Chapter – II

Health Care System in India

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HEALTHCARE SYSTEM IN INDIA

2.1- Introduction:

"Healthy citizens are the greatest assets any country can have"

Winston S. Churchill

Health is a state subject as per the constitution of India. It is the responsibility of every state to make efforts for raising the health standard and standard of living of the targeted population and the advancement of public health as its primary function. Access to health care depends on how health care is provided. In India, the healthcare sector shows a tremendous improvement, since last few decades. This can be illustrated by the notable improvement in health indicators such as infant mortality, maternal mortality, and life expectancy at birth etc. Despite these improvements, India still faces many issues and gaps in the healthcare delivery system.

Table 2.1: Health indicators of India

Indicators	**Year**	**India**
Population in Million (census 2011)	Census 2011	12101.9
Decadal Growth Rate (1991-2011)	1991-2011	17.64
Birth rate	2010	18
Death rate	2010	7.2
Total Fertility Rate	2010	2.5
Female Literacy Rate	Census 2011	65.46
Sex Ratio	2011	940
LEB(Female)	2010	67.7
IMR	2013	40
U5MR	2007-09	49
MMR	2013	167

Source: Sample Registration System, Government of India

Every country has its own health care system, in accordance with their needs and resources, but the most common element is primary health care. In some countries, health care system is distributed among government agencies, private agencies, charitable institutions, religious organizations to deliver good health care services.

The Indian health care system comprises private owned hospitals, health personnel, medical colleges, program manager, etc. The health care system consists of all the actions and individual whose main function is to provide quality health care services and to improve health status. The health personnel, hospitals, and healthcare agents have grown explosively in this century. These agents contributed to better health, specifically for the poor. It is, therefore, needful to assess the current performance of healthcare system in India. The vital element of any health care system is the good service delivery system. Thus, good healthcare service delivery is, therefore, playing a crucial role and act as a fundamental input to population health status.

Healthcare is one of the largest service sectors in India. However, healthcare sector can be viewed as a glass half empty or a glass half full. The healthcare system faces some challenges that are, reduction in mortality rates, improved infrastructure, availability of health personnel, etc. There is a considerable shortage of hospitals, hospital beds, and trained medical staff such as doctors and nurses, and so the accessibility among the public is not so good. The rural-urban imbalance also hampers access to health care services. In rural areas, the accessibility is significantly lower as compared to urban areas. Children and women are under-represented in the health care workforce.

The majority of the Indian population lives in rural areas below the poverty line and they even don’t have enough resources to finance their healthcare expenditure. The public health care sector is very poor and responsible for such health status of Indians. The private healthcare sector is mainly responsible for the majority of healthcare in our country. Out of total expenses on health, most of the expenses are paid out of pocket by patients and their relatives. According to NFHS-3, the private healthcare sector still remains the primary source of healthcare for almost 70 per cent of urban households and 63 percent of rural households. Almost 44 percent of all children are under-nutrition and maternal and child mortality rates are significantly higher, despite the big efforts by the government.

One of the main reasons why people rely more on private health care providers rather than public health care providers is that the public healthcare sector offers poor quality of care. The reason for the poor quality care of the public health care system is the distance of primary health centers (PHCs), community health centers (CHCs), and

sub-centers (SCs). Indian health care system disappointed Indians especially rural people at various levels. Although the Indian health care system consists or has the best technologies and doctors, it still faces the lack of infrastructure in terms of PHCs, CHCs, and SCs.

