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Programmatic Factors affecting Infant and Child Mortality in Madhya Pradesh: Issues and Challenges

P D Kulkarni*; V K Tiwari**; Sherin Raj T P***; Shally Awasthi****

*Ex. Programmer & I/C Computer Centre,
National Institute of Health & Family Welfare,
New Delhi, India.
**Professor and Head,
Department of Planning & Evaluation,
National Institute of Health & Family Welfare,
New Delhi, India.
***Assistant Research Officer,
Department of Planning & Evaluation,
National Institute of Health & Family Welfare,
New Delhi, India.
****Professor,
Department of Paediatrics,
King George's Medical University,
U.P., Lucknow, India.

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Abstract

Madhya Pradesh is one of the poor performing states in terms of reduction in IMR over time. The decline in IMR of Madhya Pradesh has come down 22 points (28.95%) since 2005. As per the SRS report 2013, NMR of Madhya Pradesh was 8 points above the national level. Still half of the Under5 deaths are taking place after neonatal period and about 22% child deaths are taking place after infancy. In this study, two districts namely Indore as better performing and Shivpuri as poor performing were randomly selected to collect primary as well as secondary data regarding programmatic factors affecting infant and child mortality in Madhya Pradesh. It was found that despite of targeted child health interventions under NRHM in districts, due to large gap between normative and existing level of health facilities in socio-economically lagging district of Shivpuri,

child health indicators are poor. Government need to create SNCUs at least CHC level to address most serious causes of deaths like low birth weight, asphyxia, congenital abnormalities etc and arrange Mobile Health Clinics for tribal and far away areas.

Keywords: Neonatal, Infant and Child Mortality, Programmatic Factors, NRHM, Madhya Pradesh.

1. Introduction

The Infant Mortality Rate (IMR) is an important measure of the well-being of infants, children, and pregnant women. Deaths during infancy are due to a particular mix of diseases and conditions to which infants are more exposed and vulnerable. The MDG was set to reduce infant and child mortality by two-thirds between 1990 and 2015. In the case of India this would imply a reduction of the IMR and U5MR to less than 28 and 41 per thousand live births, respectively.

The largest absolute numbers of neonatal deaths (10, 98,000) took place in India, accounting for 27% of global neonatal death (WHO, 2005) alarming much attention during neonatal period. Every year, 27 million babies are born in country, out of which 1.2 million die during first four weeks of life according to the data from a Report jointly combined by UNICEF, WHO, the World Bank and Save the Children (Chatterjee, 2006).

In India over last 42 years, infant mortality has reduced from 129 per 1000 live births in 1971 to 83 in 1990 and further to 41 per thousand live births (SRS, 2013). The Millennium Development Goal (MDG) goal for IMR was 28 per 1000 live births 2015 for India (UNICEF State of the World Children, 2009) which is unlikely to achieve. In the year 1990, the U5MR was 116 per 1000 live births. The U5MR goal for 2015 for India was fixed 38 per 1000 live births (UNICEF, 2009). However, India missed the deadline to achieve the MGD Goal (No 4) to reduce child mortality by two thirds (United Nations, 2008) but the target is moderately on track due to sharp decline in recent years. Though India has progressed on many fronts, deaths under five remain unacceptable high.

Lahariya and Paul (2010) had utilized the Sample Registration System (SRS) data to report the Early Neonatal Mortality Rate (ENMR), Neonatal Mortality Rate (NMR), Infant Mortality Rate (IMR) and estimated Under-Five Mortality Rate (U5MR) in India for the year 2007 using both SRS and NFHS data . Out of 26.2 million births, 1.84 million were under five deaths, 1.44 million (78% of under-five deaths) deaths during the first year of life; 943,000 (52% of under-five deaths) neonatal deaths and 7,60,000 (81% of neonatal deaths) deaths within the first week of life occurred during 2007. The most recent estimates of NMR , IMR and U5MR were 28, 40 and 49 per 1000 live births respectively (SRS, 2013). The trends in neonatal, infant and under-five mortality rates for the period of 1990-2013 is shown in Fig. 1 (Lahariya and Paul, 2010 & SRS 2014).

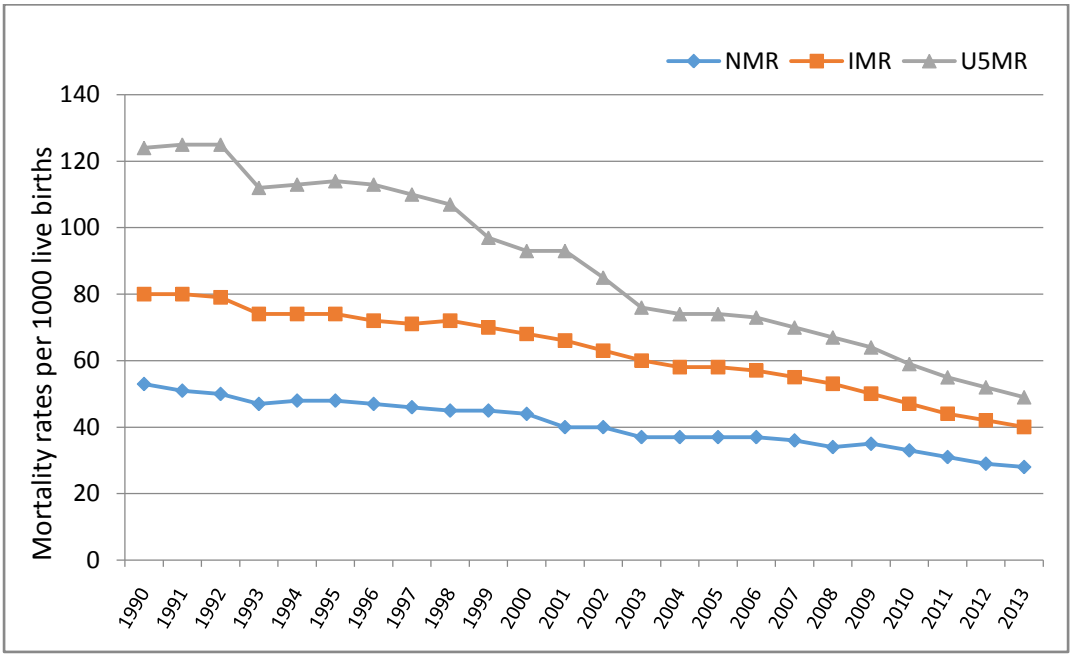


Fig. 1: Trends in NMR, IMR and U5MR in India (1990-2013)

The decline in IMR of India since the beginning of NRHM in 2005 till 2013 has come down 18 points (31.03%) where as the IMR of Madhya Pradesh has come down 22 points (28.95%) since 2005. As per the SRS report 2013, NMR of Madhya Pradesh was 8 points above the national level. In Madhya Pradesh still almost half of the Under 5 deaths are taking place after neonatal period. Further, we can see that about 22% child deaths are taking place after infancy.

Perinatal conditions, respiratory infections, diarrhoeal diseases, and parasitic diseases are the biggest contributors to child deaths in India (ORGI 2009). Madhya Pradesh is one of the poor performing states in terms of reduction in IMR. The share of NMR in IMR has gone up from about 64 per cent in 2005 to about 69 per cent in 2012. Moreover, the share of new-borns deaths within a week to total infant deaths was about 53 per cent in 2012 (MoHFW 2011, ORGI 2013a). The limited improvement in IMR has been largely due to the relatively larger decline in the post-neonatal mortality rate which is partly due to nutrition, health and immunisation programmes (Rammohan et al. 2013). In the context of above background, it is imperative to examine effect of various child health interventions in the state under NRHM.

