is given. 1458 'Balikayen' have been benefitted.

• Family welfare award scheme for good performing district, Panchayat Samiti, Gram Panchayat, Govt. Hospital & Private Hospital/NGO.

3.6.10 Some Innovations for Maternal Health in Rajasthan

• Kalewa

• Jan Mangal

• Balika Sambal

• Jyoti

• Recognition and incentives to Health facilities

• Performance incentive for C-section at FRUs

3.7. Levels of delivery of interventions.

It is found that the interventions implemented were appropriate in terms of requirement and the levels at which they are being delivered. Not a single intervention which is found to be lacking and needs to be introduced afresh except Infant and Young Child Feeding (IYCF), which is already being planned to be implemented.

3.7.1 Description of packages under which the interventions are delivered:

Maternal: ANC, BEmOC, CEmOC, PPTCT, Safe Delivery Package, PNC/HBPNC

Newborn: NSSK, FBNC, IMNCI, Yashoda, PNC/HBPNC, RI, Control of Malnutrition, PPTCT

Child: IMNCI, RI, ICDS, IYCF (under planning),

3.7.2 Extent of Implementation:

There was considerable variation in the extent of implementation of various intervention packages.

Packages which have been implemented throughout the state include ANC, PNC, BEmOC, CEmOC, NSSK, RI, Control of Malnutrition, Supplementary Nutrition (Under ICDS), Control of ARI / Diarrhoea.

Packages with limited implementation include:

- **IMNCI:** Currently implemented in 9 districts. It is being expanded to all districts in Rajasthan.
- **Yashoda :** Implemented in 3 NIPI focus districts. Taken up for implementation in all districts.
- **HBPNC:** Only in 3 NIPI action districts.
- **PPTCT:** Currently implemented in 10 districts.

3.8 Programme Review and Monitoring

3.8.1 Review Missions: To assess the progress made by the states in RCH programme, annual review in the form of **Common Review Mission (CRM)** is being conducted. The review is being led by Government of India (GoI) officials with representation from other Ministries, public health institutions, development partners and civil society. Based on the field observations, CRM report is prepared with the recommendations and shared with the States and Programme Divisions of the Ministry. So, far ten CRMs have been held.

3.8.2Monitoring and Evaluation: In addition to the annual review missions, several other mechanisms are put in place to assess the programme implementation of the States. The monitoring is being done both internally by the officials of MoHFW as well in support from the externally agencies.As a part of internal monitoring, a team of officials and consultants of the ministry regularly visits the states for a week. During the visit the team observes various technical components of the RCH programme in terms of services delivery at the health facilities. The monitoring also concentrates in the other parts of the programmes i.e. training, human resources, programme management etc. Based on the field observation recommendations in the form of report is being shared with the States.

3.8.3 Evaluation Surveys: M & E division organizes periodic surveys namely National Family Health Survey (NFHS), District Level Household Surveys (DLHS), Facility Surveys.

3.8.4 Regional Evaluation Survey (RET): RET's monitor and evaluate the programme implementation.

4. Results

The Government of India has not undertaken any study to assess the ongoing programme/schemes to reduce the IMR and MMR. However, regular supportive supervision visits, Common Review Mission (CRM), District Level Health Survey (DLHS), National Family Health Survey (NFHS) and Annual Health Survey (AHS) have been conducted to assess the progress of ongoing interventions for improvement of infant and maternal health outcomes regularly in the States/UTs.

Based on these assessments, States/UTs are guided to prepare Annual Program Implementation Plan (PIP) to focus on priority interventions to improve infant and maternal health outcomes in each State/UT.

In this study, based on the secondary data available in public domain, the impact on Maternal and Child health in Rajasthan has been assessed and enumerated as under.