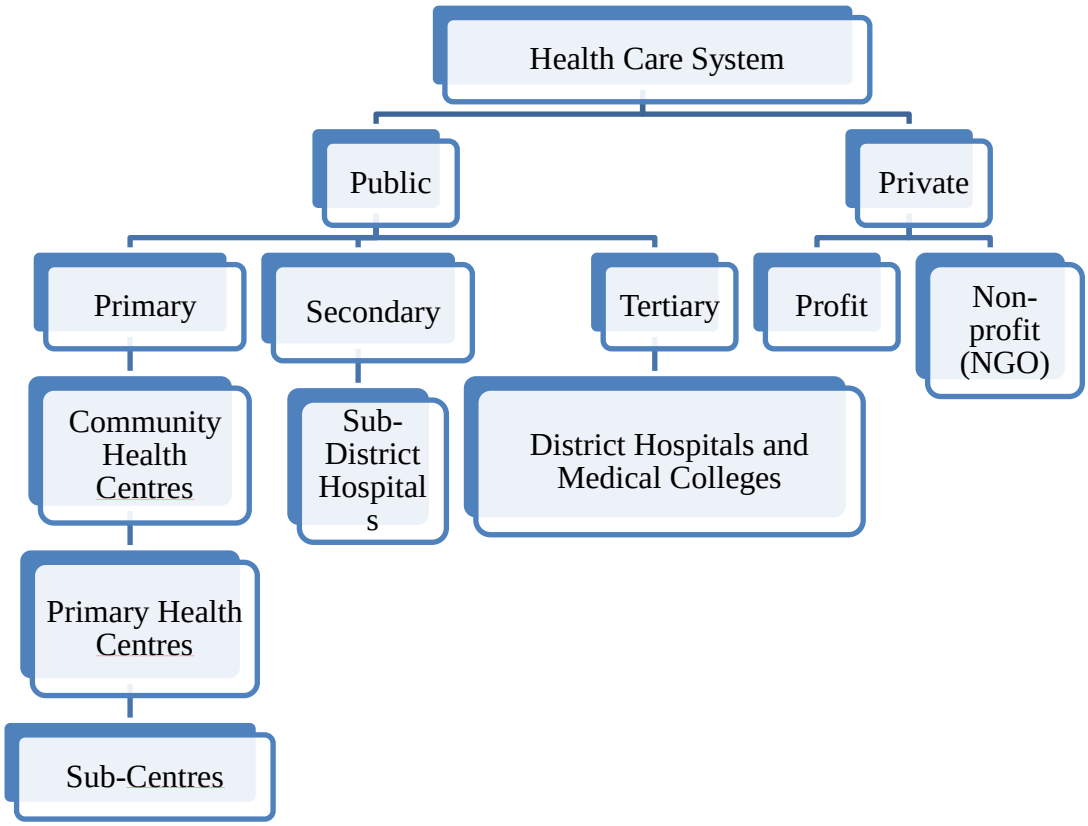
The Indian public healthcare system consists of primary, secondary, and tertiary care institutions. Despite many efforts by the government, public healthcare system, i.e. primary, secondary, and tertiary care institutions face substantial challenges in providing care to the care seekers. Thus, it is time to review the current health care system in India, in the light of other developed country's health care system.

2.2- Structure of health care system:

The healthcare infrastructure in India consists of primary, secondary, and tertiary health care. The healthcare at these levels is provided by both public and private health care providers. But nowadays there is an increasing role of private healthcare providers in providing care to the care seekers. At the primary level of health care, we include community health centers (CHCs), Primary health centers (PHCs), and sub-centers (SCs). While the sub-district hospitals come under the category of secondary health care and the tertiary level of health care includes the district hospitals and medical colleges.

With a population of 1.21 billion, India stands at the second position among the most populous countries in the world, after China. India comprises 7 union territories and 29 states. These states and union territories are further sub-divided into districts and blocks. Thus, provision of health care to such a huge population is the biggest challenge faced by Indian government since after the independence. The provision of health care needs some sound planning and management and also some policies with a strong implementation and management by the government bodies with private health care providers.

Figure 2.1: Structure of Health Care System in India



Source: Compiled by Author

While states are responsible for the functioning of the health care delivery system, Centre also has a responsibility towards the state's health care system in the form of policy making, planning, assisting and providing adequate funds to various provincial health authorities to implement national programs. While national level health care system is guided by the Union Ministry of Health and Family Welfare (MoHFW), there is a state department of Health and Family Welfare in each state, headed by a state minister. Each regional set-up covers 3-5 districts and works under the authority delegated by the state directorate of health services. Middle-level management of health services is the district level structure and it is a link between the state and regional structure on one hand and on the other hand is the peripheral structure such as Primary Health Care (PHC) and Sub-Centre (SC).