2. Material and Methods

In this study two districts namely Indore as better performing and Shivpuri as poor performing district were randomly selected as to collect primary as well as secondary data. The study was conducted during February-March 2013. From each selected district, one Urban Ward, one PHC and one Sub Centre were selected. Interviews were conducted with CMOs, District RCH Office, Medical Officer of the selected PHCs, ANMs / ASHAs, Anganwadi workers at Sub-centre. FGDs

with mothers with at least one living child 5 years or below were conducted at the selected Sub-centres.

From Indore district, Shekhar Nagar of Indore city was selected as Urban Ward and PHC Kanaria was selected from Rural Area. From Shivpuri district, Ward No. 69 of Shivpuri city was selected as Urban Ward and from Rural Area Sub-centre Noharikala under sector PHC Satanwada was selected.

Semi-open ended interview schedules were used for collection of data regarding infant and child mortality (Under 5 Mortality), socio-economic conditions, diseases and causes of deaths among infants and children, mother and child health services, related HMIS data from the selected districts, programmatic interventions under NRHM, availability of services etc. from the study population. Tools for FGDs were developed as per the framework given by Mosley and Chen (1984). About 8 to 12 mothers in the age group of 19-35 years, were invited to participate in FGD.

3. Findings

Health Infrastructure and Services in Madhya Pradesh

The health infrastructure of Madhya Pradesh is facing huge shortfall in health centres and trained manpower to cater the health services to people. The table 1 describes that 25-50 percent of shortfalls in infrastructure as well as human resources. There was acute (about 80%) shortage of Obstetricians & Gynaecologists, Paediatricians and Specialists at CHCs which are pre-requisite to reduce infant and child mortality.

Table 1 : Status of Health facilities and Human Resources in the State

Particulars	**Required**	**In Position**	**Shortfall**	**% Shortfall**
Sub-Centres	12314	8869	3445	27.98
Primary Health Centre	1977	1156	821	41.53
Community Health Centre	494	333	161	32.59
Health worker (Female) /ANM at Sub-centre & PHC	10025	10204	*	*
Health worker (Male) at Sub-Centres	8869	3733	5136	57.91
Health Assistant (Female) / LHV at PHCs	1156	546	610	52.77
Health Assistant (Male) / at PHCs	1156	293	863	74.65
Doctors at PHCs	1156	814	342	29.58
Obstetricians & Gynaecologists at CHCs	333	73	260	78.08
Paediatricians at CHCs	333	67	266	79.88
Total Specialists at CHCs	1332	267	1065	79.95
Radiographers at CHCs	333	192	141	42.34
Pharmacist at PHCs & CHCs	1489	678	811	54.47
Laboratory Technicians at PHCs & CHCs	1489	609	880	59.10
Nursing Staff at PHCs & CHCs	3487	2491	996	28.56

(Source: RHS Bulletin, March 2012, M/O Health & F.W., GOI)

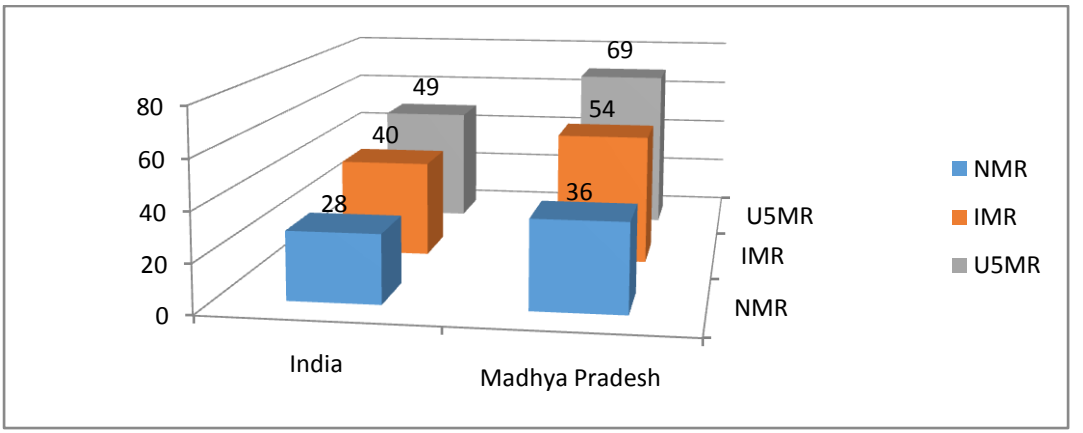
Selected RCH Indictors in the State

As per AHS data 2010-11, the percentage of mothers consumed IFA Tablets for 100 Days was 17.5%. The percentage of children with birth weight less than 2.5 kg was 29.7 % in rural areas, 25.9 in urban areas and 28.6% aggregate seems to be due to low consumption of IFA tablets. The percentage of children aged 12-23 months who were fully immunized was only 54.9%. The low immunization may be one of the most serious factors affecting infant mortality in the state. The percentage of children suffering from fever, diarrhoea and ARI at the time of survey was 24.2%, 15,2% and 15,4% respectively.

Infant and Child Mortality Status in the State

Madhya Pradesh is having population over 72.6 million with high percentage of children below six years (14.88%) and the low literacy rates especially female literacy (60%) according to the Census, 2011. The state continues to be afflicted with high levels of MMR 230 (SRS 2010-12) and high level of NMR, IMR and U5MR, 36, 54 and 69 respectively (SRS, 2013) which were higher than the national level of NMR 28, IMR 40 and U5MR 49. Madhya Pradesh has 36.7 % of the population lying below the poverty line (Planning Commission 2010) and 72.4 % of the population in rural areas is dependent on agriculture both of which further add risk to high IMR in the state.

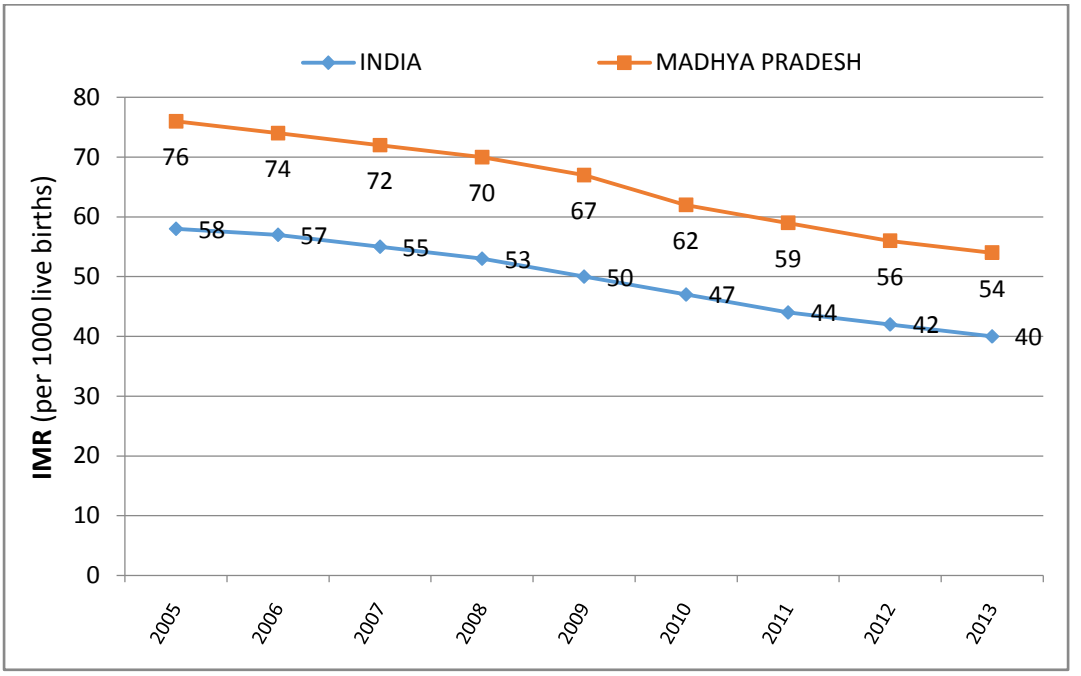
As shown in Figure 2, the NMR in 2013 for Madhya Pradesh 8 points above the national level. Whereas in Madhya Pradesh still almost half of the under 5 deaths are taking place after neonatal period. Further we can see that about 22% child deaths are taking place after infancy.



