

Study Report

Interstate Comparison on Health



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ABBREVIATIONS

ASHA	Accredited Social Health Activists
BEmOC	Basic Emergency Obstetric Care
CEmOC	Comprehensive Emergency Obstetric Care
CHC	Community Health Centre
CHD	Congenital Heart Disease
EHPs	E-Health Points
FBNC	Facility Based Newborn Care
HDI	Human Development Index
ICDS	Integrated Child Development Service
IMNCI	Integrated Management of Neonatal and Childhood Illnesses
IMR	Infant Mortality Rate
IYCF	Infant and Young Child Feeding Practices
JSY	Janani Suraksha Yojna
JSSK	Janani Shishu Suraksha Karyakaram
LSGIs	Local Self Government Institutions
MDGs	Millennium Development Goals
NBSU	New Born Stabilization Unit
NBCC	New Born Care Corner
NHA	National Health Accounts
NNM	Neonatal Mortality
NNPC	Neighbourhood Networks of Palliative Care
NSSK	Navjat Shishu Suraksha Karyakram
MCTS	Mother and Child Tracking System
MMR	Maternal Mortality Rate
MDGs	Millennium Development Goals
PC&PNDT Act	Pre-Conception and Pre-Natal Diagnostic Techniques Act
PHC	Primary Health Centre
RHD	Rheumatic Heart Disease
SDGs	Sustainable Development Goals
SNCU	Sick Newborn Care Unit
SHGs	Self Help Groups
TFR	Total Fertility Rate
UHC	Universal Health Coverage
WHO	World Health Organization

Chapter 1 Introduction

1.1 Global and National Health Scenario

There are strong linkages between population, health and development. India is the second most populous country in the world, next only to China. The health challenges in India are not only vast in magnitude due to its large population but they are complex due to its diversity, chronic poverty and inequality. As the states are at different stages of demographic transition, epidemiological transition and socioeconomic development, there are extreme inter-state variations. India's health scenario gives a mixed picture with better performing states like Kerala, Tamil Nadu and Punjab offering a vivid contrast to several low performers.

Compared to countries that enjoy sustained high growth like China, Japan, Malaysia, and Korea, India is extremely backward in terms of health outcomes. In fact, India's health outcomes are comparable to countries which have poor economic growth and health outcomes like Nepal, Bangladesh and Pakistan.

Table 1.1 compares inequities in health outcomes in terms of Infant Mortality Rate (IMR), Life Expectancy at Birth, Maternal Mortality Rate(MMR) and Total Fertility Rate (TFR) along with Public health expenditure as a % of GDP for India with some Asian countries. It clearly shows that India is among the poor performers despite high economic growth rates in recent times.

Country	IMR(per 1000 live births) (2015)	Life Expectancy (in years)(2015)		MMR (deaths per 100,000 live births) (2015)	TFR 2010/2015	Public health expenditure-% of GDP
		F	M			
India	37.9	69.9	66.9	174	2.5	1.4
China	9.2	77.5	74.5	27	1.6	3.1
Japan	2.0	86.9	80.4	5	1.4	8.6
Korea (Republic of)	2.9	85.2	78.8	11	1.3	4.0
Indonesia	22.8	71.2	67.0	126	2.5	1.1
Malaysia	6.0	77.3	72.6	40	2.0	2.3
Vietnam	17.3	80.6	71.2	54	2.0	3.8
Bangladesh	30.7	73.3	70.7	176	2.2	0.8
Nepal	29.4	71.5	68.6	258	2.3	2.3
Pakistan	65.8	67.4	65.4	178	3.7	0.9
Sri Lanka	8.4	78.4	71.7	30	2.1	2.0

Source : Human Development Report 2016

Table 1.1 : Health Indicators and Public health expenditure-% of GDP among some Asian Countries

Poor access to primary and preventive health care services, chronic low public investment in health in India are factors contributing for the poor health outcomes which is not in keeping with India's economic development story.

Global Health Development Goals:

The United Nations **Millennium Development Goals (MDGs)**, which emerged from the United Nations Millennium Summit which include eight goals were framed to address the world's major development challenges with health and its related areas as prime focus.

There are eight MDG goals addressing poverty and hunger, education, gender equality, child health, maternal health, diseases, sustainable development and global partnerships. Among the list of eight MDG goals, three were related to health- in itself an indicator of the importance held by health challenges at the global level. In India, there has been substantial progress in the field of basic universal education, gender equality in education and global economic growth. However there is slow progress in the improvement of health indicators related to mortality, morbidity and various environmental factors contributing to poor health conditions. The government has implemented a wide range of programs, policies and various schemes to combat these health challenges, however further strengthening of efforts and redesigning of outreach strategies is needed to give impetus to the progress toward achievement of the MDGs.

Taking the momentum forward in the post-2015 era, the **Sustainable Development Goals (SDGs)** aim to complete the work started by the MDGs and build them in a more comprehensive manner. The sustainable development goals (SDGs) are a new framework of universal set of goals, targets and indicators that UN member states will be expected to use to build their agendas and political policies over the next 15 years. The SDGs follow and expand on the Millennium Development Goals (MDGs). The SDGs-Goal 3 is to- Ensure healthy lives and promote well-being for all at all ages. Ensuring healthy lives and promoting the well-being for all at all ages is essential to sustainable development. The most important feature of SDG 3 is universal health coverage (UHC). The objective of UHC is to provide “access to good quality health services without financial hardship for people in need”[1].

According to the World Health Organization (WHO): “A well functioning health system responds in a balanced way to a population’s needs and expectations by:

- Improving the health status of individuals, families and communities.
- Defending the population against what threatens its health.
- Protecting people against the financial consequences of ill-health.
- Providing equitable access to people-centred care.

- Making it possible for people to participate in decisions affecting their health and health system [2].

Indian Health Development Goals:

The Government of India is committed to ensure the highest possible health status of its population and access to quality health care which has been recognized by a number of key policy documents. The government of India has been making efforts through a large number of programs and initiatives over the years to improve the health situation of the nation.

The first National Health Policy was formulated in 1983, followed by one in 2002 and subsequently in 2017.

The main objective of National Health Policy 2002 was to achieve an acceptable standard of good health amongst the general population of the country. The approach was to increase access to the decentralized public health system by establishing new infrastructure in deficient areas and by upgrading the infrastructure in the existing institutions. The goals of National Health Policy 2002 related to health indicators to be achieved by 2000-2015 include-Reducing Infant Mortality Rate(IMR) to 30/1000 and Maternal Mortality Rate(MMR) to 100/Lakh by 2010[3].While states such as Kerala and Tamil Nadu have achieved the goals of IMR, MMR and have a developed health sector, Madhya Pradesh performance in health sector is still not appreciable.

Also, The National Health Policy 2017 which builds on the progress made since the last NHP 2002 have an objective to improve health status through concerted policy action in all sectors and expand preventive, promotive, curative, palliative and rehabilitative services provided through the public health sector with focus on quality. The policy recognizes the pivotal importance of Sustainable Development Goals (SDGs)[4].

In India, state's role in developing a good health infrastructure and assuring good health to everybody becomes very critical and important. So the approaches adopted by the leading states in health sector can be useful to foster strong growth in health sector where Madhya Pradesh performance is not satisfactory. In this report an attempt has been made to identify states leading in health sector by reviewing of reports/studies/ papers on interstate comparison and identifying their reasons of success in health sector.

1.2 Objectives of the Study:

- To identify the states leading in health sector.
- To discern good performance of the leading states and explaining the approaches adopted by them.
- To identify the constituents/reasons/best practices of strong growth of health sector in other states and suggest measures to replicate the same in M.P.

1.3 Study Methodology:

The study is based on secondary data. The identification and compilation of reports/studies/papers on interstate comparisons in health sector by various government/civil society/media and other sources have been done by exploring various websites and documents. The states leading in health sector are identified by analyzing various parameters used for ranking the states in different reports. The health indicators of leading states and Madhya Pradesh along with other health related socio-economic indicators have been identified by exploring the various studies/surveys conducted by National and International organisations.

The reasons of good performance of leading states in health sector have been identified by exploring different studies/articles/research papers published by various reputed National and International organisations. Also the Innovations and Good Practices adopted by the states leading in health sector are identified.

1.4 Limitations of the study:

There are wide disparities in the selection of indicators used by various Reports/Studies/Research papers on Interstate comparison in health sector published by different government, civil society, media and other organisations for assessing the health outcomes of the Indian States.

There are not many recent Reports/Studies/Research papers published on comparing health outcomes of Indian states. The reasons and best practices for good performance of few leading states in health sector have been identified though there would be good health practices in other states as well.

Chapter 2

Interstate Perspective on Health

2.1 Interstate Comparison of Health Outcomes:

India's health status is in keeping with the socio economic disparities and inequities that characterizes the country's development path. As per Human Development Report 2016, India ranks 131 out of 188 countries in terms of Human Development Index(HDI). The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. The health dimension is assessed by life expectancy at birth, the education dimension is measured by mean of years of schooling for adults aged 25 years and more and expected years of schooling for children of school entering age. The standard of living dimension is measured by gross national income per capita[5]. The poor levels of development can be captured in health dimension indicators ie. life expectancy at birth which is an outcome of good nutrition, hygienic environment (air, water and sanitation) and timely access to preventive and curative care services. Thus, Kerala has a life expectancy of 74.9 years - 12 years more than in Madhya Pradesh 62.4 years[6]. Likewise, be it the risk of death during pregnancy or levels of infant mortality, Kerala is fourfold lesser than MP. Both these states are at the two ends of the development spectrum in terms of the number of malnourished, access to hygienic environment or access to basic services.

The health outcomes can be described as mirroring the multiple axes of socio-economic inequalities such as rural-urban, inter and intra state, income and gender which reflects the diverse and stratified nature of Indian society. Several studies have tried to capture these inequalities by using the association between variables like level of education, type of housing, income and social groups with health outcomes like Infant Mortality Rate and Maternal Mortality Rate.