2.3- International Perspective of Indian Healthcare:

Today, India is the third largest economy in terms of Gross National Income (GNI) in terms of Purchasing Power Parity (PPP) and has the capacity to grow more quickly

and equitably to emerge as one of the developed nation. Against the strong economic growth and increased public health spending on healthcare in the country, it is about 4.1 percent of GDP in the 11th five-year plan. From the experience of the developed nation, it is observed that unless a nation spends at least 5-6 percent of its GDP on health care and the larger portion of it is from the government expenditure, the basic health care needs of the country are rarely met. The government healthcare spending in India is only 1.04 percent of GDP. The government has decided to increase the spending on health care to 2-3 percent through the pronouncement of many policies such as National Health Policy 2002, National Health Policy 2015 and the National Rural Health Mission (NRHM). Investment in healthcare rose very high in the beginning periods of NRHM. But at the peak of NRHM performance, investment in health care started stagnating at about 1.04 percent of GDP. The result of such stagnation is felt at the failure of the health care delivery system to the people who need most and to expand the workforce in healthcare, even to train and retain the existing health care workforce. The disinclination or unwilling to provide for regular employment harms the service delivery system, management function, research and development functions of the government. The biggest constraint that the Indian healthcare system faces is the failure in attaining minimum levels of public expenditure in healthcare facilities and infrastructure. Experience from the international economies shows that health outcomes are closely related to the government health expenditure. From the BRIC countries, only Brazil and China show better performance and is considered to achieve the universal health coverage. Brazil spends 9.5 % of its GDP on health, but of this 9.5 %, the government expenditure on health constitute 47.5 % of GDP (Almost 45.7 % of total health expenditure). South Africa spends 8.9 % of its GDP on health, but of this percentage, the share of government Health expenditure as the percentage of total health expenditure is 48.4, China spends 5.4 % of its GDP, which is 56.0 percent of total health expenditure spend by the government. Russia spends 6.5 % of its GDP on health, out of this 51.1 % is spent by government as a percentage of total health expenditure. India spends only 3.8 per cent of its GDP on health, which is almost less than half as compared to other BRIC countries. Out of total health expenditure as a percentage of GDP, government expenditure on health constitutes only 30.5 % of this 3.8 % of total health expenditure of GDP. In the developed countries, the percentage share of GDP to total health expenditure is very high as compared to India. As in the

USA, the total health expenditure as a percentage of GDP is 17.0 in 2012, of this 47.0 % constitute government health expenditure. Likewise, the United Kingdom has a total health expenditure as the percent of GDP is 9.3 % in 2012 while a larger percentage of this 9.3 % is spent by the government. The government health expenditure as a percentage of total health expenditure is 84.0 % in the United Kingdom. Germany, France, and Japan also spend a relatively lower percentage of its GDP to health care expenditure. From the table, that follows it is evident that Germany spends only 11.3 percent of its GDP on Health and 76.7 % of this constitutes government expenditure. France spends 11.6 % and Japan spends 10.3 % of GDP on health care. Japan has a relatively higher percentage of government expenditure on healthcare among all the countries other than the United Kingdom. Japan spent 82.1 percent of total health expenditure as government health expenditure in 2012.

Today, India possess advanced technologies and knowledge to prevent diseases and to provide a proper health care for its people, yet the number of unhealthy people is still very high and other indicators of health such as CBR, MMR, IMR, TFR are also very high. Today, India has all the resources to intervene and to provide better health care to those in greatest need, but the existing intervention and resources did not match the power of the health system to deliver in a better way and on an adequate scale.

From the table 2, we can say, that the health expenditure in India is relatively very low as compared to developed and some developing countries. As a consequence, health indicators in India shows very poor performance. Life expectancy at birth in India was only 66 years (2013), while it was 75 years in Brazil and China, Russia (69 years), South Africa (60 years). Among the developed countries, France has 82 years life expectancy at the time of birth, while it was 81 years in the United Kingdom and Germany, the USA has life expectancy at birth of 79 years and in Japan, it was about 74 years (2013).

India also lags behind in maternal mortality rate (MMR) and infant mortality rate (IMR). India accounted 190 MMR and 41.1 IMR in 2013. Brazil, China, Russia and South Africa have lower MMR and IMR as compared to India. Brazil has only 69 MMR and 12.3 IMR, China (MMR-32) and (IMR-10.9), Russia (MMR-24) and (IMR-8.6), and South Africa (MMR-140) and (IMR-32.8). The MMR and IMR are

very low in developed countries. In the USA the maternal mortality rate was 28 per 1,000,00 women and 5.9 percent of IMR per 1000 live births in 2013. Likewise, the United Kingdom has MMR of 08 per 1,000,00 women and IMR of 3.9 per 1000 live births. Germany (MMR-07) and (IMR-32), France (MMR-09) and (IMR-3.9), Japan (MMR-06) and (IMR-2.1).