(Source: SRS,2013)

Figure 2: Components of Child Mortality in India and Madhya Pradesh

The current trend in IMR in Madhya Pradesh after inception of NRHM is presented in the in the following graph (Fig. 3)



(Source: SRS)

Figure 3: Trends in Infant Mortality Rates in India and Madhya Pradesh

The IMR of Madhya Pradesh has come down 22 points (28.95%) since 2005, in the national context, IMR of India has come down 18 points (31.03%) since the beginning of NRHM.

3.1 Factors affecting Child Mortality in the State of Madhya Pradesh

Logistic Regression Analysis of Child Mortality in the State

The Logistic Regression Analysis (Table 2) using DLHS- III data is applied to identify important factors affecting child mortality in the state. It was found that likelihood of child mortality is higher among those who are using bore well or well water as the source of drinking water compared to those who are using piped or bottled water. While the likelihood of child mortality is less among those who are using spring/rain water or truck/tanker water or lake/pond/river water compared to piped/bottled water. Those who are taking water from other sources have more than three times higher chance of child mortality (OR=3.226). In the case wealth index quintiles, lower group have 47 percent higher chance of child mortality than richest wealth index group, those who are in the middle and upper middle quintile have 23 and 38 percent more likelihood of child mortality than richest group. When we consider the type of toilet facility available, those who are using pit latrine have 26 percent higher odds compared to flush toilet. Education shows a highly significant result, the illiterates have more than 7 times higher the likelihood of child mortality compared to highly educated mother (10 and above years of schooling).

Mothers with 1-4years of schooling and 5-9 years of schooling have higher likelihood (OR= 2.595 & OR=1.456 respectively) compared to highly educated mothers. When we analyse the caste wise population, scheduled caste population have higher odds of child mortality (OR=1.169) compared to General population, while Scheduled tribes and other back ward cast population have less likelihood of child mortality compared to General population.

Table 2: Logistic Regression Analysis

Variables	**Categories**	**Odds Ratio Exp(B)**
Source of drinking water	Pipe/bottled water®	
	Bore well/well water	1.102
	Spring/rain/ truck/tanker water	1.192
	Others	3.226
wealth index quintiles	Lower	1.473
	Middle	1.233
	Upper Middle	1.381*
	Rich®	
Type of toilet	Flush toilet®	
	Pit latrine/other	1.261
	No facility/open space/others	0.983
Education of mothers	Illiterate	7.099**
	1-4 years	2.595***
	5-9 Years	1.456**
	10 and above®	
Caste group	Scheduled caste	1.169
	Scheduled tribe	0.964
	OBC	0.889
	General®	
Safe delivery	No	1.431***
	Yes®	
Feed mother's milk 'colostrum/khees'	Yes	0.862
	No®	
Child have check-up within 24 hours of birth	Yes	.811
	No ®	
Type of locality	Rural	1.017
	Urban®	

®Reference Category, Significance at *P<0.05, ** P<0.01, ***P< 0.001

Those children who reported no diarrhoea in the last two weeks have less odds compared to those who reported 'had diarrhoea'. While those had not taken full ANC have less likelihood of child mortality (OR=0.870) compared o those who have full ANC during pregnancy. Those women didn't had safe delivery have 43 percent more chance of child mortality compared to those women had safe delivery. Women feed colustrum/khees aftert the birth of the child have less likelihood of child morality compared to those who not feed colustrum/khees. The analysis also indicates those child had check up with in 24 hours of birth have less likely to have child mortality compared to those who didn't had check up in 24 hours of birth. Those who residing in rural locality also have higher odds of child mortality compared to those residing in urban locality.

Above findings are also substantiated with data available from Census, 2011 which are presented below:

Female Literacy

Mother's education plays vital role on child health and child survival. It has inverse relationship with child mortality. Higher the level of mother's education, lower is the child mortality.

Table 3. Female Literacy Rate and IMR in the study area

Indicators	India	Madhya Pradesh	Dist. Indore	Dist. Shivpuri
Female Literacy rate	64.6	59.2	74.2	49.5
IMR	44*	59*	40 ψ	71ψ

Source: Female Literacy Rate - Census 2011, IMR: * SRS 2011, ψ AHS 2011

Further, the components of Under 5 Mortality are studied in respect of mother's education and place of residence and presented in Table 4.

Table 4. NMR, IMR and U5MR by Mother's Education and Residence

Sr No	State/India	Total	Rural	Urban
	Neo-natal Mortality Rate by Mother's Education and Residence			
1	Madhya Pradesh	36 (60.0%)	39 (53.2%)	23 (77.4%)
2	India	28 (65.5%)	31 (58.8%)	15 (79.9%)
	Infant Mortality Rate by Mother's Education and Residence			
1	Madhya Pradesh	54 (60.0%)	57 (53.2%)	37 (77.4%)
2	India	40 (65.5%)	44 (58.8%)	27 (79.9%)
	Child (U5) Mortality Rate by Mother's Education and Residence			
1	Madhya Pradesh	69 (60.0%)	75 (53.2%)	40 (77.4%)
2	India	49 (65.5%)	55 (58.8%)	29 (79.9%)

Source: Female Literacy Rate in parenthesis (Census 2011), IMR (SRS 2013)

Urbanization

Urbanization is one of the major factors of developments but it has few negative impacts on Infant and Child Mortality viz., more respiratory and diarrhoeal diseases etc due to the effect of various pollutions.

Table 5 Urbanization in India and Madhya Pradesh

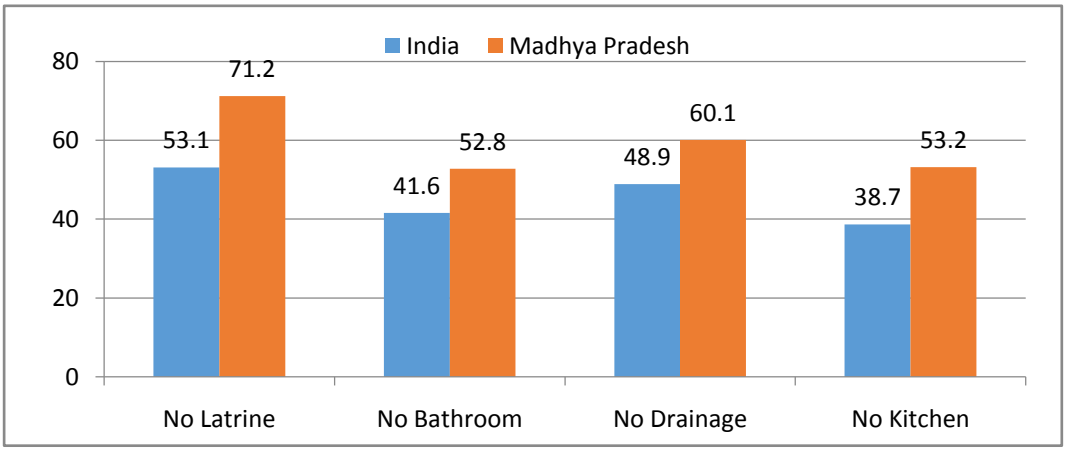
Indicators	India	Madhya Pradesh	Dist. Indore	Dist. Shivpuri
Population (Millions)	1210	72.6	3.3	1.7
% Decadal Growth Rate	17.64	20.3	32.88	22.7
Population Density	382	236	841	168
% Urban population	31.16	27.63	74.1	17.1
IMR	44*	59*	40 ψ	71ψ