There are various government, civil society, media and other organisations which publish reports, studies, research papers which rank the states of the country in Health sector which are culturally, economically and socially diverse as they are, into a common, data-driven framework so as to enable an interstate comparison.

In this study report, various studies, reports which have been published by government, civil society, media and other organisations have been reviewed which have ranked the Indian states in health sector using various health indicators. Data used for these

studies, reports, research papers was extracted from various Union Government Ministries and Departments, which collate such data state wise periodically.

Table 2.1 shows the Reports/studies on Interstate comparison on Health sector which have been reviewed.

S. No.	Name of Source/Reports	Parameters taken in health sector for State ranking	Leading States/States ranking												
1	Report 1 - Refining State Level Comparisons in India, Pranjul Bhandari, Planning Commission, Government of India Working Paper Series, 2012	<ul style="list-style-type: none"> • Infant Mortality Rate (Per 1,000 Live Births) • Maternal Mortality Rate • TFR (Children Per Woman) • Access to Improved Sanitation (%) • Proportion (%) of Underweight Children • Institutional Delivery (%) • Complete Immunization (%) • Life Expectancy at Birth (Years) 	<table> <thead> <tr> <th>States</th> <th>Rank</th> </tr> </thead> <tbody> <tr> <td>Kerala</td> <td>- 01</td> </tr> <tr> <td>Goa</td> <td>- 02</td> </tr> <tr> <td>Tamil Nadu</td> <td>- 03</td> </tr> <tr> <td>Punjab</td> <td>- 04</td> </tr> <tr> <td>Maharashtra</td> <td>- 05</td> </tr> </tbody> </table> <p>(Madhya Pradesh ranked 20th among 21 states)</p>	States	Rank	Kerala	- 01	Goa	- 02	Tamil Nadu	- 03	Punjab	- 04	Maharashtra	- 05
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Goa	- 02														
Tamil Nadu	- 03														
Punjab	- 04														
Maharashtra	- 05														
2	Report 2 - Inter – State Comparisons on Health Outcomes in Major States and A Framework For Resource Devolution For Health, 2012-13 Centre for Economic and Social Studies, Hyderabad	<ul style="list-style-type: none"> • Infant Mortality Rate • Maternal Mortality Rate • TFR (Children Per Woman) 	<p>Best performing States</p> <p>Kerala Tamil Nadu Maharashtra</p> <p>(Madhya Pradesh - Poor performing state)</p>												
3	Report 3 - Public Affairs Index- Governance in States of India-2016, Public Affairs Centre, Bangalore	<ul style="list-style-type: none"> • Infant Mortality Rate • Average Population Served Per Hospital Bed 	<table> <thead> <tr> <th>States</th> <th>Rank</th> </tr> </thead> <tbody> <tr> <td>Kerala</td> <td>-01</td> </tr> <tr> <td>Punjab</td> <td>-02</td> </tr> <tr> <td>Karnataka</td> <td>-03</td> </tr> <tr> <td>Tamil Nadu</td> <td>-04</td> </tr> <tr> <td>Andhra Pradesh</td> <td>-05</td> </tr> </tbody> </table>	States	Rank	Kerala	-01	Punjab	-02	Karnataka	-03	Tamil Nadu	-04	Andhra Pradesh	-05
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Tamil Nadu	-04														
Andhra Pradesh	-05														

		<ul style="list-style-type: none"> • Full Immunization • Health Exp as a % of GSDP 	(Madhya Pradesh ranked 16 th among states)												
4	Report 4 - Best of States, India Today Magazine Nov. 2016	<ul style="list-style-type: none"> • Infant Mortality Rate • Ratio of Male IMR To Female IMR • Percentage of Birth Assisted by Trained Personnel • Percentage of Households Having Tap Water as the Principal Source of Water • Registered Doctors Per Million Population • Sex Ratio • Per Capita Expenditure on Health and Family Welfare by State Government 	<table> <thead> <tr> <th>States</th> <th>Rank</th> </tr> </thead> <tbody> <tr> <td>Kerala</td> <td>-01</td> </tr> <tr> <td>Tamil Nadu</td> <td>-02</td> </tr> <tr> <td>Andhra Pradesh</td> <td>-03</td> </tr> <tr> <td>Telangana</td> <td>-04</td> </tr> <tr> <td>Maharashtra</td> <td>-05</td> </tr> </tbody> </table> (Madhya Pradesh ranked 15 th among states)	States	Rank	Kerala	-01	Tamil Nadu	-02	Andhra Pradesh	-03	Telangana	-04	Maharashtra	-05
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Table 2.1 Reports/Studies on Interstate comparison on Health sector

There are wide disparities in the indicators used for assessing the health parameters between the States in the Reports/Studies. These are reflected in standard indicators such as Infant Mortality Rate, Maternal Mortality Rate, Life expectancy, Percentage of immunization, hospital beds and staff per unit of population, nutrition levels, etc. Also issues related to access to safe drinking water, gender issues, nutrition levels, health expenditure etc. cannot be isolated from the discussions on health.

Child and maternal deaths are the basic indicators of healthcare systems in the states. Child mortality is a critical indicator of social and economic progress and a state's commitment to child health and development. Regular monitoring of child mortality is essential for assessing and designing policies which would ensure improvements in child

survival probability. Infant and Under-five mortality are the important indicators related to child mortality.

Infant mortality rate (IMR) is a widely used indicator as it provides valuable insights into the health infrastructure and health status of a state. Moreover, it is being influenced by the mother's education level, environmental conditions, infrastructure, sanitary conditions, access to clean drinking water, immunization against infectious diseases and public health policies and programmes. The **Maternal Mortality Ratio (MMR)** indicator reflects the capacity of health systems to effectively prevent and address the complications occurring during pregnancy and childbirth. It may also highlight inadequate nutrition and general health of women and reflect the lack of fulfilment of their reproductive rights resulting in repeated and poorly spaced pregnancies. **Total Fertility Rate (TFR)** is considered to be a useful indicator for analysing the prospects for population stabilization. The **Complete Immunization Rate** indicator is widely regarded as a good proxy for the overall strength of a government's public health system. It is designed to measure the extent to which governments are investing in the health and well-being of their citizens. Immunization programs can impact economic growth through their broader impact on health. **Life Expectancy at birth** is also a good indicator of socio-economic development. Other health development indicators like per capita expenditure on Health and Family Welfare by State Government, percentage access of safe drinking water in household, health infrastructure are also taken into consideration for ranking of the states in these reports/studies. Table 2.2 shows Ranking of states in above Reports/Studies.

States Ranking	Report 1 Refining State Level Comparisons in India, Pranjul Bhandari, Planning Commission, Government of India Working Paper Series, 2012	Report 2 Inter – State Comparisons on Health Outcomes in Major States and A Framework For Resource Devolution For Health, 2012-13 Centre for Economic and Social Studies, Hyderabad	Report 3 Public Affairs Index- Governance in States of India-2016, Public Affairs Centre, Bangalore	Report 4 Best of States, India Today Magazine Nov. 2016
1	Kerala	Kerala	Kerala	Kerala
2	Goa	Tamil Nadu	Punjab	Tamil Nadu
3	Tamil Nadu	Maharashtra	Karnataka	Andhra Pradesh
Madhya Pradesh	Rank - 20	Poor performing state	Rank - 16	Rank – 15

Table 2.2 : Status of State Ranking

As per the studies/reports Kerala, Tamil Nadu and Punjab are the states leading in health sector. Table 2.3 shows the Health Indicators taken into consideration in the reports for ranking the states.

S. No.	Health Indicators	Report 1	Report 2	Report 3	Report 4
1	Infant Mortality Rate (per 1,000 live births)	✓	✓	✓	✓
2	Maternal Mortality Rate	✓	✓		
3	Ratio of male IMR to female IMR				✓
4	Total Fertility Rate(TFR) - (children per woman)	✓	✓		
5	Institutional Delivery (%) / Percentage of birth assisted by trained personnel	✓			✓
6	Complete Immunization (%)	✓		✓	
7	Life expectancy at birth (years)	✓			
8	Access to improved sanitation (%)	✓			
9	Proportion (%) of underweight children	✓			
10	Percentage of households having tap water as the principal source of water				✓
11	Registered doctors per million population				✓
12	Sex ratio				✓
13	Per capita expenditure on health and family welfare by state government				✓
14	Average Population served per hospital bed			✓	
15	Health Exp as a % of GSDP			✓	

Table 2.3 Health Indicators taken into consideration in the reports

Chapter 3

Determinants of Health Outcomes

3.1 Introduction

After identifying the states leading in health sector, we proceed to discuss the determinants of health outcomes in the high performing states. Infant Mortality Rate, Under 5 Mortality, Maternal Mortality Rate, Life expectancy, Percentage of immunization, hospital beds and staff per unit of population are the generally used indicators which provides valuable insights into the health infrastructure and health status of a state. Also issues related to access to safe drinking water, gender issues, nutrition levels, health expenditure etc. cannot be isolated from the discussions on health.

The Millennium Development Goals (MDGs) which include eight goals were framed to address the world's major development challenges with health and its related areas as prime focus. Among the list of eight MDG goals, three were related to health. The MDG's are today accepted as a standard for fair comparison of a country's or state's effort in development in health sector. Under the MDGs, MDG 4 target is for reduction of child mortality by two-third between 1990 and 2015. In terms of Infant Mortality Rate (IMR), this translates into IMR of 29/1000 live births to be achieved by 2015. The MDG 5 target is to reduce maternal mortality ratio (MMR) by three quarters between 1990 and 2015. This translates to reducing the MMR from 560 in 1990 to 140 in 2015[7].