Table 2.2: An International perspective of health expenditure and health status:

Country	Total Health Exp. /Capita (USD) at Average Exchange Rate (2012)	Total Health Exp. As % of GDP (2012)	Govt Health Exp. As % of Total Health Exp. (2012)	LEB (2013)	MMR (2013)	IMR (2013)
Brazil	1078$	9.5	47.5	75	69	12.3
China	322$	5.4	56	75	32	10.9
Russia	913$	6.5	51.1	69	24	8.6
South Africa	651$	8.9	48.4	60	140	32.8
INDIA	**58$**	**3.8**	**30.5**	**66**	**190**	**41.1**
U.S.A.	8845$	17	47	79	28	5.9
United Kingdom	3595$	9.3	84	81	8	3.9
Germany	4717$	11.3	76.7	81	7	3.2
France	4644$	11.6	77.4	82	9	3.5
Japan	4787$	10.3	82.1	74	6	2.1

Source: World Health Statistics, 2012, 2013

The needs of citizens for quality health are enormous, but the financial resources or public expenditure on health and managerial assistance fall somewhat short even in the most optimistic projects.

2.4- Role of Centre and state in health care system:

The most important challenge government faces in the health care delivery system is the distribution of responsibilities between states and the center. The central funding for any state is 36 percent of all public health expenditures and in some states, it is over 50 percent. In addition to funds provided by the central government, the planning

commission also provided some additional central assistance to some states for undertaking further improvements in the health care system and infrastructure.

The Centre has a responsibility to correct the uneven development and provide more resources to the states where vulnerabilities are more. Almost all the states have started introducing user charges for treatment in government hospitals from the people above the poverty line and use that fund so collected to improve the existing infrastructure and quality of health care in the respective institutions.

2.5- Rural Healthcare System:

The existing health care inequalities in the availability of India's healthcare are supposed to be as large as India's own population. When we talk about the health care, the whole population is divided into 2 parts. One is urban population and the second is rural population. The urban population lives in urban areas and they have somewhat better quality access to healthcare facilities such as district and sub-district hospitals because they are generally found nearby in the urban areas. However, the majority of the population lives in rural areas under the below the poverty line and have limited access to health care services and facilities. One of the bottlenecks in Indian healthcare system is that most of the population of India still relies on cultural remedies and traditional practices of healthcare.

Rural health is a state subject and every state is trying to raise the standard of living of its people. To improve the health status of its people is one of the basic duties of a state. Today, India faces maternal mortality at a large scale and most of them happened in rural India. Thus, the child health is also influenced in rural areas of the country. Healthcare is the right of every citizen, but the lack of adequate infrastructure and unavailability of healthcare services and non-qualified health workers make India more vulnerable to health consequences.

At the primary level of rural health care, we include Community Health Centres (CHC's), Primary Health Centres (PHC's) and Sub-centres (SC's).

The healthcare system in rural India runs as a three-tier system based on the following population norms: in plain areas, every sub-centre covers a population of 5000 and in hilly or tribal areas it covers only a population of 3000. Likewise, the primary health centers and community health centers also covered a definite proportion of the

population. A primary health center covers 30,000 population in plain areas against the 20,000 of the population in hilly or tribal areas. According to the area, community health centers (CHC's) also have a different population norm. In plain areas, a CHC covers a population of 1,20,000 while in hilly areas this proportion of the population is limited only to 80,000.