Source: Census 2011, IMR : * SRS 2011, ψ AHS 2011

As per Census of India 2011 as shown in Table 5, the percentage urban population of India was 31.16 where as urban population of Madhya Pradesh was 27.63% . The urban population of Indore district was even higher to 74.1%. Shivpuri District has the lowest (17.1) urban population. The health department has greater challenges in providing effective health care services in urban slums due to its poor determinants of health. As experienced in FGD held in Indore Urban Slum, the challenges are many folds. Lack of basic civic amenities and environmental issues in urban slums are causes of alarming child health indices even compared to rural areas. The similar findings are echoed in the article by Awasthi S and Agarwal S (2003) on the rapidly expanding and under privileged urban poor who lack an organized health care delivery system in contrast to the rural population. They lack basic civic amenities including safe water supply and proper sewage disposal. It is therefore understandable that their child health indices are two to three times worse off than their counterparts.

Household Environment

From figure # in India 53.1% households are not having any type of latrine within premises and most shockingly 50% household population still defecate in open. In Madhya Pradesh this matter is further alarming with more than 70% household population defecate in open.



Source: Census 2011

Figure 4 : Percentage of households not having basic household amenities and drainage system in Madhya Pradesh and India

Above 60% of households in Madhya Pradesh do not have any drainage (not even open drainage) system. More than 50% households in Madhya Pradesh do not have bathrooms and kitchens.

Accessibility to Safe Drinking Water

As per the Census 2011 report, the piped (Tap) water supply in the state of Madhya Pradesh is 23.4%. Only 10 percentage rural households in Madhya Pradesh have access to safe drinking water.

The situation on availability safe drinking water in urban Madhya Pradesh is also not good as 37.8% of urban households lack safe drinking water.

3.2 Innovations under Child Health Programme under NRHM

Improving Immunization

For improving immunisation coverage, additional incentives are provided for mobility for vaccinator and also maintaining the cold chain and potency of the vaccines. To overcome the dropout rate, UNICEF innovated Defaulter Tracking System at the Sub health centres of the state. The system has facilitated in easy tracking of children and also session wise indenting for immunization.

Janani Express Yojana (JEY) and EMRI-108

The scheme of JEY implemented and linked with call centre in 44 districts and the remaining 6 districts were covered under the Emergency Medical Support. Under this scheme, free transport to all from home to facility and facility to higher facility in case of referral is ensured. The average reach time is approximately 20 minutes.

Provision of Free Services for Delivery and Newborn Care for all Cases

Under this scheme free drug and free blood during complications is provided to all pregnant mothers. The free diagnostic services were provided to all BPL patients. There is provision of free diet at the District Hospitals and Community Health Centres.

Improving Janani Suraksha Yojana

In order to improve the implementation of JSY scheme verifications of 2% cases at divisional and 5% district level are done. Payment to beneficiaries through bearer cheques and payment to ASHAs through e-transfer/ account payee cheques was implemented. Under the scheme, BPL beneficiaries are given free treatment.

NBCCs and SNCUs in the State

By the year 2014, Newborn Care Corners ie CEmONC & BEmONC are established at all delivery points. More than 1000 Newborn Care Corners were made operational in the State. Madhya Pradesh has 53 SNCUs operational present in each of its districts due to which the IMR has decreased with treatment of 84,334 infants in 2014. Also there are 99 NBCUs operational in the state which over 11446 underweight infants has been treated. The state government has undertaken partnership with UNICEF save the lives of newborns and their mothers.

IMNCI programme was implemented in more than 25 high focus districts and training was completed to all concerned in all those districts.

Mother-Baby Friendly Hospital Initiative

Under the scheme, Infant and Young Children Nutrition (IYCN) Cell made operational with UNICEF support. Breastfeeding counsellors appointed at districts with UNICEF support, and more than 80% newborns initiated breastfeeding within 1hr of birth in these districts.

Interventions under Infant and Young Children Nutrition (IYCN)

Under the Bal Shakti Yojana scheme, Nutrition Rehabilitation Centers (NRCs) were established in all High Focus districts. The scheme is aimed at management of severely and acute malnourished (SAM) children through Nutritional Rehabilitation Center (NRC). Under the Bal Suraksha Maah (BSM), Vitamin A supplementation, de-worming and IFA supplementation was vigorously promoted. The Management of SAM children in NRCs was done by counselling mothers to achieve successful lactation and supplementary suckling technique (SST) for mothers with lactation failure (insufficient or no milk output). Bal Shakti Yojna scheme has been envisioned following the Bal Sanjeevni Campaigns under which as many as 10913 (Under 5) children were identified to be suffering from Grade 4 level of malnutrition and 67352 from Grade 3 level malnutrition and that majority of these children belong to poor and weaker sections in the year 2014.

Home Based Newborn Care (HBNC) Initiative

Under this initiative, ASHAs were trained in module 6 & 7 across the state for provision of home based newborn care. Master trainers and district level trainers were also trained. Besides, an incentive to ASHAs for provision of HBNC is introduced.

3.3 Findings from Indore

As per the Rapid Household Survey Data 2011, there were 111 Sub-Centres, 25 PHCs, and 4 CHC, 1 Medical College and 1 Children Hospital in Indore district. As per AHS 2010-11, the NMR, IMR and U5MR of District Indore are 25, 40 and 51 per live births respectively. Few important child health indicators as per the AHS, 2010-11 are presented in Table 6 below.

Table 6: ANC and PNC service indicators of Indore District

SN	Indicators	Rural (%)	Urban (%)	Total (%)
1	Women received ANC	96.8	97.6	97.4
2	Women received 3 or more ANC was	81.5	88.8	87.2
3	Women received 1 TT Injection	97.0	97.7	97.5
4	Mothers consumed IFA Tablets for 100 Days	16.4	35.2	31.3
5	Institutional Delivery	91.5	92.7	92.5
6	Delivery at Government Hospital	63.0	45.7	49.5
7	Mothers who received PNC within 48 hrs of delivery	92.7	95.1	94.6
8	Newborn Children checked within 24 hrs of Birth	83.5	90.0	89.3
9	Children Breastfed within Hour of Birth	53.2	55.7	55.1
10	Children with Birth Weight Less than 2.5 Kg	28.8	22.7	24.0
11	Children aged 12-23 months who received Measles Vaccines	99.6	99.1	99.3
12	Children aged 12-23 months who were fully immunized	80.3	76.9	77.6
13	Children suffering from fever	22.0	16.0	17.3
14	Children suffering from Diarrhoea	16.2	8.5	10.2
15	Children suffering from ARI	9.9	10.3	10.2
16	Women who were aware of danger signs of ARI / Pneumonia	91.3	91.7	91.7

Source: Annual Health Survey, 2010-11

In District Indore, the percentage of mothers consumed IFA tablets for 100 days was as low as 31%. The birth weight of 24 % of children was below 2.5 kg may be due to poor intake of IFA tablets. The major childhood diseases in the district are diarrhoea and fever which are more in rural area where as children suffering from ARI were more in urban areas and 10.2 % aggregate.