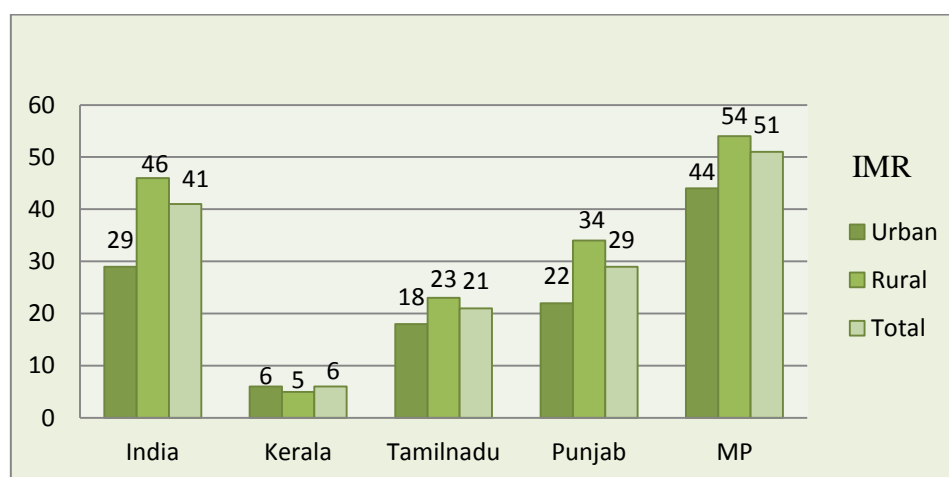
The United Nations Millennium Development Goals (MDGs) focused a great deal on maternal and child health, has now been carried forward to the Sustainable Development Goals (SDGs). The Sustainable Development Goals (SDGs) aim to complete the work started by the MDGs. The SDG Goal 3—'Ensure healthy lives and promote well-being for all at all ages'. The SDGs Goal 3 targets related to child and maternal health are : by 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births, by 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births[8].

To achieve the MDG goals of reduction of child and maternal mortality rates, India has achieved some progress in certain selected indicators relating to mother and child mortality which are basic to health care. However, under the three critical indicators of maternal, infant and child mortality, it is clear that despite all the efforts and improved

investments made under the NRHM, Madhya Pradesh is still not able to achieve its MDG targets by 2015. Madhya Pradesh will have to reinforce efforts to achieve the missed targets of MDGs and also to achieve the ambitious health goals set under the SDGs.

3.2 Infant Mortality :

Under Infant mortality i.e., children dying before age one, Kerala and Tamil Nadu have achieved the MDG goal of less than 29 per 1000 live births while Madhya Pradesh is still having an IMR of 51. Literacy level, institutional delivery and immunisation have a very positive impact on Infant Mortality Rate (IMR)[9]. Figure 3.1 shows IMR of states leading in Health sector as compared to Madhya Pradesh. Table 3.1 shows the states where literacy level, institutional delivery and immunisation are high, the IMR is low.



Source: NFHS-4(2015-16)

Figure 3.1: IMR of states leading in Health sector as compared to Madhya Pradesh

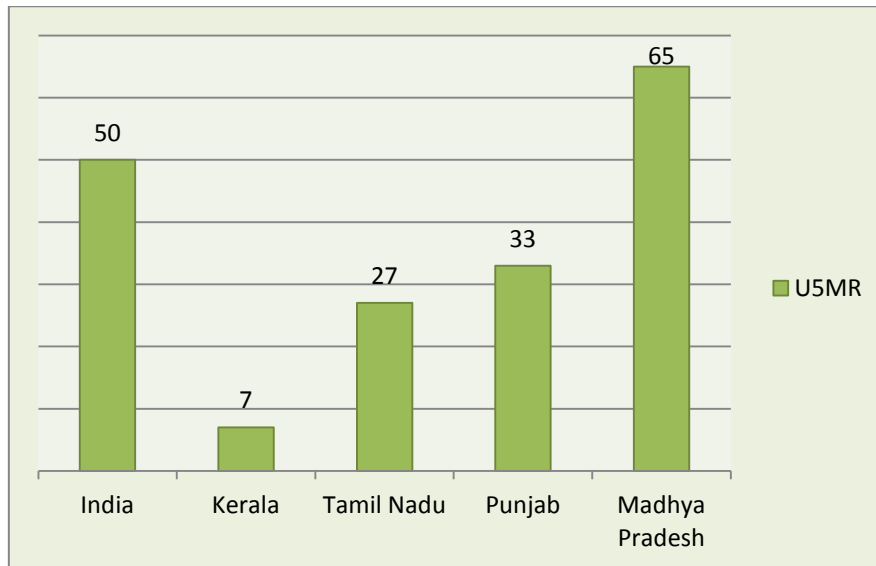
State	Institutional delivery %	Female Literacy %	Immunisation %	IMR
Kerala	99.9	97.9	82.1	6
Tamil Nadu	99.0	79.4	69.7	21
Punjab	90.5	81.4	89.1	29
Madhya Pradesh	80.8	59.4	53.6	51

Source: NFHS-4(2015-16)

Table 3.1 Effect of literacy level, institutional delivery and immunisation on IMR

3.3 Under 5 Mortality:

Under-five mortality is affected by a number of socio-economic characteristics of the community and child health programmes and presents an exact picture of the child health status. The Millennium Development Goal (MDG) of bringing down under-5 mortality to 38 deaths per 1,000 live births by 2015 is achieved by Kerala, Tamil Nadu and Punjab as shown in Figure 3.2.



Source : NFHS-4(2015-16)

Figure 3.2: Under 5 Mortality of states leading in Health sector as compared to Madhya Pradesh

The major causes of death in children in the age group (1-5 years) are diarrhoea, malnutrition, pneumonia, measles and meningitis. More than half of under-5 child deaths are due to diseases that are preventable and treatable through simple, affordable interventions. Strengthening health systems to provide such interventions to all children will save many young lives.

Malnourished children, particularly those with severe acute malnutrition, have a higher risk of death from common childhood illness such as diarrhoea, pneumonia, and malaria. Nutrition-related factors contribute to about 45% of deaths in children under 5 years of age.

Cause of death	Risk factors	Prevention	Treatment
Pneumonia, or other acute respiratory infections	Low birth weight	Vaccination	Appropriate care by a trained health provider Antibiotics Oxygen for severe illness
	Malnutrition	Adequate nutrition	
	Non-breastfed children	Exclusive breastfeeding	
	Overcrowded conditions	Reduction of household air pollution	
Childhood diarrhoea	Non-breastfed children	Exclusive breastfeeding	Low-osmolarity oral rehydration salts (ORS) Zinc supplements
	Unsafe drinking water and food	Safe water and food	
	Poor hygiene practices	Adequate sanitation and hygiene	
	Malnutrition	Adequate nutrition	
		Vaccination	

Table 3.2 Leading causes of death in post-neonatal children: risk factors and response

Prevention with vaccines:

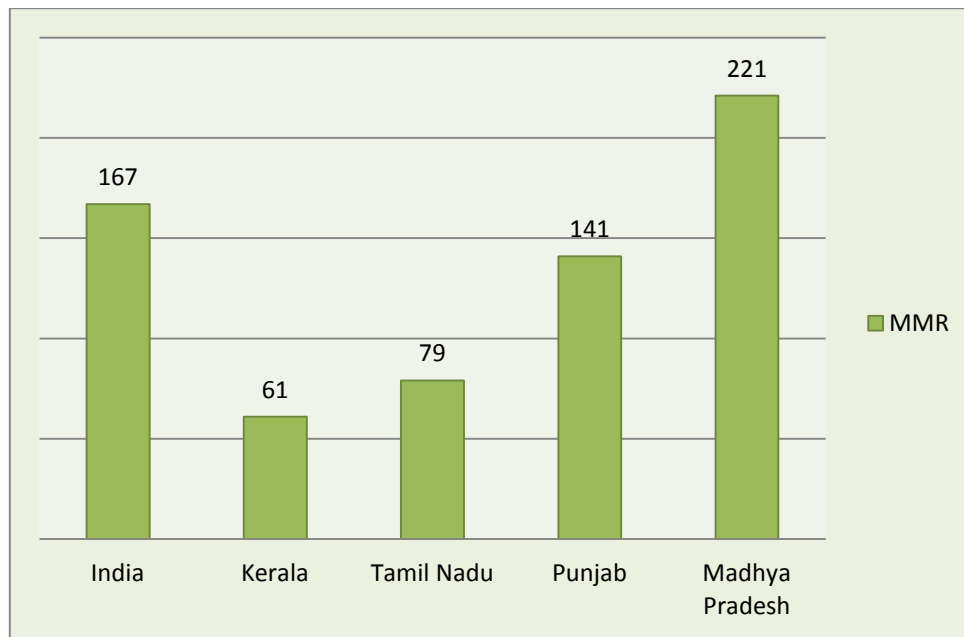
For some of the most deadly childhood diseases, such as measles, polio, diphtheria, tetanus, pertussis, pneumonia due to *Haemophilus influenzae* type B and *Streptococcus pneumoniae* and diarrhoea due to rotavirus, vaccines are available and can protect children from illness and death.

The Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 aim to ensure healthy lives and promote well-being for all children. The SDG goal 3 is to end preventable deaths of newborns and under-5 children by 2030 [10].

3.4 Maternal Mortality:

The MDG goal of less than 140 per 100,000 live births of maternal mortality has been achieved only in Kerala and Tamil Nadu at 61 and 79 respectively as shown in Figure 3.3.

Maternal mortality reduction is driven by 4 factors: fall in the total fertility rate, increases in per capita incomes, educational attainments and proportion of women having skilled birth attendants or institutional deliveries. Table 3.3 shows Total fertility rate, Per capita income, Institutional deliveries, Literacy level of states having low MMR as compared to Madhya Pradesh.