Table 2.3: Population norms for Health Infrastructure in Rural India (Public Sector)

Centre	Population Norms	
	Plain Area	**Hilly/ Tribal Areas**
Sub- Centres	5000	3000
Primary Health Centres	30,000	20,000
Community Health Centres	1,20,000	80,000

Source: Health and Family Welfare Statistics in India, 2013

Table 2.4: Number of SCs, PHCs, CHCs Functioning in India from 1990 to 2015

Year	**SCs**	**PHCs**	**CHCs**
1990	130336	18981	1911
1991	130958	20450	2071
1992	131605	20716	2189
1993	131752	21051	2273
1994	131770	21225	2344
1995	131795	21768	2419
1996	132727	21853	2424
1999	138044	22928	3077
2001	137311	22842	3043
2004	142655	23109	3222
2005	146026	23236	3346
2007	145272	23370	4045
2010	147069	23673	4535
2011	148124	23887	4809
2012	148366	24049	4833
2013	151684	24448	5187
2014	152326	25020	5363
2015	153655	25308	5396
CAGR %	**0.01**	**0.01**	**0.04**

Source: National Health Profiles, Ministry of Health and Family Welfare, Government of India

Table 2.4 presented the Healthcare infrastructure over the years from 1990 to 2015. Over the period there were a sustained increment in the number of SCs, PHCs and CHCs. We have calculated the CAGR for all the three tier of primary healthcare. The CAGR for SCs and PHCs was obtained at 0.01 percent and for CHCs it was 0.04 percent. Community Health centres showed the highest CAGR among all three stages of rural health care.

2.5.1- Sub-Centres (SCs):

The SCs is the first interaction point between the primary health care and local community. Currently, there are 1,52,326 Sub-centers are running in the country (as on 31st march 2015). Sub-centres provides the basic healthcare facilities to the people and services in relation to the mother and child care (MCH), safe delivery, universal immunization programme, family welfare services, primary medical care, control of communicable and non-communicable diseases programmes. Each sub-centre is required to be manned by at least one ANM (Auxiliary Nurse Midwife), female health worker and one male health worker. The main function of health sub-centre is to deliver preventive and primitive care together with the basic curative care. As the population density in the country is varying and not uniform, the application of population norms is not possible all over the country.

According to the population norms, there is one sub-centre established for every 5000 population in plain areas and it goes down to 3000 in hilly or tribal areas. Table 2.4 shows the progress of sub-centres functioning over the years in the country. At the end of the sixth five-year plan (1981-85), it was found that only 84,376 sub-centers were working, which increased to 130165 during 1985-90 and further increased to 1,48,366 during the 11th five-year plan (2007-12). Currently, 1,53,655 sub-centers are working in the country. A similar progress in the number of sub-centers is seen in the states of Gujarat, Karnataka, Odisha, Rajasthan, Andhra Pradesh, and Uttar Pradesh.

Table 2.5: Sub-Centres functioning during five-year plans

States	1981-85	1985-90	1992-97	1997-02	2002-07	2007-12	2012-17
AP	6129	7894	10568	10568	12522	12522	12522
ASM	1711	5109	5109	5109	5109	4604	4621
BR	8299	14799	14799	14799	8909	9696	9729
GUJ	4869	6834	7274	7274	7274	7274	7274
HAR	1591	2299	2299	2299	2433	2520	2542
KAR	4964	7793	8143	8143	8143	8871	9264
KER	2270	5094	5094	5094	5094	4575	4575
MP	6615	11910	11938	11947	8834	8869	8764
MAH	6391	9248	9725	9725	10453	10580	10580
ORS	4127	5927	5927	5927	5927	6688	6688
PUJ	2602	2852	2852	2852	2858	2951	2951
RAJ	3790	8000	9400	9926	10612	11487	14407
TN	5860	8681	8681	8682	8683	8706	8706
UP	15653	20153	20153	20153	20521	20521	20521
WB	6100	7873	7873	8126	10356	10356	10356
INDIA	**84376**	**130165**	**136258**	**137311**	**145272**	**148366**	**152326**

Source: Rural Health Statistics, Ministry of Health and Family Welfare, Govt. of India

Table 5a shows the number of SC's functioning in India and its major states. The number of sub-centres is almost somewhat constant in almost all the major states of the country.

National Rural Health Mission under the IPSC Guidelines sanctioned some minimum number of staff to cater to the local people at the sub-centre. The staff includes health worker both female as well male, voluntary worker. The total number of post at the sub-centre is 03. Under the NRHM, there is a provision for an additional Auxiliary Nurse Midwife (ANM) on the contract basis and one Lady Health Visitor (LHV) is also entrusted with the supervision of six sub-centres. The Central government bears the salary of ANM while the salary of the MHW (Male Health Worker) bears by the state government.