Analysis of Child Deaths

The analysis of reported deaths as per the HMIS data during 2012-13 revealed that total deaths (Infants and Children) were 200, Infant Deaths within 24 hrs of Birth were 164 (82%), Infant Deaths between 24 hrs and under 1 week were 12 (6%), Infant deaths between 1 week and under 1 month were 5 (2.5%), Infant Deaths between 1 month and under 1 year were 7 (3.5%), Total deaths upto 1 year were 188 (94%), Child Deaths between 1 Year and Under 5 Years were 12 (6%). This explains that highest infant deaths were within 24 hrs of birth and almost 94% reported deaths among children taking place within 1 year of birth.

Causes of Neonatal Deaths

As per the HMIS Data 2012-13 following were recorded as main causes of neonatal deaths and presented in the Table 7

Table: 7 Causes of Neonatal Deaths in Indore District

Sr No	Causes of Neonatal Deaths	Upto 1 Week of Birth	Between 1-4 Weeks of Birth	Total
1	Sepsis	0	1	1
2	Asphyxia	0	0	0
3	LBW	3	1	4
4	Pneumonia	1	0	1
5	Diarrhoea	0	0	0
6	Fever Related	0	0	0
7	Measles	-	-	-
8	Others (for age up to 4 Weeks of Birth)	9	3	12
9	Others (for age from 1 Month to 5 Years of Birth)	6	12	18
10	Total	19	17	36

Source: HMIS 2012-13

It is clear from above table that Low Birth Weight is more serious cause of death which is manageable and preventable.

3.3.1 Interview with Health Officials in District Indore

In order to get the programmatic factors affecting child mortality, in-depth interview was conducted with Chief Medical Officer (CMO), Indore. He informed that every PHC/CHC is provided with a Newborn Baby Corner. At every 2 Sub-centres, one Sector Medical Officer is posted. For tribal dominated block, Mobile Clinics are provided. Sick Newborn Care Unit (SNCU) is functioning at Chacha Nehru Hospital in the city. The CMO informed that NRHM has helped a lot in improving child health indicators and these indicators are expected to improve further.

Planning and Implementation of Child Health Programme

The CMO informed that several new initiatives are taken for strengthening child health services in the district. 13 BeMOC and 7 Nutrition Rehabilitation Centres are established in the district. New Born Stabilization Units (NBSU) are also established at Sub District Hospital and District Hospital, besides 2 CHCs (Samer, Dipalpur). Bal Suraksha Month (BSM) program is arranged to distribute Vitamin A every six months in all Anganwadi Centres.

All Government of India (NRHM) sponsored schemes like FBNC-Facility Based Newborn Care Centres [SNCUs-Special Newborn Care Units, NBSUs-Newborn Stabilization Units, NBCCs-Newborn Care Corners] at DHs, CHC, PHCs are functioning well. NSSK, JSSK, F-IMNCI, HBNC, Nutritional Rehabilitation Centres (NRCs) etc. are already implemented in the district and running smoothly. Funds for these schemes are received timely. Besides, schemes under NRHM, the State Government schemes such as Ladli Laxmi Yogna are also contributing in improving status of the girl child. Under district PIP, special initiatives are taken for the children having congenital heart problem. 'Bal Hridaya Upchar' Scheme is started to treat the children suffering from heart disease at Medical College Hospitals and few specialized private hospitals are also empanelled for this purpose. The treatment is completely free of cost to the families irrespective of their economic

status. As far as International Organizations are concerned, UNICEF and WHO were providing technical support in organizing various training programmes in child health.

Human Resource and Training

The CMHO of the district informed that there is shortage of human resources in the district but the work is managed by redeployment of staff as requirement within the district. There are some positions filled on contractual basis with NRHM funds. Medical college is fully involved in skill based training to health staff. All regular and contractual staff is trained in various trainings launched by Central and State Governments under NRHM. CMHO felt that the trainings related to infant and child health have certainly resulted in better performance especially in Routine Immunisation, Newborn Care, Diarrhoea Management and Malnutrition related services. He informed that trainings on HBNC and IMNCI are most effective in bringing down infant and child mortality in the district. He emphasized that the staff needs reorientation time to time to update their knowledge.

Inter-sectoral Coordination

CMHO informed that ICDS and Private Health Sector Hospitals are working with health department to reduce infant and child mortality in the district. Collector of the district calls a weekly meeting of all departments and strategy for inter-sectoral coordination is worked out. Indian Association of Paediatrics (IAP) is involved in training and organizing paediatric camps. NGOs like World Vision, Urban Health Resource Center, Bhartiya Gramin Mahila Sangh etc were involved in child health awareness and immunization activities. Mahila Mandals were helping for providing food to mothers under JSSK

Monitoring of Child Deaths

CMHO informed that data on Infant and Child Deaths is compiled and weekly review meeting is done. However, Child Death Review at PHC level is not initiated in the District.

Programme Performance and Utilization of Services by Community

The CMHO informed that in rural areas Deen Dayal Chalit Upchar Yojna (Mobile Health Scheme) is implemented in one block which is predominantly tribal.

Social Mobilization and Community Participation

It was informed that Village Swasthya Samitis under PRIs were functioning. However, grass root workers like ASHA and ANMs, AWWs are also visiting households and educating mothers regarding child health.The CMHO informed that for strengthening health services in urban area, whole city is divided into 4 Zones under one Zonal officer. There are 69 Wards and in every ward, one Medical officer is posted. One USHA worker per 200 households in urban slums was appointed under NRHM. It was suggested that planning should be problem focused and BEMoC & CEMoC services need to be strengthened.

3.4 Findings from the District Shivpuri

As per Census 2011 data, the population of the Shivpuri district was 1725818, overall literacy rate 63.7%, male literacy 76.2% and female literacy was 49.5%. The sex ratio was low 877 in compared to the state's sex ratio 930. The child sex ratio was 889 as compared to state figure of 912. The percentage of Child Population (0-6 years) was 16.3% compared to 14.5% of the state. The sex ratio at birth (SRB) of the district was 901 less than state figure of 904. Surprisingly, sex ratio at birth in urban areas was far below 837 (state figure is 876) compared to 912 (state figure 915) of rural areas and the maternal mortality rate was 262. As per AHS 2010-11, the NMR, IMR and U5MR of District Shivpuri were 44, 70 and 101 per thousand live births respectively.

Health Services in District Shivpuri

In the district, there is 1 District Hospital, 8 CHCs, 12 PHCs, 249 Health Sub-Centres, 1 Urban Family Welfare Centre, 35 Ayuvedic Hospital/Dispensaries, 5 Homeopathy Hospitals/Dispensaries. If we consider the health service criteria based on population norm there is huge requirement of the Sub-health centres, primary health centres and community health centres in the district. There are 13 BeMONC facilities functional at the CHC/PHC level. There are three CEmONC functional namely district hospital Shivpuri, CHC Badarwas and CHC Pichore. Only district hospital Shivpuri has sufficient staff in term of CEmONC functionality. Other two CEmONCs even do not have essential manpower. Most of the SHCs are situated far away from the villages. Average distance of villages from SHCs is 5.5 Km. It is maximum i.e. 8.30 Km. Maximum SHCs are burdened with around 7 to 8 thousand population. Only 82.83 % villages are having Anganwadi Centers and most of the AWWs are illiterate and ill oriented for their jobs.