Source :RGI -SRS(2013)

Figure 3.3: MMR of states leading in Health sector as compared to Madhya Pradesh

State	Total Fertility Rate (HMIS-2013)	Per Capita Income in Rs. (Directorate of Economics & Statistics of respective State/UT-2013-14)	Institutional deliveries (%) (DLHS-4-2012-13)	Literacy % 2011 census	MMR 2013 RGI - SRS(2013)
Kerala	1.8	103820	99.8	94.00	61
Tamil Nadu	1.7	112664	99.0	80.10	79
Punjab	1.7	92638	84.3	75.80	141
Madhya Pradesh	2.9	51798	82.6*	69.30	271

* Source- Annual Health Survey 2012-13

Table 3.3 Total fertility rate, Per capita income, Institutional deliveries, Literacy level of states having low MMR as compared to Madhya Pradesh

Many underlying factors account for the high mortality rates in mothers as well as infants in Madhya Pradesh. These factors include the lack of available human resources in the state, the shortage of health specialists, the high malnutrition rate, lack of awareness of entitlements and healthy behaviours, particularly among the rural population and poor access

to health services. Lack of facilities to address serious cases at district or block levels and the poor referral system in public hospitals are also factors.

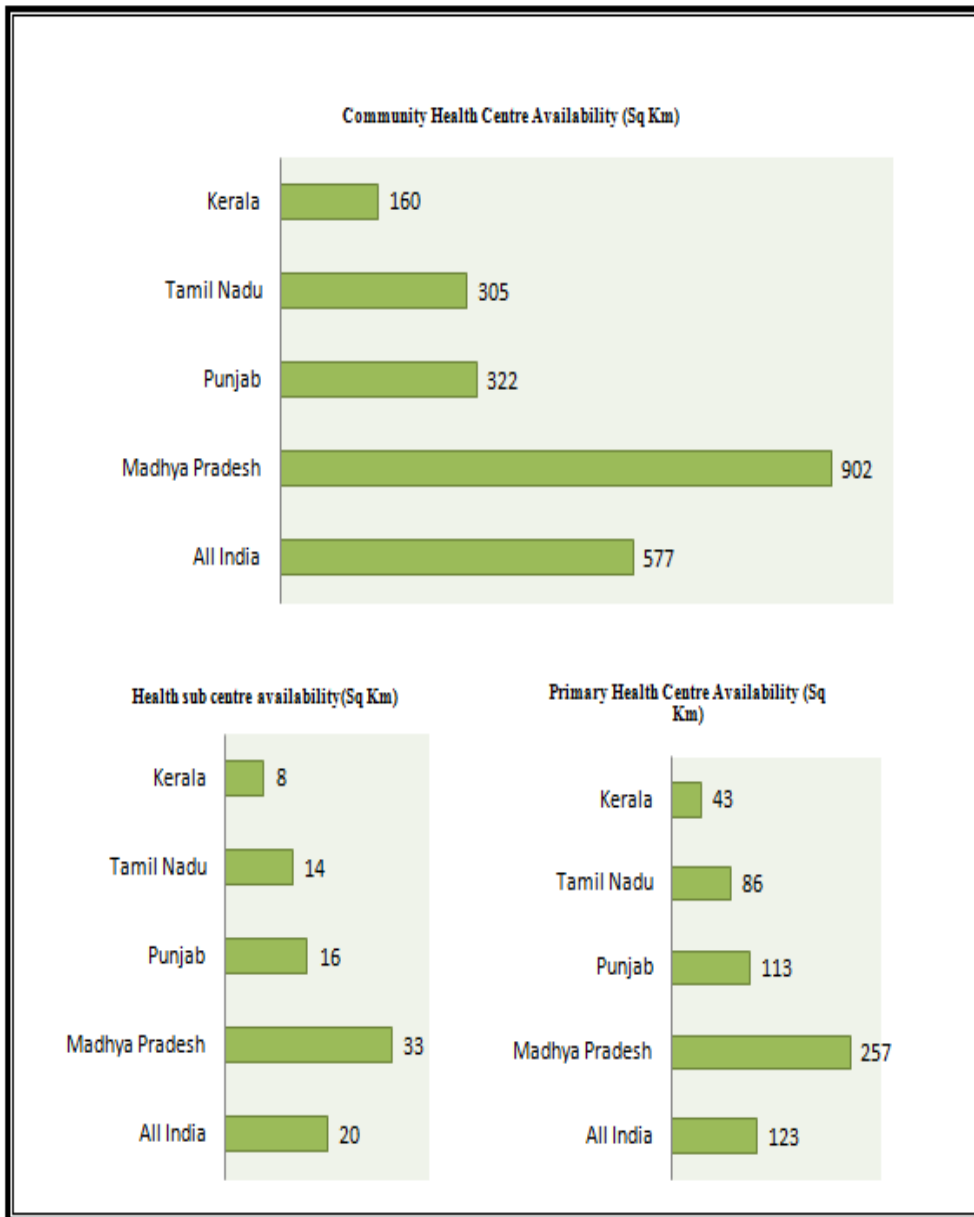
3.5 Health Infrastructure:

While socio-economic factors are important determinants of health outcomes, health services play an important role in avoiding deaths by providing timely both preventive and curative services. Therefore, it can be argued that inequalities in availability, accessibility and quality of health services are an important determinant of variations in health outcomes in states.

Health outcomes are dependent on the availability of institutional mechanisms with capability to translate money and policy to defined activities. Therefore, the spread of infrastructure both in terms of physical buildings as well as availability of staff, drugs and equipments are a critical factor. Improvements in the infrastructure and delivery system of health care, provision of manpower, equipments and drugs, improved inter-sector coordination need to be undertaken in order to improve the basic indicators of healthcare.

Today, even though a well-defined public health care system exists comprising of Sub Centre, Primary Health Centre (PHC) and Community Health Centre (CHC), the infrastructure as well as the staff that are required to provide the health care services is insufficient from many different perspectives. Many rural residents are not able to obtain treatment for basic ailments either due to the non-availability of health care services in the vicinity, or due to lack of funds to access the same. Two most important issues which emerge with regard to rural health infrastructure in many states are lack of access for many and quality of service. The public sector should develop institutional capability at the central, state and local levels to adopt strategies so as to provide quality health care to neglected and vulnerable segments of the population.

There are widespread differences in terms of the rural healthcare infrastructure that exists in India. Figure 3.4 below shows health infrastructure availability in India, Kerala, Tamil Nadu and Punjab as compared to M.P. Table 3.4 below shows average rural area and average radial distance covered by Primary Health Care Institutions and Table 3.5 shows average number of villages covered by a PHC/CHC of States leading in Health sector compared to M.P.



Source : Rural Health Statistics(2014-15) Ministry of Health and Family Welfare

Figure 3.4 Health infrastructure availability in leading states and India compared to M.P

State	Average Rural Area[Sq.Km] covered by a		Average Radial Distance [Kms] covered by a	
	PHC	CHC	PHC	CHC
Kerala	43.06	160.41	3.70	7.14
Tamil Nadu	85.67	305.28	5.22	9.86
Punjab	113.08	321.89	6.00	10.12
Madhya Pradesh	257.29	902.05	9.05	16.94

Source :Rural Health Statistics(2014-15)

Table 3.4 : Average rural area and average radial distance covered by Primary Health Care Institutions (As on 31st March, 2015) of States leading in Health sector compared to M.P

State	Average Number of Villages covered by a	
	PHC	CHC
Kerala	1	5
Tamil Nadu	12	42
Punjab	29	84
Madhya Pradesh	47	164

Source :Rural Health Statistics(2014-15)

Table 3.5: Average number of villages covered by a PHC/CHC of States leading in Health sector compared to M.P.

3.6 Importance of Social Determinants :

Social determinants are resources that are necessary to maintain health. Basically, balanced development is one that assures need based incomes and a good quality of life. Access to ventilated housing, nutritious food, safe water, clean environment, healthy habits, timely medical services for early diagnosis and treatment and self worth, is essential for good health and well being. But of this list, those having the highest and the most direct impact are four - poverty and its manifestation in the form of a lack of access to safe water, sanitation, nutrition and health care. These, then define and determine the trajectory of disease profile in the country[11].

Piped Water Supply & Sanitation: Access to safe water and sanitation is also a human right, as recognized in 2010 by the United Nations General Assembly. The Millennium Development Goal (MDG)-Goal 7, to ensure environmental sustainability, included a target

that challenged the global community to halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation [12].

Drinking water supply and sanitation in India continue to be inadequate, despite longstanding efforts by the various levels of government and communities at improving coverage. Piped water supply is important as water borne diseases occur in the systems of water conveyance. In piped water, chlorinated and filtrated, safety factor is almost 99% that gets reflected in the sharp declines in the occurrence of water borne diseases like diarrhoea, dysentery, viral hepatitis, cholera etc. The burden of water-related diseases curtails efforts to improve public health. Diarrhoea – most often related to unsafe drinking water, poor sanitation and inadequate hygiene – is one of the leading causes of death among children under the age of five being an important causative factor for the high U5MR [13].

The main purpose of a sanitation system is to protect and support human health by providing a clean environment and breaking the cycle of diseases. Lack of improved sanitation access have serious impact on human health. In fact, diarrhoea health impacts- the first death cause of child death under 5- can be reduced significantly by improving access to safe sanitation and changing hygiene behaviours.

Thus, adequate sanitation, combined with good hygiene and safe water are fundamental to good health and to social and economic development.

Malnutrition: Malnutrition normally affects all groups in a community but infants and young children are the most vulnerable because of their high nutritional requirements for growth and development. As children are more prone to malnutrition and infectious diseases than adults, child health requires enormous policy attention. There are critical aspects related to child health and health care such as immunization, growth monitoring and childhood ailments which requires major policy attention.

The “Global Nutrition Report 2016” once again demonstrates India’s slow overall progress in addressing chronic malnutrition, manifest in stunting (low weight for age), wasting (low weight for height), micronutrient deficiencies and over-weight. Our track record in reducing the proportion of undernourished children over the past decade has been modest at best, and lags what other countries with comparable socio-economic indicators have achieved.