Table 2.5a: Sub-Centres Functioning in India

States	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
AP	12522	12522	12522	12522	12522	12522	12522	12522	12522	12522	7659
ASM	5109	5109	4592	4592	4604	4604	4604	4604	4609	4621	4621
BR	10337	8909	8858	8858	9696	9696	9696	9696	9729	9729	9729
GUJ	7274	7274	7274	7274	7274	7274	7274	7274	7274	7274	8063
HAR	2433	2433	2433	2465	2484	2508	2508	2520	2524	2542	2569
KAR	8143	8143	8143	8143	8143	8870	8870	8871	8871	9264	9264
KER	5064	5094	5094	4575	4575	4575	4575	4575	4575	4575	4575
MP	8874	8834	8834	8869	8869	8869	8869	8869	8869	8764	9192
MAH	10453	10453	10579	10579	10580	10580	10580	10580	10580	10580	10580
ORS	5927	5927	6688	6688	6688	6688	6688	6688	6688	6688	6688
PUJ	2858	2858	2858	2950	2950	2950	2950	2951	2951	2951	2951
RAJ	10512	10612	10742	10951	11487	11487	11487	11487	14221	14407	14407
TN	8682	8683	8706	8706	8706	8706	8706	8706	8706	8706	8706
UP	20521	20521	20521	20521	20521	20521	20521	20521	20521	20521	20521
WB	10356	10356	10356	10356	10356	10356	10356	10356	10356	10356	10357
IND	**146026**	**145292**	**146036**	**145894**	**147069**	**148124**	**148124**	**148366**	**151684**	**152326**	**153655**

Source: HMIS, Ministry of Health and Family Welfare, Govt. of India

2.5.2- Primary Health Centre (PHC):

Primary Health Centre (PHC) is the first interaction point between the medical officer and village community. Realizing its importance in rural health care delivery, the center, the state, and other government and non-governmental agencies have started establishing primary health centers and health manpower. There is an increase of 1784 PHC's in 2014 as compared to those existed in 2005. The primary health centers are established and maintained under the Minimum Needs Programme (MNP)/ Basic Minimum Services (BMS) by the state government. As per the minimum norms, there should be a medical officer supported by 14 paramedical and other staff to manage a PHC. Under the NRHM, there can be two additional staff nurses on contract basis at a PHC. PHC's provide an integrated curative and preventive healthcare to the rural people with promotive and family welfare services and schemes. There are 25,020 PHC's functioning in the country (as on 31st march 2015).

Table 2.6: Primary Health Centres during five-year plans.

States	1981-85	1985-90	1992-97	1997-02	2002-07	2007-12	2012-17
AP	555	1283	1335	1386	1570	1624	1709
ASM	237	449	610	610	610	975	1014
BR	796	2001	2209	2209	1648	1863	1883
GUJ	310	842	960	1032	1073	1158	1158
HAR	163	366	399	403	411	447	454
KAR	365	1142	1601	1676	1679	2310	2233
KER	199	908	938	944	909	809	829
MP	680	1181	1690	1690	1149	1156	1157
MAH	1539	1671	1695	1768	1800	1811	1811
ORS	484	875	1102	1352	1279	1226	1305
PUJ	130	460	484	484	484	449	427
RAJ	448	1048	1616	1674	1499	1528	2082
TN	436	1386	1436	1436	1181	1227	1369
UP	1169	3000	3761	3808	3660	3692	3497
WB	1172	1250	1262	1262	922	909	909
INDIA	**9115**	**18671**	**22149**	**22875**	**22370**	**24049**	**25020**

Source: Rural Health Statistics, Ministry of Health and Family Welfare, Govt. of India

The number of PHCs has increased over the years in the country. During the sixth five year plan (1981-85), there were only 9,115 PHCs, which increased almost to double at the end of 7th five-year plan (1985-90). Number of PHCs further increased to 24,049 in 11th five year plan. Today as on 31st march 2015, there are 25,308 primary health centers serving the people. A significant increase is also seen in the number of PHCs in the states of Assam, Bihar, Karnataka, Rajasthan, Andhra Pradesh, and Uttar Pradesh. While these states observed an increase in the number of PHCs over the time, West Bengal is the only state which observed a reduction in the number of primary health centers between 6th five years plan to 12th five-year plan. Primary health center (PHC) is the first referral unit for six Sub-centres. All PHCs provide outpatient services, at least a majority of PHC has four to six beds for patients.