4.1 Health Scenario in Rajasthan: After the launch of NRHM in Rajasthan in 2005, the health scenario of the state is on a progressive path. The state has 23 medical college hospitals, 34 district hospitals, 16 sub divisional hospitals, 376 CHCs, 1600 PHCs and 11500 sub centre. The Rajasthan Health Systems project funded by World Bank in 2004 (up to 2009) helped in strengthening of health systems in the state. The state has made concerted efforts to utilize the NRHM funds available to the state more effectively. The state has formed the Rajasthan Medical Services Corporation (RMSC) on the lines of Tamil Nadu Medical Supplies Corporation. Supply of essential drugs for free and conducting health tests for free (Nishulk Dava Yojna and Nishulk Jaanch Yojna for BPL/poor) have led to significant improvement in the outpatients as well as inpatients in the public health centers and is a significant move towards universal health

care. The innovative efforts like using of 'ASHA soft' for payments to ASHA for their services has resulted in the streamlining the payments for ASHA. The MMR and IMR have reduced significantly during the period 2005-2016. MMR reduced from 388 per 100,000 live births in the year 2005 to 244 per 100,000 live births in the year 2015 and Infant Mortality Rate (IMR) has declined from 68 per 1000 live births in the year 2005 to 44 per 1000 live births in 2015.

4.2 Maternal Mortality Ratio (MMR) in Rajasthan:

According to the Sample Registration System (SRS), Registrar General of India (RGI-SRS), Maternal Mortality Ratio (MMR) in Rajasthan has shown a decline from 338 per 100,000 live births in the period 2004-06 to 244 per 100,000 live births in the period 2013- 15(Refer Table10). However, in all measurement periods, the MMR in Rajasthan has been higher than the national average. The lifetime risk of maternal deaths ranged from 1.9% to 2.2%, with maternal deaths being responsible for 29% of all deaths among women of reproductive age.

According to the reports the leading causes of maternal deaths in Rajasthan are 66% obstetric causes, 26% medical causes and 8% other causes. As per National Family Health Survey-4(NFHS-4) Fact sheet 2015-16 the key indicators of maternal & child health in Rajasthan shows significant improvement when we compare with NFHS-3(2005-06).The comparison is as given under:

Table9. Comparison of Maternal & Child Health Indicators in %

Maternal Care (%)	**NFHS-3(2005-06)**	**NFHS-4(2015-16)**
Mothers who had at least 4ANC visits	23.4	38.5
Mothers who had full ANC	6.3	9.7
Mothers who consumed iron folic acid for 100 days or more when they were pregnant	8.7	17.3
Mothers who recd postnatal care from Doc/Nurse/LHV/ANM/Midwife	26.9	63.7
Mothers who recd fin assistant under JSY for delivery in institution	NA	56.1
Delivery Care (%)		
Institutional births	29.6	84.0
Institutional births in public facility	19.0	63.5
Births assisted byDoc/Nurse/ANM/LHV	41.0	86.6
Birth delivered by C- Section	3.8	8.6
Child Immunization (%)		
Children age 12-23 months fully immunized	26.5	54.8
BCG	68.5	88.8
3 Dose of Polio Vaccine	38.7	65.4
Measles	42.7	78.1

The RGI-SRS provides MMR for the country and major states at 3-year intervals. The latest data on MMR for 2004-06, 2007-09, 2010-12 and 2013-15 of Rajasthan is given in the table7 and figure below:-

Table10. Maternal Mortality Ratio (MMR) Rajasthan from 2004 to 2015

SRS,2001-03	SRS2004-06	SRS,2007-09	SRS,2010-12	SRS,2013-15
445	388	318	255	244

Figure3. Maternal Mortality Ratio (MMR)