In a ranking of countries from lowest to highest on stunting, India ranks 114 out of 132 countries, with the incidence of stunting at 38.7 per cent, compared with Germany and Chile at 1.3 percent and 1.8 percent, respectively. Even Bangladesh and Nepal rank marginally higher than India. On wasting, India ranks 120 out of 130 countries, at 15.1 per cent, compared with Australia and Chile at number 1 and 2, with 0 percent and 0.3 percent, and South Sudan at 130 with 22.7 percent[14].

Although, India has made significant progress in the past few years, there still remains a great number of malnutrition cases that are still present in country and remains a major public health issue. However Madhya Pradesh has unlikely to be at par with the high target as huge chronic hunger, malnutrition and starvation became synonymous of child health in Madhya Pradesh especially among marginalized tribal and dalit children.

Household food security has the closest link with malnutrition. In addition, antenatal care, infant and young child feeding practices (IYCF), iron, folic acid, Vitamin A and nutritional supplementation are crucial. The latter are clearly under the purview of direct nutritional support programmes. Integrated Child Development Services (ICDS) – a centrally sponsored scheme of the government of India - seeks to provide a comprehensive package of services including supplementary nutrition, pre-school non-formal education, nutrition and health education, immunisation, health check-up and referral services[15]. Children of the age group 0-6 years, pregnant women, lactating mothers and adolescent girls are the beneficiaries of ICDS services. Though the formal structures of ICDS have been in place for many years, the implementation of the programme has been far from successful, particularly, in backward regions and pockets of MP where the problem of food insecurity and malnutrition are severe.

At the grass root level, planning and integration of the work of Anganwadi workers under Integrated Child Development Service (ICDS), Accredited Social Health Activists (ASHA) under National Rural Health Mission and active community participation will result in better delivery of services to target groups. Moreover, effective implementation of the services requires adequate manpower and their periodic capacity building, infrastructure development, regular supply of quality food items, and logistic support. Facility based service need to be given to children with severe acute malnutrition, those with poor appetite or acute medical complications. Promotion of low-cost sustainable solutions like optimal infant and young child feeding practices need to be facilitated for preventing the occurrence of severe

acute malnutrition[16].Table 3.6 attempts an association between U5MR and social determinants among states leading in health sector compared to M.P.

State	Households with an improved drinking-water source (%)	Households using improved sanitation facility	% children malnourished under 5 years by weight (%Children under 5 years who are underweight)	U5MR
Kerala	94.3	98.1	16.1	7
Tamil Nadu	90.6	52.2	23.8	27
Punjab	99.1	81.5	21.6	33
Madhya Pradesh	84.7	33.7	42.8	65

Source : NFHS-4(2015-16)

Table 3.6: Role of Social Determinants to U5MR in states leading in health sector compared to M.P

3.7 Health Expenditure:

Having examined the various health outcome indicators, we would be analysing the public expenditure on health care which is an important determinant of health outcome.

WHO defines total health expenditure as all expenditure whose primary purpose is to restore, improve and maintain health for nation and for individuals during a defined time period (WHO, World Bank, and USAID 2003). As per this definition, health expenditure comprises expenditure incurred towards curative health care services, disease prevention, reproductive and child health programmes, health promotion, administration of health services, medical education, training and research, and capital investment for health purpose. National Health Accounts (NHA), India adopts this definition and accordingly, expenditure on water supply and sanitation, Integrated Child Development Schemes, drug abuse etc are kept outside the boundary of health accounts (NHA, 2001-02) [17].

One of the major indicator of health expenditure and finance is generally Health Expenditure per Capita. Table 3.7 shows Health expenditure of states leading in health sector compared to M.P. Relatively higher per capita expenditure on health is reported for Kerala, followed by Tamil Nadu and Punjab which affects the low health outcome of M.P.

State	Total State Expenditure on Health 15-16 (B.E*) (Rs in Crores) (1)	Population 2015-16 (in Crores) (2)	Per Capita Health Expenditure(in Rs) (3) = (1)/(2)
Kerala	5643	3.6	1567.5
Tamil Nadu	8163	6.92	1179.62
Punjab	3214	2.9	1108.27
Madhya Pradesh	6091	7.7	791.03

*B.E - Budget Estimates

Source:1-Health Sector Financing by Centre and States/UTs In India [2013-14 to 2015-16]-

<http://mohfw.gov.in/showfile.php?lid=3700>

2-Population Projections for India and States 2001-2026,RGI Census, GOI

Table 3.7 Health expenditure of states leading in health sector compared to M.P.

The low budget allocation has direct impact on the provision of drugs, infrastructure and health workforce, which then contribute to high levels of morbidity and mortality. Therefore a significant step in making public health services effective and accessible to citizens is by revising public health expenditure and exploring public-private partnerships in healthcare delivery.

Chapter 4

Reasons of good performance of leading states in Health sector

4.1 Kerala-

4.1.1 Factors contributing to health gains in Kerala:

The health gains made in Kerala can be attributed to several factors which includes :

- Strong emphasis from the state government on public health and primary health care.
- Health infrastructure- Kerala have invested in infrastructure to create a multilayered health system designed to provide first-contact access for basic services at the community level and expanded integrated primary health care coverage to achieve access to a range of preventive and curative services. Additionally, Kerala rapidly expanded the number of medical facilities, hospital beds, and doctors.
- Decentralized governance -the PHC and their referring sub-centers were brought under the jurisdiction of villages in order to engage more closely with the community to identify and implement effective changes to respond to local health needs and to encourage use of PHC enters and sub-centers as the first point of care. Communities were brought together to determine which health topics were important and needed attention, with selected topics ranging from strengthening PHC facilities to improving water and sanitation safety. This decentralization resulted in physicians and community members working together and many facilities undergoing significant renovations to address community priorities. individuals, specially in lower socioeconomic groups were encouraged to utilize public health centers. Particularly in villages with strong panchayat governance, there have been improvements in access to medications and health outcomes, as well as increased patient utilization of care at PHC centers.
- Girl's education, community participation and a willingness to improve systems have led to achieve its high health outcomes.
- Additional public health and social development initiatives - such as a push for safe drinking water and primary education for men and women - have aided in creating the environment for a strong and effective primary care system.
- Kerala is also forward thinking in its health policy planning. The proportion of the population made up of adults over the age of 60 is expected to double by 2050, and Kerala is already developing geriatric care wards and geriatric friendly facilities.

- The state is also a leader in palliative care with its own pain and palliative care policy (2008), which focuses on community-based home care initiatives. Kerala's palliative care network contains over 60 units and serves more than 12 million individuals .
- In addition, Kerala is investing in health information systems to compile household level data designed to help with population health management and surveillance of communicable diseases.

Source : <http://phcperformanceinitiative.org/promising-practices/kerala>

- Kerala has put in place a major initiative for transforming service delivery on a long-term basis within the framework of its Modernizing Government Programme (MGP). In 2003, a service delivery reform was taken up by the government of Kerala through its service delivery policy formulation. The key issues in service delivery that have emerged relate to: (i) the state as the best provider of basic services - e.g., water, sanitation, education, health services - to citizens; (ii) the cost-effective pricing of services to ensure access and sustainability; and (iii) the importance of decentralization as the best option for improved service delivery to citizens.
- Health development in Kerala, comparable to that of high income countries, has been the outcome of investment in health infrastructure in public, private and co- operative sectors, along with people's health awareness and connectivity.
- For the last few decades in Kerala, civic participation through voluntary action, NGOs, non- profit organizations, etc. Has been taking up a major role to fill the gap of - demand for and supply of quality health care in the health service system of the state.

In Kerala, NGOs, self- help groups(SHG), social enterprises are actively involved in the fields of education, awareness programmes, poverty alleviation, sanitation, training programmes, planning, information, and water and sanitation projects that led to achieve its high health outcomes as compared to most of the other states.

Source: *"Role of third sector in promoting health outcomes in Kerala: a sociological study", Mubeena O et al., Mohammad Akram, International Journal of Community Medicine and Public Health, Mubeena O et al. Int J Community Med Public Health. 2016 Jan;3(1):30-36*

- In November 2014, the government of Kerala introduced a self assessment tool to study its health system. The tool was developed by the joint learning network[18], Primary healthcare initiative[19].The tool was designed to help countries and states assess and document how their health insurance or financial coverage institutions interact with primary healthcare actors and programs, including public and private providers, disease specific health programs, quality or accreditation agencies and community groups. The

tool also helps to identify opportunities for the state health financing agency to improve its alignment with primary healthcare goals.

Source: Universal Health Coverage in Kerala Through a Primary Care Pilot Project, Department of Health and Family Welfare, Government of Kerala January 2016.

- Public health care is quite successful in Kerala. Kerala have a policy of decentralized planning. In terms of public health care at the lowest levels decisions are made at Panchayat ward level committees headed by ward member named as ward level sanitation committees. So every year, this committee is given money by Gram Panchayats, Government and NGRM. Gram sabhas having money with them at ward levels identify public health threat. They do awareness things with Panchayats. At the lowest level the public health is discussed and from there the information goes up to Panchayats, blocks and District Panchayats. So, the health care in Kerala is decentralized to the ward level.

Source : <http://ehealth.iletsonline.com/2014/11/health-sector-gets-push-kerala/>

- Kerala, which has emerged as India's first complete digital state, not only provides free healthcare services to its citizens, but is also poised to become country's first state to launch an ambitious e-health project within a year. The programme would enable the government to go paperless and have digital health record of every individual.
- Kerala is one of the better performing states in the healthcare sector. Although its policies are like those of any other state in the country, what sets it apart is allocation of larger funds for social sectors - health sector, in particular - despite resource constraints. It has ensured high average density of Primary Healthcare Centres (PHCs) and Community Health Centres (CHCs) per square km. Similarly, the number of healthcare professionals, both public and private, is very high in Kerala. As a policy measure, it has tried to standardize various institutions.
- The major policy decision is to reduce out-of-the pocket expenditure. Over the years, the State Government has taken a conscious decision to supply generic medicines free of cost to every PHC in the State. Kerala supplies the highest number of free drugs as compared to other states supplying free generic medicines. Its aim is to ensure that the cost of medicines incurred by people for chronic diseases comes down.
- **Comprehensive Health Insurance Scheme (CHISS)** is the largest insurance scheme implemented by any state government. It has three layers - Rashtriya Swasthya Bima Yojna (RSBY), CHISS and CHISS Plus. The Centre-approved RSBY is for the people

below poverty line, while CHISS is meant for people meeting the criteria of the State Government. Earlier, a lot of people were deprived of availing free medical services, as they could not fulfil the criteria of the Union Government. So, the Kerala Government brought those people under its ambit to help them get affordable healthcare services. Currently, 30 lakh families are enjoying the benefits of CHISS scheme in Kerala.