Table 2.6a: PHCs functioning in India and her major states

States	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
AP	1570	1570	1570	1570	1570	1570	1570	1624	1709	1709	1069
ASM	610	610	844	844	856	938	938	975	978	1014	1014
BR	1648	1648	1641	1776	1863	1863	1863	1863	1883	1883	1883
GUJ	1070	1073	1073	1084	1096	1123	1123	1158	1158	1158	1247
HAR	408	411	420	437	441	444	444	447	452	454	461
KAR	1681	1679	2195	2193	2193	2310	2310	2310	2350	2233	2353
KER	911	909	909	697	813	809	809	809	820	829	827
MP	1192	1149	1149	1155	1155	1156	1156	1156	1156	1157	1171
MAH	1780	1800	1816	1816	1816	1809	1809	1811	1811	1811	1811
ORS	1282	1279	1279	1279	1279	1228	1228	1226	1305	1305	1350
PUJ	484	484	484	394	446	446	449	449	436	427	427
RAJ	1713	1499	1503	1503	1504	1517	1517	1528	1610	2082	2083
TN	1380	1181	1215	1277	1283	1204	1204	1227	1229	1369	1372
UP	3660	3660	3690	3690	3692	3692	3692	3962	3496	3497	3497
WB	1173	922	924	922	909	909	909	909	909	909	909
INDIA	**23236**	**22370**	**23458**	**23391**	**23673**	**23887**	**23889**	**24049**	**24448**	**25020**	**25308**

Source: HMIS, Ministry of Health and Family Welfare, Govt. of India

2.5.3- Community Health Centres (CHC's):

Community health centers (CHC's) are the first referral unit for 4 PHCs and are being established and maintained by the state government under the MNB/BMS programmes. A CHC is to be manned by four medical officers specialized in surgeon, physician, gynecologist, and pediatrician with 21 paramedical officers and other staff. As per the IPHS norms, a CHC should have at least 30 beds, x-ray machine, Operation Theater, delivery room and labs.

Together with sub-centers and primary health centers, community health centers also shows a similar pattern of progress. The number increased to 4833 in 11th five year plan (2007-12) from 761 in 1981-85. Currently, there are 5,396 CHCs working in the country (as on 31st march 2015). The states of Gujarat, Kerala, Madhya Pradesh, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal observed an increase in the number of community health centers during the period.

Table 2.7: CHCs functioning in India and her major states

States	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
AP	164	167	167	167	167	281	281	281	292	292	179
ASM	100	100	103	108	108	108	108	109	110	151	151
BR	101	70	70	70	70	70	70	70	70	70	70
GUJ	272	273	273	281	290	305	305	318	318	300	320
HAR	72	86	86	93	107	107	107	109	110	109	109
KAR	254	254	323	324	325	180	180	180	188	193	206
KER	106	107	107	226	233	224	224	217	220	224	222
MP	229	270	270	333	333	333	333	333	333	334	334
MAH	382	407	407	376	365	365	365	363	361	360	360
ORS	231	231	231	231	231	377	377	21	377	377	377
PUJ	116	126	126	129	129	129	129	132	142	150	150
RAJ	326	337	349	367	368	376	376	382	431	567	568
TN	35	236	206	256	256	385	385	385	385	385	385
UP	386	386	515	515	515	515	515	515	773	773	773
WB	95	346	349	334	348	348	348	348	347	347	347
INDIA	**3346**	**4045**	**4276**	**4510**	**4535**	**4809**	**4809**	**4833**	**5187**	**5363**	**5396**

Source: HMIS, Ministry of Health and Family Welfare, Govt. of India

Table 2.7a: Community Health Centres during Five Year Plan (FYP).