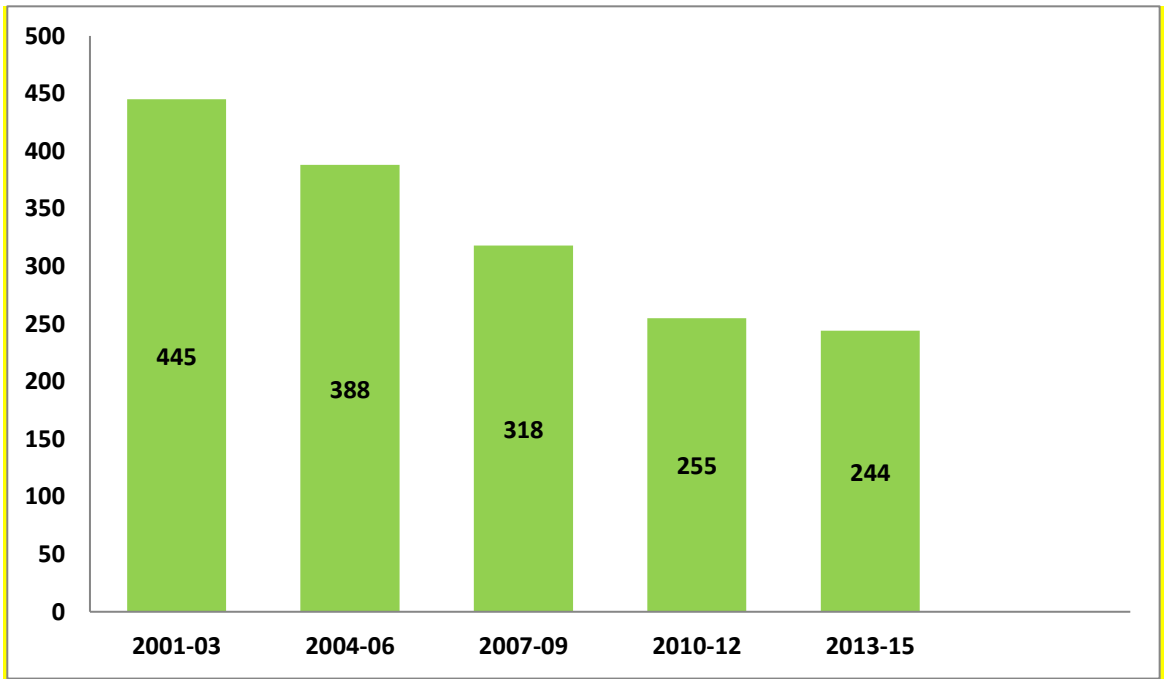
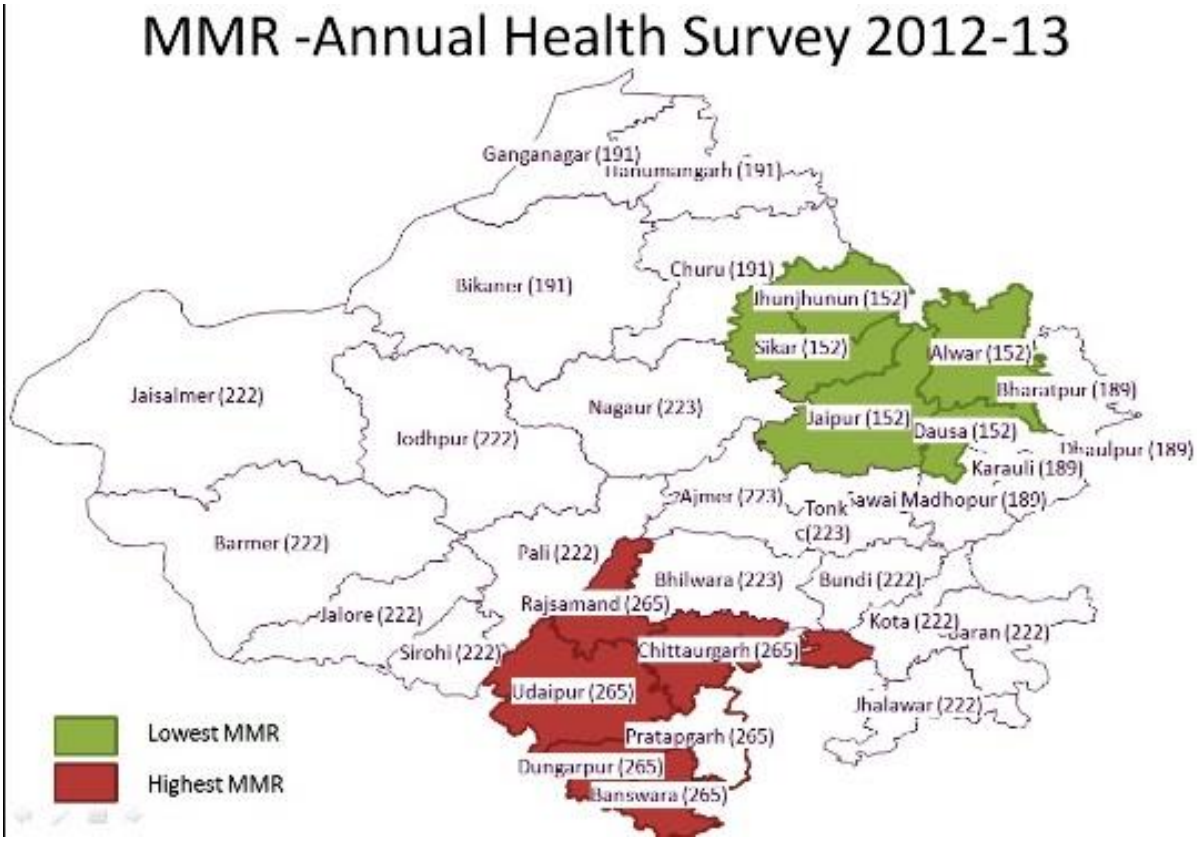