Selected Child Health Indicators in Shivpuri District

Few important child health indicators as per the AHS, 2010-11 are presented in Table 8

Table 8 Selected Child Health Indicators in Shivpuri District

Sr No	Indicators	Rural (%)	Urban (%)	Total (%)
1	Women received ANC	82.9	91.2	84.1
2	Women received 3 or more ANC was	26.5	42.9	28.9
3	Women received 1 TT Injection	82.5	91.4	83.8
4	Mothers consumed IFA Tablets for 100 Days	17.1	21.4	17.7
5	Institutional Delivery	75.4.	92.6	77.9
6	Delivery at Government Hospital	71.9	85.0	73.8
7	Mothers who received PNC within 48 hrs of Delivery	43.0	54.8	44.7
8	New Born Children checked within 24 hrs of Birth	72.4	93.0	75.4
9	Children Breastfed within Hour of Birth	70.4	74.4	70.9
10	Children with Birth Weight Less than 2.5 Kg	26.1	22.1	25.5
11	Children aged 12-23 Months	70.6	85.	72.6
12	Children aged 12-23 Months who were fully Immunized	50.6	77.8	54.3
13	Children suffering from fever	11.9	18.7	12.9
14	Children suffering from Diarrhea	13.0	18.4	13.8
15	Children suffering from ARI	4.5	3.8	4.4
16	Women who were aware of Danger Signs of ARI/Pneumonia	91.7	93.1	91.9

Source: Annual Health Survey, 2010-11

As per the AHS data 2010-11 the percentage of women received 3 or more ANC was as low as 28.9% in aggregate, The percentage of mothers consumed IFA tablets for 100 days was also much low (17.7%). The percentage of mothers who received PNC within 48 hrs of delivery was low at 44.7. About one fourth of the children born in the district are with birth weight less than 2.5 Kg. Only 54% of the children aged 12-23 Months were fully immunized. The major childhood diseases in the district are Diarrhoea (13.8%), fever (12.9%) and ARI (4.4 %). Under nutrition (underweight) among children (0-5 yrs) in Shivpuri district was 55.0% compared to state value of 42%.

Child Deaths

The analysis of reported deaths as per the HMIS data during 2012-13 revealed that Total Deaths (Infants and Children) were 17702, Infants Deaths within 24 hrs of Birth were 3450 (19.5%), Infant Deaths between 24 hrs and Under 1 week were 5791 (32.7%), Infant Deaths between 1 week and under 1 month were 2595 (14.7%), Infant Deaths between 1 month and under 1 year were 2907 (16.4%), Total deaths up-to 1 year were 14743 (83.3%), Children's Death between 1 year and under 5 years were 2959 (16.7%). This explains that almost 83% reported deaths among children taking place within 1 year of birth. The adverse effect following immunization was also analyzed and cases of abscess were 1244, cases of death were 12 and cases of other effects were 2089.

Table 9: Cause of Neonatal Deaths in District Shivpuri

Sr No	Causes of Deaths	Upto 1 Week of Birth	Between 1-4 Weeks of Birth	Total
1	Sepsis	479 (5.5)	253 (4.7)	732 (5.2)
2	Asphyxia	864 (9.9)	259 (4.8)	1123(8.0)
3	LBW	1628 (18.7)	353 (6.6)	1981(14.1)
4	Pneumonia	530 (6.1)	243 (4.5)	773 (5.5)
5	Diarrhoea	100 (1.1)	106 (2.0)	206 (1.5)
6	Fever Related	215 (2.5)	276 (5.1)	491 (3.5)
7	Measles	15 (0.2)	15 (0.3)	30 (0.2)
8	Others (for age upto 4 weeks of birth)	2820 (32.4)	1548 (28.8)	4368(31.0)
9	Others (for age from 1 month to 5 years of birth)	2047 (23.5)	2319 (43.2)	4366(31.0)
10	Total	8698 (100)	5372 (100)	14070(100)

(Figures in parenthesis are percentages)

As per the HMIS Data 2012-13 the main causes of infant deaths are presented in the Table 9 above that low birth weight LBW (14.1 %), Asphyxia (8 %) and pneumonia(5.5 %) were more major infant killers which can be well managed by planned medical and other local interventions.

3.4.1 Child Health Innovations in the Shivpuri District

Prioritization of Child Health Care Activities

The most important initiative taken up by the district was to make Emergency Obstetric and Maternal Care Service (including emergency transport) to functional at newly constituted

BEmONC and Accredited Sub-health centres. UNICEF has helped to establish fully functional New Born Care Transport system to make linkages between SNCU level 2 and SNCU level 1, putting in place additional Janani Express for Accredited SHC, BEmONC and accredited Sub-health centers. The government has ensured that All Nutrition Rehabilitation Centres will do 100% follow-up of children. The district has planned to complete essential training as per training load like IMNCI, SBA, New Born care training, EmONC Training, NSSK, BEmONC, LSAS, Routine Immunization, Cold chain, VHSC member etc. It was decided to train all the newly recruited AWW, ANM and Medical officers in IMNCI and additionally all the Medical Officers to be trained in F-IMNCI. More than 50% AWW were monitored with the method of IMNCI follow-up, supervision. The district has decided to cover all vulnerable group and tribal population, hamlets, migrant population by monthly special drive. The state government has made special efforts for efficient supply chain management, procurement and logistic system for the three tier system through ambitious computerization process.

The Institutional specific innovation were also introduced viz., (i) Cold chain complex at district and block levels to ensure quality of vaccine availability (ii) blood component separator for Blood Bank (iii) Microbiology lab and Gas Analyzer for district hospital (iv) construction of additional labour room at accredited SHC (v) installation of solar lights in SHC where ANM resided in the same campus (vi) ensuring vehicle for immunization and VHND for difficult to reach area and vulnerable population for monitoring and service delivery (vii) organizing follow-up camps for SNCU level 2 discharge patients (viii) capacity building of administrative staff in management at IIM and capacity building of Specialist Doctors like in AIIMS & PGI

New Alternative Vaccine Delivery System

The use of new alternate vaccine delivery system was incorporated in the entire district since March 2009 for improving access as well the coverage of the services. As per guidelines of national immunization program for vaccine delivery there was a provision of giving Rs.50/- per immunization session to alternate delivery person for providing vaccines and return back the left over vaccine from immunization sites to the issuing point. But the geographical terrain of the district could not attract delivery persons for the travel cost was quite high.

3.4.2 Interview with Chief Medical Officer (CMO)

The interview was conducted with Chief Medical Officer (CMO), Shivpuri on 01-03-2013. It was informed that about 30% of population is very backward and has poor child health indicator. There is low awareness among community to avail child health services. The Chief Medical Officer informed that pneumonia, diarrhoea, fever, malnutrition, premature and low birth weight are the major reasons causing children's deaths in the district.

It was informed that CHCs and PHCs are insufficient as compared to population norms. Private sector is almost non-existent as people do not have paying capacity for private health care. There is no specific programme for tribal and the backward population under NRHM. There are inadequate facilities and in-sufficient human resources at PHCs/CHCs to provide newborn care. Institutional delivery is low in the district. For tribal dominated district, no mobile clinics or any other innovative intervention could be provided through NRHM under given framework. The Sick New

Born Care Unit (SNCU) at the District Hospital was functioning at District Hospital Shivpuri which has been developed with technical and partial support from UNICEF and declared as one of the best in the country based on performance. This SNCU facility along with Janani Express Yojana is supervised by UNICEF consultants and managed excellently. The delivery facilities in the district hospital are also upgraded and linked with SNCU under specific guidelines. Under the dynamic leadership of civil surgeon, the facility was one of the Models in the State.