Undoubtedly, the State Government has done lot of work to bring the poor under the ambit of its healthcare related schemes. CHISS Plus is a trust model for all above the poverty line (APL) category people. This health insurance scheme was launched by the government primarily to help families cope with the huge expenses that suddenly burden them when a major ailment, like a heart attack or cancer treatment, is required.

Source : <http://ehealth.iletsonline.com/2016/02/roadmap-for-healthier-kerala/>

4.1.2 Innovations and Good Practices adopted by Kerala state:

a) Comprehensive Health Plan:

Programme Description:

The Comprehensive Health Plan (CHP) initiated by NRHM in the State as a massive Campaign in 2011-12 has succeeded in the first three years of the XIIth Five Year Plan in placing Public Health Care firmly on the agenda of Local Self Governments/Panchayati Raj Institutions (PRIs). Decentralized planning is not a new concept in the State, but such an initiative in the Health Sector as a joint initiative of NRHM, Health and other related departments and PRIs was a novel venture. In Kerala, PRIs in the State are sufficiently capacitated and empowered since the last two decades to own and manage all the developmental activities of departments brought under their control, which included the Public Health services.

A Comprehensive Health Plan was prepared through a decentralised plan preparation process on a pilot basis in Alappuzha district. Considering the success and participatory approach, the process has been extended to all the districts of Kerala. The Comprehensive Health Plan was planned as a Decentralised Plan Campaign involving all the field staff of Health/Health-related departments and NGOs as a joint initiative of PRIs and NRHM. Health Plans of all wards of Grama Panchayaths were prepared and all such Plans were consolidated at Grama/Block/District Panchayath level as projects and duly vetted by the District Planning Committee (DPC), a Constitutional body with the District Panchayath President as Chairman and District Collector as Member Secretary. State and district level TOTs and workshops were conducted to roll out the campaign. State/district level workshops were periodically

conducted for Medical Officers (Implementation officers of LSGD Health Projects) and health staff to familiarise them with the procedures/techniques of taking up and implementing LSGD projects. To motivate and energise the PRIs to take up more health and health-related projects and also the Medical Officers in charge of PHC/CHC, District Panchayath, Corporation/Municipality Arogya Keralam Puraskaram was institutionalised. NRHM in association with Doordarshan, Kerala has produced a documentary on Health Initiatives of PRIs- covering the State-level “Arogyakeralam Puraskaram” award winners of 2012-13. This was widely acclaimed and noticed by the public at large, resulting in taking up of more health projects by PRIs from their Plan allocation.

Link for detailed note on Comprehensive Health Plan(CHP) :
<http://www.arogyakeralam.gov.in/index.php/special-initiaves/chp>

b) Arogyakeralam Palliative Care Project :

Kerala is the first state in the country to announce a Palliative Care Policy in 2008. This project was started with the aim of providing services to the rising number of terminally ill patients in the State. The services are aimed at improving the quality of life and infusing a sense of belonging in these patients.

Programme Description:

The Programme started in December,2008 following the adoption of Kerala Palliative Care Policy in April,2008 by the State government. Thence Kerala became the first State in the country to announce a Palliative Care Policy (Government of Kerala, 2008). Following this the NRHM launched the Palliative Care Project with the help of LSGI in 2008. Kerala’s decentralisation is important in this respect. The State has assigned well-defined development responsibilities and 25-30 percent of the State plan allocation to LSGI. An important precursor of the Programme was the Neighbourhood Networks of Palliative Care (NNPC), functional in Kerala since 2001. In 2008, the State’s Palliative Care Policy laid down a road map for operationalising home-based care and integrating it with primary healthcare in the entire State. The Arogyakeralam Palliative Care Project was piloted in Mallapuram and Kozhikode districts since they had already well-developed community initiatives. It was then scaled-up to the entire State. The programme provides services at the following three levels:

- a. Primary Palliative care through PHCs and CHCs and is basically home-based palliative care by a team.
- b. Secondary level involves specialist care and is provided by district, taluk and general hospitals.
- c. Tertiary level-This includes advanced care, research and training through general hospitals and identified tertiary care centres.

Different evaluations show that the Project is successful in achieving its overall objectives and lays down the road map for the development of palliative care programmes in the rest of the country.

c) Accreditation and Certification of Government Hospitals :

Programme Description

Kerala Government has initiated the following Quality Assurance programme for the Government Hospitals:

- i) National Accreditation Board for Hospitals and Health care organization.
- ii) State Level Accreditation Programme- Kerala Accreditation Standards for hospitals.
- iii) National Standards on Quality Assurance published by Ministry of Health and Family Welfare, government of India.
- iv) Measures to reduce MMR in Kerala.
- v) Measures to reduce IMR in Kerala.

Six Government hospital and one government blood bank in Kerala was accredited by National Accreditation Board for Hospitals and Health care organization.

The Kerala Accreditation Standards for Hospitals (KASH) are prepared for 4 different levels of hospital, which are Primary Health Centre (PHC), Community Health Centre (CHC), Taluk level Hospitals (THQH) and District level Hospitals including specialty and General Hospitals. These standards are framed after referring the accreditation programmes in different countries and other existing accreditation and certification programmes. So far 17 health care organizations are accredited under KASH.

The Health Department also started to implement the National Standards on Quality Assurance developed by the Ministry of Health and Family Welfare, Government of India. The standards are being implemented in selected hospitals in the Health Department.

A quality standard document has been prepared for reducing the maternal death during the delivery services. Quality standards that are derived from evidence-based clinical guidelines and that are agreed by relevant stakeholders provide powerful levers to drive and measure quality improvement in health care institutions. It focuses on improving the care mothers receive in hospitals (public and private) to help reduce maternal mortality, one of the main health priorities in Kerala.

The Quality Standard was prepared for the major causes of IMR. It is expected that implementation of Quality Standard in the antenatal and paediatrics practice may lead to further reduction in IMR, which has stagnated in the State.

Source : Making a Difference-Good, Replicable and Innovative Practices, Ministry of Health and Family Welfare, 2015.

<https://blog.mygov.in/wp-content/uploads/2015/11/Success-Stories-on-Health-Sector.pdf>

d) Dr. SMS: Introducing healthcare through mobile technology in Kerala

An innovative m-governance initiative, Dr SMS was launched by the Kerala State IT Mission in 2008 with the aim to improve people's access to health care related information through simple and innovative use of mobile telephony.

One of the primary challenges that restricts people's utilisation of medical services is the lack of reliable and easily available information related to availability of healthcare in their immediate locality. Recognising this problem, the Kerala State IT Mission (KSITM), the technology implementation wing of the Government of Kerala, launched Dr. SMS on 29 May 2008 as a pilot project in Kozhikode district of the state. Dr SMS is an m-health project that was initiated to improve the health of the citizens of Kerala by delivering timely and authentic information on health related resources via short message service (SMS).

The primary objective of this initiative is to make accessible comprehensive information on medical and diagnostic facilities and to provide informational alerts about emerging diseases through mobile phones. To avail this service, users have to send their query in a preformatted fashion by an SMS to a unique short code number 537252 and within a time frame of 2-3 seconds, they get a return SMS with the information desired. Other than the SMS channel, web portal catering to the internet users has also been prepared for delivering the health infrastructure information that is available at the website- www.drsmss.kerala.gov.in.

In a little more than a year of initiation of the preliminary project, Dr. SMS was launched across the state. The project has been especially helpful for the tourists, serving as a first aid kit for them as the latter are largely unaware of sources to access in case of a medical emergency. On an average, this project witnesses 200 transactions in a day. Since the charges accruing to the users are very nominal, everyone who owns a feature phone is able to take benefits of this facility. Encouraged by the wide gained popularity of this initiative, this project that initially started in Kozhikode district has now been expanded to 13 out of 14 districts of Kerala.

Source: Governance Knowledge Centre , DARPG-

<http://indiagovernance.gov.in/bestpractices.php?id=1523>

4.2.1 Tamil Nadu -

4.2.1 Factors contributing to health gains in Tamil Nadu:

The health gains made in Tamil Nadu can be attributed to several factors, ie.

- Tamil Nadu leads the way in transformation of its public health system and is far ahead of others in the totality of its innovations in the health sector. Therefore the Tamil Nadu model has gained respectability and recognition in government circles and can be discussed as a possible role model for a National Health Policy and scheme for universal coverage of health care.
- Tamil Nadu is the centre stage in the way it has used NRHM funds to ensure that the Primary Health Centres (PHCs) work round the clock and are fit for quality institutional deliveries. The turnaround seen was in the resultant decline of maternal and infant mortality ratios in the state.
- Tamil Nadu took the lead in providing universal health coverage by setting up an effective drugs procurement and distribution mechanism since 1994. Its IT enabled supply chain management system ensures delivery to needy patients, transparency to prevent misuse and stringent quality control to eliminate spurious drugs.

Kerala and Rajasthan are successfully emulating this model.

Source : "Leadership in the Health Sector: The importance of the Tamil Nadu model for a Universal Public Health Care System in India", Dr. Rumki Basu.