Figure4. District wise MMR Report (AHS-2012-13)



4.3 Infant Mortality in Rajasthan:

Out of about 26.1 million children born every year in India, 9.38 lakh newborns die before one month of life. Rajasthan alone contributes to 8.4% of country's total new born mortality even though it has just 6% of country's population. In Rajasthan nearly 1.6 million children are born every year while a hundred thousand die before they are one year old.

NFHS - 3 survey showed a decreasing trend in IMR, declining from 80 (infants deaths per thousand live births) in 1998 – 99 to 65 in 2005 -06. Registrar general of India has released the latest estimates of Infant Mortality Rate (IMR), according to which IMR of Rajasthan has declined from 65 in 2005 to 44/1000 live births in 2015.According to NFHS-4 Fact sheet 2015-16 IMR in rural areas has declined from 72/1000 in 2007 to

41/1000 in 2016 and in urban areas it has declined from 40/1000 in 2007 to 31/1000 in 2006. Under5 mortality rate in Rajasthan is 55/ 1000 live births in 2015-16 as per NFHS 4 as compared to 85/1000 live births in2005-06 as per NFHS 3.

Despite massive investments under RCH-II Programme and NRHM, and visible improvements in health system, the decline in IMR has been inadequate: much less than what would be required to reach the XIth plan goals of reducing IMR to 30/1000 live births by the year 2015..

The nutritional status of children in Rajasthan has shown very little improvement since NFHS-3. As per NFHS-4, 36.6% children under age five years are still underweight. From 39.9% in 2005-06(NFHS-3) there is an improvement of only 3.3% IN 2015-16(NFHS-4) .The problem of anemia requires radical changes in prophylactic measures as 60.3% of the children under-5 years in Rajasthan are still anaemic (NFHS-4).

According to NFHS-4 (2015-16) 82.6% of children of ARI/fever and 73.7% of children with diarrhoea had access to treatment. The usage of ORS among children suffering from Diarrhoea was 56.2% in 2015-16 (NFHS-4) as compared to 16.5% in 2005-06(NFHS-3).

Access to health care and care seeking for sickness among children has definitely improved. Latest data on care seeking for ARI in any health facility among children <2 years of age was 89.9 percent for the state. More needs to be done to improve routine immunization coverage. The coverage of complete immunization in Rajasthan is 54.8% (NFHS-4) for children age 12-23 months (BCG, measles, and 3 doses each of polio and DPT) as compared to 26.5% in 2005-06(NFHS-3)

Table11. Infant Mortality Ratio (IMR) Rajasthan from 2005 to 2014

Year	Infant Mortality Ratio(IMR)
2005	68
2006	67
2007	65
2008	63
2009	59
2010	55
2011	52
2012	49
2013	47
2014	44
2015	41