Planning and Implementation of Child Health Programme

The CMO informed that several initiatives are taken for strengthening child health services in the district. MCH Type I, Type II and Type III Centres are established in the District. As far as special schemes are concerned, CMO informed that all Government of India schemes like FBNC-Facility Based Newborn Care Centres [SNCUs-Special Newborn Care Units, NBSUs-Newborn Stabilization Units, NBCCs- Newborn Care Corners] at DHs, CHC, PHCs. NSSK, JSSK, F-IMNCI, HBNC, etc. are already implemented in the district. CMHO further explained that due to low literacy status, the State Government schemes such as Ladli Laxmi Yogna are not properly utilized for improving status of the girl child. No specific information could be provided for 'Bal Hridaya Upchar' Scheme to treat children suffering from heart disease which was working well in Indore District.

Human Resources and Training

The CMO of the district informed that there is shortage of health facilities and human resources in the district All regular and contractual staff is trained in various trainings launched by Central and State Governments under NRHM. These are NSSK, JSSK, SBA, F-IMNCI, IYCF, Routine Immunization, Management of ARI & Diarrhoea Management, IMNCI, Home Based New Born Care (HBNC), SNCU etc. ASHA workers are also trained in Modules 6 and training in Module 7 for HBNBC was to be started. CMHO felt that the since ASHA workers are from local community, who are usually backward, it is difficult to train them and expect good performance.

Inter-sectoral Coordination

It was informed that there is no specific coordination but AWWs are working with ANM/ASHA. However, they do not fully cooperate with health staff for mobilizing children during immunization and VHNDs. Private Sector and NGOs are not more but they help sometimes in organizing camps.

Monitoring of Child Death

CMO informed that data on Infant and Child Death is available in civil hospital. However, Child Death Review at CHC/PHC level is not initiated in the district; only maternal death audit is done. Review is also done at Principal Secretary Level quite frequently but not at fixed interval.

Coordination with International Organisations

In Madhya Pradesh, UNICEF is working in two backward high focus districts Shivpuri and Guna. UNICEF has appointed Block and District coordinators. They provide technical support to organize training and do monitoring of child health activities. In Shivpuri district, UNICEF took lead to

establish SNCU and well equipped modern labour room besides ANC and PNC rooms in Civil Hospital which became an ISO certified hospital. UNICEF has also helped the district to start Janani Express Yojana in 2008. UNICEF is doing monitoring and supervision of SNCU. In the SNCU, baby is kept at least 14 days before discharge. The death rate is 12-15 which is compared with best SNCU in the country. During 1st April 2012 to 28th February, 2013 following performance of SNCU is recorded.

Table 10 Performance data of SNCU in Shivpuri District Hospital, 2012-13

Admissions	Discharged	LAMA	Referred	Expired	Still Admitted
1465	1016	82	71	269	27

Way forward

The CMO informed that within district, blocks are different with regard to their problems so it requires local solutions. However, flexibility for such initiatives does not exist in NRHM. There is need to link health workers with community first. Tracking of each pregnant mother, new born child and children up to 5 years is important. Indigenous solutions which are acceptable and feasible in the district viz Kangaroo Care which is also low cast should be promoted in community.

4. Discussion

Poverty in Madhya Pradesh is widespread, it is seen that more than 33% population of Madhya Pradesh is below poverty line. In rural areas, the situation is even dreadful with 42% of rural population living below poverty line. On environmental front, the situation in Madhya Pradesh is not good in terms of the basic household amenities required viz. above 50% of households do not have kitchen and bathrooms, above 60% of households do not have any drainage system and most shockingly, above 70% of households have no latrine and have to go for open defecation. As found by the Logistic Regression Analysis, such factors have large influence on infant and child mortality.

As per the Census 2011 report, the piped (Tap) water supply in the state of Madhya Pradesh it is 23.4%. In national context, 43.5% of households have access to piped water supply. Only 10 percentage rural households in Madhya Pradesh have access to safe drinking water. The situation on availability of safe drinking water in urban Madhya Pradesh is not good; 37.8% of urban households lack safe drinking water and the population is exposed to unsafe drinking water where pollution level is high as compared to rural areas.

From the FGDs conducted in the selected areas, it was found that the environmental issues in urban slums are more alarming as compared to rural and tribal areas. People in the urban slums of Indore city live in much pathetic sanitation and unhygienic conditions. Though the adults in the Indore slum use common toilets provided by the municipality but children defecate along road side and in open drainage, close to juggis/huts increasing vulnerability to spread of diarrhoea, jaundice, cholera, typhoid etc among the children in slums. Unsafe storing and intake of food / water adds further misery causing child illness and deaths.

The geographical vastness of Madhya Pradesh which has large forest area and concentration of tribal population in large number, the health centers planned and established on population norms are spatially difficult to access due to sparsely located population. Infrastructure for health care delivery in the state, therefore, is not adequate enough to meet out the health needs of the people. This may be one of the major reasons associate with higher infant and child mortality in the Madhya Pradesh.

As per the Census 2011 the percentage of child population is higher in Madhya Pradesh as compared to national level. Within the state, the district Shivpuri with large rural population has higher percentage of children (0-6 years) to the total population. The child sex ratio of Madhya Pradesh is close to national level but the child sex ratio of district Shivpuri is skewed against girl child. The Male child preference, sex determination & selective child abortion and poor care of girl child are the causes of such skewed sex ratios against girl child in the state. In the above context, it is imperative to compare gaps in various child health and related parameters in both the districts.

4.1 Maternal Health Care

Table 11: Antenatal Care in the selected districts of Madhya Pradesh

Antenatal Care (in percentages)	Indore	Shivpuri
ANC registration against expected pregnancies	152.0	82.0
3 ANC checkups against ANC registration	66.0	76.0
TT2/ Booster given to pregnant against ANC registered women	78.0	86.0
100 IFA tablets given to pregnant against ANC registered women	72.0	99.0

Source : HMIS Reports 2011-12

From the above HMIS reports of the selected districts, the percentage ANC registration is very high in Indore may be due to presence of migrant population. However, percentage of 3 ANC checkups against ANC registration is better in Shivpuri district in Madhya Pradesh may be because of more utilization of government health facilities. Whereas families in urban areas like in Indore districts avail private nursing home facilities for ANC checkups, TT2/Booster and IFA tablets. The status of institutional deliveries is given below:

Table 12: Deliveries in the selected Districts of Madhya Pradesh

Deliveries (in percentages)	Indore	Shivpuri
Reported deliveries against expected deliveries	110.4	67.8
Institutional deliveries against reported deliveries	98.7	90.6
Home deliveries (SBA & Non SBA) against reported deliveries	1.3	9.4

Source : HMIS Reports 2011-12

As per HMIS data, the percentage of reported deliveries against expected deliveries is quite high in Indore may be due to migrant population. The Indore district tops with 98.7 institutional deliveries due to large urban population having access to better government hospitals and private nursing home facilities. In the contrary, the Shivpuri district with large rural and tribal population has 9.4 reported home deliveries. The comparative status of child health care is presented below:

4.2 Neonatal, Infant and Child Health Care

Table 13: Births and Neonatal Care in the selected districts of Madhya Pradesh

Births & Neonatal Care (in percentages)	Indore	Shivpuri
Live births reported against estimated live births	112.1	69.1
Newborns weighted against reported live births	99.0	96.0
Newborns weighed less than 2.5 kgs against reported live births	22.0	25.0
Newborns breastfed within 1 hr of birth against reported live births	98.0	95.0

Source : HMIS Reports 2011-12

The percentages of low birth weight babies in Indore and Shivpuri are high 22 and 25 respectively. Low birth weight could be one of the major reasons for high NMR in Madhya Pradesh. The low percentage of reported live births against expected in the Shivpuri need to be improved for effectively tracking of children. As compared to Indore, the percentage of new-borns with low birth weight (<2.5kg) in Shivpuri is high. Low birth weight combined with less SNCUs could be one of the major reasons for high NMR in Shivpuri district. The ASHAs & ANMs in both the districts have made the mothers well aware of benefits of early (within one hour) breast feeding to the new-borns and also exclusive breast feeding till six months of the child. However, still some tribal /nomad population in Shivpuri district do not follow this advice.