- Effective implementation of Universal Immunization Programme, formation of Tamil Nadu Medical Services Corporation for regulating the drug procurement and promoting generic drugs, early incorporation of indigenous system of medicine into health care service, formulation of a health policy in 2003 by the state with special emphasis on low-income, disadvantaged communities alongside efficient implementation of The Tamil Nadu Health Systems Project (TNHSP) are the major factors which contributed for the success in health sector of the state.
- Also, the economic growth of the state, improved literacy rate, gender equality, and lowered fertility rate in the last few decades and contributions from the private sector have their share in the public health success of the state.
- The health policies and health expenditure by the Government of Tamil Nadu is focussed more toward improving primary health care services especially targeting the rural, poor, and disadvantaged communities.

- The reforms in the health sector like bottom-up planning for immunization campaigns, flexibility, decentralization, and delegation of authority to district level officials to conduct maternal death reviews and implement local solutions were much effective in Tamil Nadu than other states.

Source: Towards a Better Health Care Delivery System: The Tamil Nadu model by R. Parthasarathi and S.P. Sinha, Indian J Community Med. 2016 Oct-Dec; 41(4): 302–304. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5112973/>

- As low Maternal Mortality Rate (MMR) in state can be attributed due to the improvement in the awareness among women, higher female literacy rate, increasing institutional deliveries, marked accessibility of modern medical technology, functioning of 108 ambulance services, provisioning of hospitals on wheels in 385 blocks for Re-productive and Child Health (RCH) outreach services, establishment of 24x7 delivery services in all PHCs, establishment of Basic Emergency Obstetric and Newborn Care (BEmONC) and Comprehensive Emergency and Obstetric Neonatal Care (CEmONC) centres, strengthening referral linkages in PHCs, functioning of PHC operation theatres, tracking and transfer of mothers with high risk to higher facilities, admission of mother with known high risk factors well in advance in centres (CEmONC), implementation of Dr. Muthulakshmi Reddy Maternity Scheme etc.
- The concerted efforts of the State through setting up of Comprehensive Emergency and Obstetric and Neonatal Care Centres, ensuring 24x7 delivery services in all PHCs by posting five medical officers and three staff nurses with the provision of necessary equipments, introducing special vehicles for transport of new borns, control of birth asphyxia and death due to hypothermia and implementing strategies for reduction and management of neonatal sepsis, inculcating the pregnant mothers on exclusive breast feeding, complementary foods, child care practices, danger signs in sick newborns and immunization of preventable diseases, rising female literacy rate and increasing institutional deliveries had paid rich dividends in bringing down the infant mortality rate considerably in the State.

Source : <http://www.tn.gov.in/dear/Health.pdf>

4.2.2 Innovations and Good Practices adopted by the state:

a) Prenatal Screening of Antenatal Mothers For Detecting Congenital Foetal Anomalies

There was no prenatal screening for birth anomalies especially in the government sector in this country with few exceptions. Ultrasound is a non-invasive technique of

identifying some of the common birth defects during antenatal visits by the pregnant mother but is not used for identification of birth defects routinely.

Programme Description

Program Started: First Phase: 2010-2013 and Second Phase: Since April 2014.

Area and population covered in :

Phase 1: 2010-2013: in 30 districts, 504 doctors of 256 PHCs screened 149600 cases approximately and detected 1648 anomalies.

Phase 2: April 2014: planned for 105 CEmONC centres, 16 Medical college hospitals and 154 Block PHCs at 30 districts.

The following activities were done under the intervention:

- a. Establishing the hardware: Computers/laptops are provided at the centre with net connectivity.
- b. Installing a dedicated software which will ensure auditing of all the images.
- c. Orientation of the doctors, online theoretical course and mentoring of each doctor for the next 18 months to validate their findings.
- d. Software monitoring the number of scans done, quality of scans and finally the diagnosis of each of the trained doctors and a rating is done for each trainee.
- e. Tracking of the positive cases and their outcome through software.

Programme Outcomes

- Increase the skills of the obstetricians to detect fetal abnormalities and to identify other gestational problems.
- Increase the skills of the medical officers from PHC in the usage of ultrasound during the screening of antenatal mothers so as to detect high-risk pregnancies and fetal abnormalities.
- Preventing and managing birth defects.
- Identification of high-risk pregnancies for appropriate and early referral.

b) Dr. Muthulakshmi Reddy Maternity Benefit Scheme (MRMBS)

The Scheme was introduced to reduce the incidence of maternal and infant deaths in the State.

Programme Description

Muthulakshmi Reddy Maternity Benefit Scheme was implemented in 2006. It provides coverage to all pregnant women (18 years and above) belonging to BPL families. The objective is to provide financial support, compensate for wage loss and avoid maternal anemia during pregnancy (up to two children). Also to ensure a minimum 2.5 kg birth weight and immunization of infants. The scheme extends to Sri Lankan refugees and women

members of Farmers Social Security Scheme. In the year 2011 the financial assistance received under the scheme increased to Rs. 12000 from Rs. 6000. This amount is disbursed in three equal installments to support for nutrition and referral transport. The beneficiaries are required to get themselves registered by opening a saving account in any nationalized Bank. They are then allotted with a unique ID called PICME(Pregnancy and Infant Cohort Monitoring and Evaluation) number which stores all the details of the beneficiary. All the details are entered online using the systems of browsing centre.

Source: <http://kpmbphc.blogspot.in/2012/01/new-dr-muthulakshmi-reddymaternity.html>.

c) Menstrual Hygiene Programme

The objective of the Scheme is to:

- Increase awareness among adolescent girls on menstrual hygiene.
- Build self-esteem and empower girls for greater socialisation.
- To increase access to and use of high quality sanitary napkins.
- To ensure safe disposal of sanitary napkins.

Programme Description

The Menstrual Hygiene Programme was launched by Hon'ble Chief Minister of Tamil Nadu on 27.03.2012 at Chennai.

Under this Scheme:

- 3 packs of Priceless beltless sanitary napkins containing 6 pads per packs are distributed every 2 months to each adolescent girl from 10-19 years of age.
- 18 packs are given for a year.
- Both school and non-school going girls in rural areas are benefited.
- The sanitary napkins are procured through Tamil Nadu Medical Services Corporation Limited.
- 7 packs (6 pads per pack) of Priceless belt-type sanitary napkins are distributed to post-natal mothers who delivered in government institutions.
- Initially these napkins are provided to the post-natal mothers in three Health Unit Districts (Kancheepuram, Thiruvallur and Poonamallee).
- 18 packs (6 pads per pack) of Priceless belt- type sanitary napkins are also given to women prison inmates and female inpatients in the institute of Mental Health, Chennai.

d) Birth Waiting Room

The tribal population of the State is at different stages of social, cultural and economic development. There is a consensus agreement that the health status of the tribal population needs a lot of improvement because of their isolation, remoteness and being largely unaffected by the developmental processes going on in the country.

Birth Waiting Rooms are residential facilities available, where women who live remotely can wait before giving birth at a hospital or health centre. More women from remote areas would access birthing facilities if they could wait for the onset of labour in a maternity waiting home.

Programme Description

In 1991, the World Health Organization (WHO) highlighted the potential advantages of implementing Birth Waiting Rooms as part of a package of essential obstetric services. In view of the fact that most of the tribal habitation is concentrated in far-flung areas, forestland, hills and remote villages, and in order to remove the imbalances, reduce unmet needs and to provide better healthcare and family welfare services to tribal populations, there is a felt need for providing areas where they could stay close to the facility and utilise the services. With this in view, Birth Waiting Rooms (BWR) were established at the foot hills of the PHCs in the tribal areas. So far 17 foot hill BWRs have been established. Antenatal mothers along with their attendant can stay in these waiting rooms which are located in the foothills, well in advance of the expected date of delivery (7-10 days) and avail themselves of the EmOnC services.

In order to facilitate the stay of these mothers at the BWRs prior to delivery, 3 support staff have been provided for round-the-clock care and services. This is in addition to the staff nurse and M.O. in the PHC who will provide medical and technical assistance.

Services available in a BWR

- Round-the-clock BEmOnC services.
- Nutritious diet for the mother and one attendant.
- Continuous monitoring of vitals especially in highrisk cases.
- Free delivery services in the PHC.
- Free referral services if needed for both mother and newborn.
- Free drop-back services

Source : Making a Difference-Good, Replicable and Innovative Practices, Ministry of Health and Family Welfare, 2015.

<https://blog.mygov.in/wp-content/uploads/2015/11/Success-Stories-on-Health-Sector.pdf>

4.3 Punjab -

4.3.1 Factors contributing to health gains in Punjab:

The health gains made in Punjab can be attributed to several factors, ie.

- The mother and child health action plan (2014-17) of Punjab state aims to improve the health of women and children in Punjab and in doing so, to improve the lives of all people in the state.
- High per capita income, high literacy rate, community development enterprise together with healthcare programs have led to the attainment of impressive indicators of health in the state.
- The Government of Punjab has effectively harnessed the resources of NRHM and scaled up initiatives such as the Universal Immunization Programme, skilled care at birth, Emergency Obstetric Care, IMNCI (Integrated Management of Neonatal and Childhood Illnesses), NSSK (Navjat Shishu Suraksha Karyakram), FBNC (Facility Based Newborn Care), and referral transport services. Demand side financing initiatives such as the JSY (Janani Suraksha Yojna) and JSSK (Janani Shishu Suraksha Karyakaram) have helped in reducing out of pocket expenses on healthcare of women and children.
- The Government of Punjab has gone beyond the provisions of NRHM for maternal and child health by introducing the MKKS (Mata Kaushalya Kalyan Scheme) and the free treatment of all girls up to the age of five years in public facilities.
- Multiple factors have helped reduce infant and maternal morbidity and mortality in Punjab. High coverage of antenatal checkup of all pregnant women registered at health institutions to identify high risk pregnancies, motivation for institutional deliveries to minimize morbidity and mortality of mothers as well as newborns, and health education to mothers regarding child care are among the main reasons for the same.
- MCTS (Mother and Child Tracking System) to identify, register and follow up all pregnant women in health institutions for providing adequate services to the mother and child is helping in reducing MMR and IMR.
- Also, the ratio of institutional deliveries has increased significantly during the past few years helping reducing MMR and IMR.
- Mata Kaushalya Kalyan Scheme (State Scheme)
As a State initiative, the State of Punjab is giving a cash incentive of Rs. 1000/- to each pregnant woman for delivering in a Government Health Institution

- Identification and strengthening of delivery points: Fully operational PHCs, CHCs, Sub-divisional and District Hospitals are the key to provide good intra-natal and postnatal care. Developing CHCs and PHCs for CEmOC (Comprehensive Emergency Obstetric Care) and BEmOC (Basic Emergency Obstetric Care) services, respectively, is an important intervention aimed at increasing institutional deliveries in Punjab.