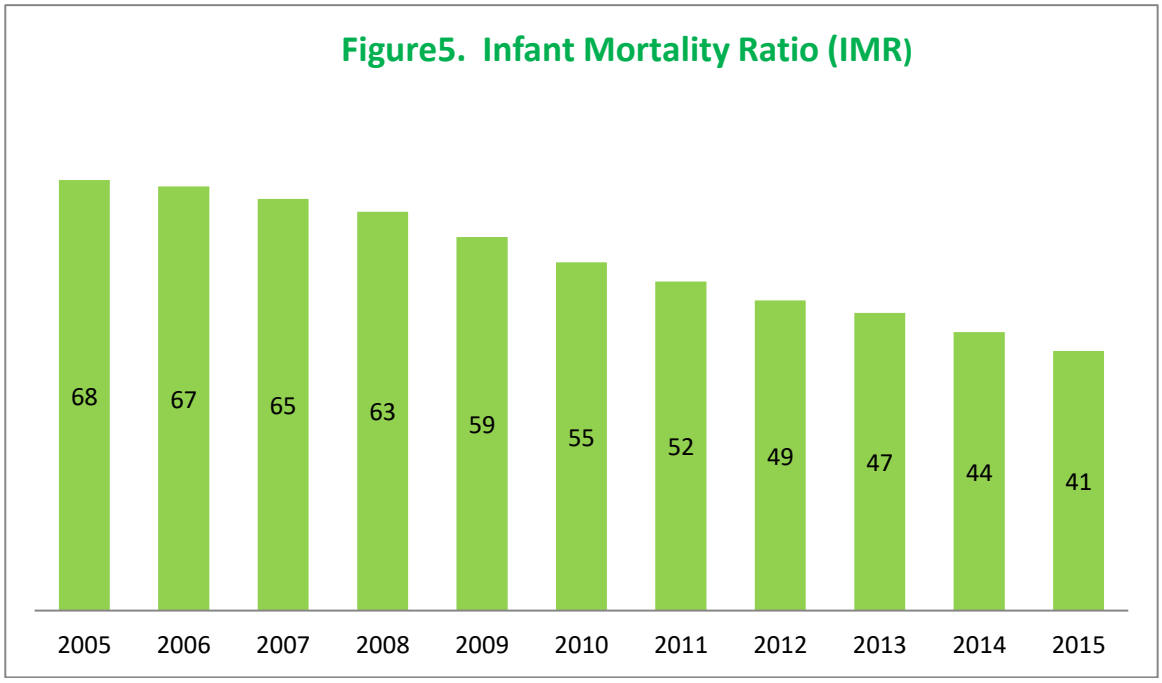


Figure6. Trends in under5 Mortality, IMR, INR

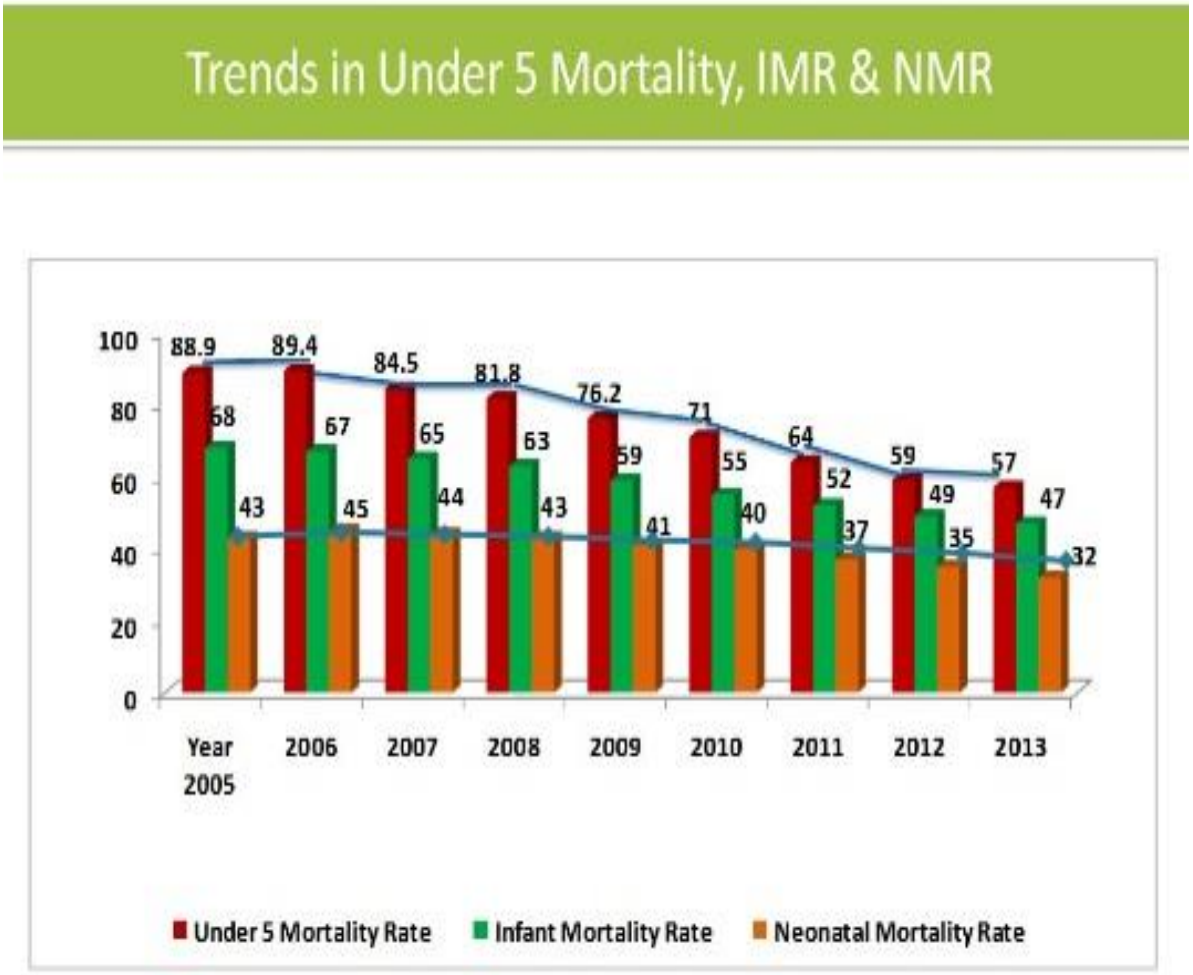


Figure7. District wise IMR Report (AHS 2012-13)

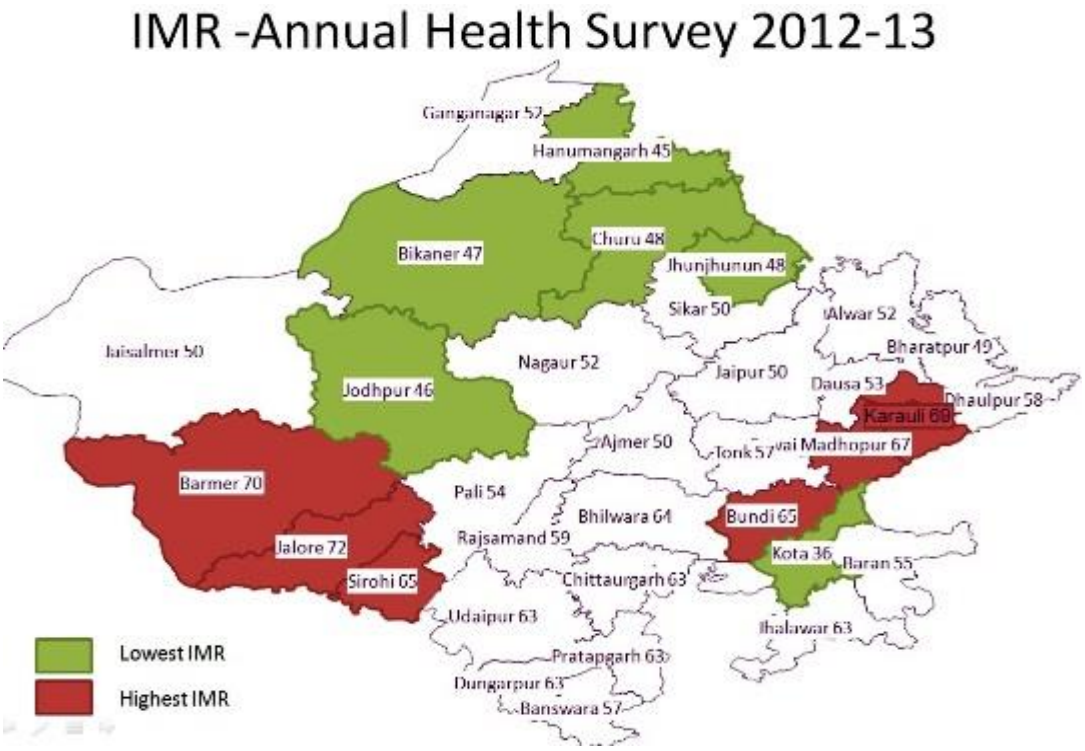


Table12. Health Indicators & Goals selected by Rajasthan

Indicator	Baseline 2011	Current 2015	Goal 2017
IMR	52	41	30
MMR	255	244	100

Although goals of IMR and MMR have not been achieved, the Infant Mortality Rate (IMR) and Maternal Mortality Ratio (MMR) have shown accelerated decline post launch of NRHM. The percentage annual compound rate of decline in IMR during 2005-2015 rose to 4.5% from 2.1% observed during 1990-2005. The percentage annual compound rate of decline in MMR during 2004 to 2015 accelerated to 5.8% from 5.1% observed during 1990 to 2005. The achievements on many key indicators have not been as per the goals mainly on account of inadequate funding and governance challenges in Rajasthan.