From the FGDs conducted in the districts, impression emerged that the ANMs & ASHAs have improved awareness regarding diet among pregnant women, importance of ANC checkups, TT2 boosters and dosage of 100 IFA tablets and new-borns breast fed within one hour of birth. Some young mothers in the urban slum of Indore city were found to be highly anaemic as per record with AWWs. Regarding proper rest in pregnancy, the mothers present in the FGDs conducted in urban slums informed that being poor maids/labourers could not afford to take rest during pregnancy and some of the mothers in rural areas told that their mother-in-law do not allow to take rest due to myth that rest is not good for pregnant women. Therefore, community awareness is required to give balanced diet and proper rest to pregnant women.

4.3 Breastfeeding Practices

As per NFHS-3 report for the state of Madhya Pradesh, initiation of breastfeeding within one hour was 15.9%. The state stood 23rd in the ranking in India for initiation of breastfeeding within one hour. The percentage of exclusive breastfeeding (0-6 months) of India was 46.4% where as for the state of Madhya Pradesh it was 21.6%. The state stood 27th in the ranking in India for exclusive breastfeeding. Based on HMIS data it appears that during NRHM, awareness on early breastfeeding raised exceptionally in the state. The ANMs and ASHAs were successful in creating awareness to breastfed newborns within one hour of birth and also exclusive breast feeding till six months of the child. During discussion with ANMs and ASHAs, it emerged that tribal /nomad population in Shivpuri district do not follow this advice. The FGD findings indicate that the working mothers (maids, labours, petty workers) in urban slums cannot manage the exclusive breast feeding till six months. They start giving some supplementary food to the infants before six months.

Table 14: Child Immunization in the selected Districts of Madhya Pradesh

Child Immunization (0-11 Months)	Indore	Shivpuri
Fully immunized children against reported live births	108.0	107.0
Immunization Sessions held as percentage of required VHNDs	43.0	80.0
Full immunization as per the AHS 2010-11	70.1	18.2

Source: HMIS Reports 2011-12

The HMIS data on child immunization having certain limitation as it describes only achievement against mathematically generated target but does not give status of immunization. As per the AHS data full immunisation is 70.1 % in Indore district and 18.2% in Shivpuri district. Less immunisation sessions held in Indore district may be due to higher urban population but needs attention of government. From the FGDs conducted in the both the districts, the mothers present there appreciated the ANMs & ASHAs for promoting the immunization among the infants. However, in Shivpuri district it was informed that tribal population do not allow their children to be immunised due to their own belief and do not accept the services from ASHA. Special awareness programs are required for such communities.

4.4 Childhood Diseases

Table 15: Childhood Diseases in the selected Districts of Madhya Pradesh

Diseases	Indore	Shivpuri
Diphtheria	0	0
Pertussis	0	0
Tetanus Neonatorum	0	0
Tetanus others	0	1 (0.01)
Polio	0	0
Measles	96 (2.0)	2 (0.02)
Diarrhoea and dehydration	4055 (83.2)	9185 (68.9)
Malaria	159 (3.3)	2639 (19.8)
Number admitted with Respiratory Infections	561 (11.5)	1500 (11.3)
Total	4871(100.0)	13327(100.0)

(Figures in parenthesis are percentages) Source: HMIS Reports 2011-12

From the HMIS data on childhood diseases in the selected districts, it shows that measles among children is still major cause of illness which is a vaccine preventable. Indore shows higher number of measles which may be due to large slum population in the city. Cases of diarrhoea were high in Indore districts due to consumption of unsafe water in slums, but malaria was high in Shivpuri district (19.8%) due to forest.

It was observed in FGDs that the awareness created by ASHAs & ANMs regarding causes of child diseases and illness, preventative measures to be taken was high in both the districts. It was informed that the children in slum fall sick frequently as compared to rural areas but the parents seek the medical care from government or private health facility and do not depend on home remedies. Some tribal community in both the state follow their customs, home remedies and magico-religious practices to cure the child from illness.

4.5 Child Deaths

Table 16: Causes of Child Deaths in the selected Districts of Madhya Pradesh

Causes of child deaths (against total reported infant & child deaths, figures in percentages)	**Indore**	**Shivpuri**
Asphyxia	-	15.0
LBW	11.0	24.0
Pneumonia	3.0	9.0
Diarrhoea	-	4.0
Fever related	-	7.0
Measles	-	-
Sepsis	3.0	10.0
Others	83.0	31.0

Source: HMIS Reports 2011-12

From the HMIS data on causes of child deaths of selected districts, the data of Indore district appears to be not classified properly as 83% of child deaths have put under 'others' causes of deaths. The deaths due to LBW and Asphyxia are higher in Shivpuri district. These deaths are preventable with improved neonatal care. There is enough scope to reduce neonatal mortality in the state by improving health facilities at CHC levels in Shivpuri. The child death audit in MP needs to be improved for better decision making.

Indore district of Madhya Pradesh is one of the better performing districts in terms of child survival indicators but the HMIS report shows highest number of infant deaths within 24 hours of birth in Indore districts which may be due to better reporting. However, deaths after 24 hrs to 1 year were high in Shivpuri district because of poor health facilities and low immunization.

Table 17: Child Deaths by Age in the selected Districts of Madhya Pradesh

Child deaths (Reported) by age (figures in percentages)	**Indore**	**Shivpuri**
Infant deaths within 24 hrs of births	82.0	15.2
Infant deaths between 24 hrs & under 1 week	6.0	37.1
Infant deaths between 1 week & under 1 month	2.5	13.4
Child deaths between 1 month & under 1 year	3.5	15.9
Child deaths between 1 year & under 5 years	6.0	18.3

Source : HMIS Reports 2011-12

4.6 Reported Child Mortality Indicators

It is clear from Table 18 that more child deaths are in Shivpuri district. There is a need to record each and every child death in HMIS with other parameters such as gender of child, age at death and cause of death etc. Once data quality of HIMS is improved, then planning any intervention becomes easy and effective.

Table 18: Child Mortality in the selected Districts of Madhya Pradesh

Child Mortality (against reported 1000 live births)	Indore	Shivpuri
Reported Neonatal Mortality rate	2.52	11.81
Reported Infant Mortality Rate	2.61	14.68
Reported Under 5 Mortality Rate	2.8	18

Source: HMIS Reports 2011-12

5. Conclusions and Recommendations

Other than its own policy action and initiatives, the Government should necessarily build community support and capacity to enjoy good health, particularly among those who are most vulnerable and have the least capacity to make choices and changes in their living conditions that might improve and protect their health. The Village Health Sanitation and Nutrition Committees and its urban equivalents that are a part of Local Government Institutions are a platform that must be strengthened and utilized for this purpose.

Looking at the success of neighbouring states Maharashtra and Gujarat in bringing down infant and child mortality, Madhya Pradesh should learn from the experiences to initiate similar programmes viz. promotion of breastfeeding among young mothers, **V**illage **C**hild **D**evelopment **C**entre (VCDC), Human Development Program (HDP), Child Treatment Centres (CTC), Nutritional Rehabilitation Centres (NRCs) Rashtriya Bal Swasthya Karyakram (RBSK) for improving conditions for child survival and eventually bringing down infant and child mortality.

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