Source: Mother and Child Health Action Plan (2014-2017)-(Translating Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+A) Strategy Into Action and Outcomes in Punjab, December 2013

<http://pbhealth.gov.in/MCH%20ACTION%20PLAN%202014%2017%20%281%29.pdf>

4.3.2 Innovations and Good Practices adopted by Punjab state:

a) Child Health Action Plan

Though the State of Punjab has better health indicators as compared to many other States of the country, the Government of Punjab is committed to raising the health status of the people of the State. The rate of decline of infant and child mortality has not been comparable to the development of the State. The child action plan (2014-2017)- part of Mother and Child Health action plan is one cogent step in that direction.

Programme Description

The Mother and Child Health action plan is a comprehensive document that lays out steps to improve maternal and child health in consonance with the RMNCH+A Strategy.

The plan lays out specific activities for the same:

- a. Care of the mother during pregnancy and delivery.
- b. Special care of the newborn child through Essential Newborn Care.
- c. Care of the children through infancy up to 5 years of age, during school going period and care of adolescents.
- d. Care of pre-pregnant women is also an important component of the Mother and Child Health action plan.
- e. Emphasis has been laid on the care of the sick newborn, home-based newborn care, infant and young child feeding, immunization, care of the sick child especially those suffering from pneumonia and diarrheal diseases.
- f. Provision of free drugs and diagnostics for all infants and for girl children up to 5 years of age.
- g. Free Diagnosis and treatment of 30 diseases in children has been provided under the Mother and Child Health action plan.

- h. Prevention of anemia with iron folic acid supplementation and biannual dose of Tabalbandazole are important components.
- i. Free treatment is provided to school children suffering from heart diseases like RHD/CHD, Cancer and Thalassaemia at government and empanelled private super specialty hospitals.
- j. Rational deployment of Human Resources and training of Human Resources for multitasking are an important part of the action plan.
- k. Up-gradation of infrastructure, including establishment of SNCUs(Sick Newborn Care Units),NBSUs(New Born Stabilization Units) and NBCCs(New Born Care Corners) at different levels and construction of Mother and Child Health Hospitals throughout the State are being taken up to improve healthcare services for children.

Programme Outcomes:

It will help in decreasing the early NNM, NNM, IMR, and under-5 mortality rate of Punjab.

b) Free Treatment of Girl Child upto 5 Years

The Child Sex Ratio is one of the major gender issues in the State of Punjab. There is a discriminatory attitude of people in the treatment of the girl child. The care seeking for the girl neonates and children is often delayed or denied. This results in higher probability of complications and mortality among girl infants and children as compared to boys.

Programme Description

Year of start 2013-14. The State has taken various measures to improve the child sex ratio which includes strict implementation of PC & PNDT Act. Instructions have been issued to all appropriate authorities to enforce the PC&PNDT Act and take strict action against defaulters. Further, in order to give impetus to the reduction of sex discrimination, the State government has made provision for free treatment of girls up to 5 years of age by effectively extending the reach of JSSK beyond 5 years through its own resources. Under the State government scheme, all female children up to 5 years are given complete outdoor as well as indoor treatment and diagnostics, entirely free of cost in government health institutions. Even if some medicines or diagnostics are not available in the system, the cost is borne by the State. Active campaigns will be undertaken to raise awareness of the public on this issue of great importance.

Apart from implementation of PC&PNDT Act, the State started Balri Rakshak Yojana in April 2005. Under this scheme Rs. 500/- is deposited monthly in the post office account of the child up to 18 years of age.

Programme Outcomes: This will help improve the child sex ratio in the State and also improve the life expectancy for the female child.

Source : Making a Difference-Good, Replicable and Innovative Practices, Ministry of Health and Family Welfare, 2015.

<https://blog.mygov.in/wp-content/uploads/2015/11/Success-Stories-on-Health-Sector.pdf>

c) E-Health Point: Transformation of rural health care

E-Health Points (EHPs) are units that provide rural and peri-urban households across five districts of Punjab with access to clean drinking water, medicines, diagnostic tools, and facilities for efficient and timely healthcare.

Healthpoint Services India (HSI) owns and operates E-Health Points (EHP) in the Malwa region of Punjab. These units provide clean filtered drinking water, generic medicines, comprehensive diagnostic services, and advanced tele-medical services to the poor at subsidized rates. The chief objective of this initiative is to transform rural & peri-urban healthcare delivery and subsequently contribute to the realization of the Millennium Development Goals and India's National Rural Health Mission.

The E-Health Point model is a for pay model, relying on the efficient use of modern technologies like rural broadband, tele-medical software, low-cost diagnostic equipment, and economical water treatment methods. The project's local staff has been adequately trained to adopt these standardized tools for efficiently delivering healthcare and water facilities to the people. Since its inauguration in November 2009, these EHPs have provided more than 33,500 tele-medical consultations and performed about 19,500 diagnostic investigations along with providing safe drinking water to about 5,00,000 users daily. At present there are 100 such water points and 8 health points in operation.

By providing rural and peri-urban communities with greater access to high quality health-care and safe drinking water, EHPs are resulting in better health & well-being, enhanced productivity and improved standard of living among people in the Malwa region of Punjab.

Source: Governance Knowledge Centre , DARPG-

<http://indiagovernance.gov.in/bestpractices.php?id=1495>

4.4 Conclusion and Recommendations

Madhya Pradesh has been identified by the National Health Mission as a high focus state. Madhya Pradesh has some of the poorest maternal and child health indicators in India. Madhya Pradesh struggles with health problems that contribute to high maternal and child mortality rates. These problems include anemia, malnutrition among adults and children, early childhood illnesses, and several infectious diseases. The state health infrastructure and human resources do not measure up against the standard guidelines (National Health Mission, 2015). Madhya Pradesh will have to reinforce efforts to achieve the missed targets of MDGs, to achieve the ambitious health goals set under the SDGs and also to improve various indicators related to health.

The Government of Madhya Pradesh has launched several health care facilities/schemes such as Balshakti Yojna, Deen Dayal Mobile Health Clinic, Deendayal Antyodaya Upchar Yojana to benefit people living in rural areas, BPL families in M.P. Many people have been benefitted from the schemes over the years. One of the major challenges that limit the effective implementation of various schemes is the level of awareness and basic information about the scheme.

Since access to health care facilities in remote and tribal areas is a gigantic task, Government resources are not sufficient enough to meet the health needs of the community in these rural and tribal areas.

Other innovative ideas and best practices of states leading in health sector may be tried or adapted according to the context of M.P to increase the access and management of primary health care services and also to improve various indicators related to health.

- The Comprehensive Health Plan (CHP) initiated by NRHM in the Kerala State which succeeded in placing Public Health care firmly on the agenda of Local Self Governments/Panchayati Raj Institutions (PRIs) can be replicated as best practice in M.P. A Comprehensive Health Plan can be prepared through a decentralised Plan Preparation process on a pilot basis in few districts to resolve health related issues which includes the health priorities, local public health requirements and action to be taken by other departments to improve the health of the community.
- The increasing incidence of cancer and chronic diseases in recent years has created a growing public health and clinical need for palliative care implementation of successful and well-developed community based models of palliative care. The implementation of the WHO's public health approach to palliative care focuses on

education, drug availability, policy and implementation. Kerala State model of palliative care can be replicated in M.P where there can be incorporation of palliative care in the primary healthcare system and public health model as it is initiated in Kerala by National Rural Health Mission (NRHM) with the palliative care policy of government of Kerala.

- Quality Assurance program for Government Hospitals as in Kerala State for the establishment of a quality system in the healthcare organizations can be initiated.
- Health insurance plays a critical role in improving access to healthcare services. Comprehensive Health Insurance Scheme (CHISS) of Kerala is the largest insurance scheme implemented by any state government can be replicated to help public get affordable healthcare services. State insurance schemes will help to ease the financial burden for healthcare services to common people.
- The Mother and Child Health action plan initiated by Punjab can be adopted with a view to have a better reach to the community in order to have maximum impact on the maternal and child health.
- Mobile technology is changing the health care delivery across the developing world like India by giving people who live in rural villages the ability to connect with doctors, nurses and other health care workers in major cities. Mobile Health or m-Health is a medical and public health practice which is supported by all kinds of mobile devices, like mobile phones, patient monitoring devices, PDAs and other wireless devices for providing health services and health information for people. An innovative m-governance initiative such as Dr SMS of Kerala State can be implemented.
- To improve the child sex ratio, the State government can make provision for free treatment of girls up to 5 years of age as in Punjab state. In the long run such initiatives hope to ensure the survival and well-being of girls.
- The use of Information Technology (IT) ,e-health initiatives can also play a very important role in enhancing the healthcare mechanisms.
- The community participation needs to be improved through advocacy and capacity building in order to create a conducive environment for utilization of available health services and enhancing quality of services locally.
- Also, social development initiatives such as a push for safe drinking water, primary education for men and women, improved sanitation facility should be aided in creating the environment for a strong and effective primary care system in rural areas.

Thus, effective and affordable treatments, improved service delivery and proven health-care interventions can all contribute to ensure healthy lives and promote well-being for all people of all ages. It is hoped that best practices of high performing states in health sector will provide a roadmap for improving performance of M.P on health front.

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