5. Recommendations

- The allocation of NRHM funds should be done on the basis of number of Maternal and Child deaths in the state instead of state share of rural population. The state like Rajasthan which has high IMR and MMR as compared to other states should be given more NRHM funds.
- The financial allocations under NRHM should be need based instead of ability to spend becomes criteria to decide the flow of funds.
- GoI should release 100% funds approved on paper rather than release in phases and wait for complete spending by the state.
- The issues of systems like training, planning and monitoring should receive more focus than spending on entitlements eg (JSY).

6. Limitations

- Home deliveries and deaths of infants and mothers taking place at home are often not being reported and registered in the vital registration system.
- Three fourth of neonatal deaths in the country are counted only through highly unreliable five year retrospective household surveys instead of being reported at the time by hospitals and healthcare professionals by the states. Moreover most premature babies those with highest likely hood of dying are least likely to be recorded in infant and neonatal mortality statistics in the State/UTs.
- Maternal deaths are difficult to investigate because of their comparative rarity on a population basis as well as other specific factors such as reluctance to report abortion – related deaths, problems of memory recall, or lack of medical attribution, thus no single source of data collection method is adequate for investigating all aspects of maternal mortality in all settings (WHO 2006).

- House to house survey generally resulted in the under enumeration of maternal and infant deaths. It is because, the information on maternal and infant deaths are not revealed by some households for fear or otherwise. These were always reported by some key informants, called snowballing.
- Allotment and release of large amount of funds to States/ UTs by NRHM is no guarantee of decline in the figures of IMR and MMR. However, States like Kerala, Tamil Nadu, Maharashtra and Goa which have been given much lesser funds and have shown best results .

7. Conclusion

The public health expenditure in India is far from adequate can be simply inferred from the fact that it is only about 1.3% of country's Gross Domestic Product (GDP). While it has increased from 0.9%(in 2004-2005) to about 1.3% of GDP at present, spending by GoI on health is still short of the 2%of GDP promised at the end of 11th five year plan. GoI has increased allocation for health through NRHM since 2005, with RCH and universal Immunization programme being subsumed under the umbrella programme. However, if one compares the outlays for the programme as against those promised under 11th five year plan, still a significant gap emerges.

In light of the fact that Rajasthan still has one of the highest levels of child and maternal deaths all over the country, public health expenditure in Rajasthan seems grossly inadequate. Besides the low level of government allocation and spending on health, under-utilization of available funds suggests that the problem is deeply systemic. These include distorted fund allocation (both across states and components); inadequate capacity among health societies to prepare and cost out health plans; unnecessary delays in fund transfers from one level of the bureaucracy to another; and

acute shortages in infrastructure and medical staff, both of which impede sustained, quality delivery of health services.

Our analysis, from the secondary data gathered on NRHM implementation suggests that the fund release mechanism for the programme needs to be reviewed. It should reflect a rights-based approach rather than the practice of allocating more funds to states that spend more or have a higher share of the rural populace. Second, the mechanisms for fund transfers need to be assessed in light of the delays in fund flow. Third, more focus needs to be accorded to institutional strengthening particularly of programme staff at the district and lower levels to prepare and cost out health plans, driven through a bottom up, biennial planning process. Finally, urgent attention needs to be given to the most significant issue in providing quality health care – creation of good quality infrastructure with necessary medical equipment and supplies and a skilled human resource base. Adequate incentives should be provided to medical and paramedical staff to encourage rural and difficult area postings. Emphasis should also be placed on permanent recruitment or long-term contracts at every level. HR policies should be instituted for each state, with simple rules around recruiting and retaining human resources within the public health system. Only then will the Mission be able to succeed in its endeavor to achieve goals of MDG 4 and MDG 5.

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