States	1981-85	1985-90	1992-97	1997-02	2002-07	2007-12	2012-17
AP	27	46	207	219	167	281	292
ASM	12	60	100	100	100	109	151
BR	52	147	148	148	70	70	70
GUJ	22	143	185	252	273	318	300
HAR	2	41	63	65	86	109	109
KAR	98	156	242	249	254	180	193
KER	4	54	80	105	107	217	224
MP	58	172	198	342	270	333	334
MAH	147	290	300	351	407	363	360
ORS	59	92	157	157	231	377	377
PUJ	10	70	105	105	126	132	150
RAJ	76	185	261	263	337	382	567
TN	30	72	72	72	236	385	385
UP	74	177	262	310	386	515	773
WB	23	87	89	99	346	348	347
INDIA	**761**	**1910**	**2633**	**3054**	**4045**	**4833**	**5363**

Source: Rural Health Statistics, Ministry of Health and Family Welfare, Govt. of India

2.6- Health Manpower in Primary Healthcare India:

Health manpower is defined as the people who are specialized in promoting health, in preventing and curing diseases. Therefore, the primary objective of health workforce is to provide specialized health personnel in the desired number with all the suitable skills at the right time or right place. The performance of healthcare system of any country depends on the availability of the health care infrastructure and health manpower. Though India has shown progress in the healthcare sector, still there are many areas in the country where there is hardly any physician, Midwife/ ANM available in case of any emergency. It is one of the most crucial aspects of the healthcare system. The situation in the availability of specialist health manpower in India's health sector is even more alarming. Although the number of specialists in broad specialists of internal medicine, general surgery etc. being inadequate, is within manageable proportion, but the availability of specialists in emerging specialists is much less (Mehta J. 2013). In the country, there is an imbalance in the rural-urban availability of specialized doctors, with more advanced and specialist physicians and doctors being available in the urban areas of the country. The reason, why in rural or remote areas the mortality rates are high comparatively to the urban and plain areas, is that people have to go a long distance for seeking healthcare.

India is lagging far behind in all the three indicators of health system shown in table 2.8. According to the MCI (Medical Council of India), the total number of registered doctors is 9,36,488 in 2014. As per the norms of World Health Organization (WHO), there must be 25 health worker per 10,000 population, while India has only 19 health worker (doctors, nurses, and midwives) per 10,000 population. The number of Auxiliary Nurse Midwives (ANM) are 7,56,937 in 2013 in the country. However, when we compared India with the number of the Indian population of more than 1.21 billion, it shows a doctor-population ratio of 1:1700 people against the WHO minimum norm of one doctor for every thousands of population, which is below to that of developed countries and some developing countries. The table shows the availability of health workforce in an international perspective. Table 8, itself narrate the whole story of India's health manpower availability status. Against the developed and some developing countries, India has just 17.1 Nursing and Midwifery health personnel per 10,000 population against the 51.1 nurses and Midwifery personnel for South Africa in 2015. India has only 7.0 physicians per 10.000 population in 2015

which is much fewer than the developed countries such as Canada which has (20.7), France (31.9), Switzerland (40.5), United Kingdom (28.1), and United State of America (24.5). Among the developing countries, Brazil has the highest number of physicians per 10,000 population. Brazil has 18.9 physicians in 2015 against 14.9 physicians in China and 8.3 physicians in Pakistan respectively.

Manpower unavailability is one of the important drawbacks of Indian healthcare system. According to the rural health care statistics 2015, the shortfall in health manpower in the post of female health worker (HW)/ Auxiliary Nurse Midwife (ANM) is 5.21 percent of the total sanctioned post as per the minimum norms of one HW(F)/ ANM per Sub-Centre and Primary health Centre. The reason for the overall shortfall is the inter-state variation in the availability of female health worker. The states of Gujarat, Karnataka, Rajasthan, Tamil Nadu and Uttar Pradesh have the largest shortfall. Similarly, in the post of male health workers, the shortfall is 63.8 percent of the total post.

Table 2.8: Density of Health Care personnel in international Perspective:

country	Physicians per 1000	Nurse and Midwife per 1000	hospital beds per 100,000
Bangladesh	3.6	2.2	6
Brazil	18.9	76	23
China	14.9	16.6	38
Pakistan	8.3	5.7	6
Indonesia	2	13.8	9
Sri Lanka	6.8	16.4	36
South Africa	7.8	51.1	0
India	**7**	**17.1**	**7**
Canada	20.7	92.9	27
France	31.9	93	64
Germany	38.9	114.9	82
Japan	23	114.9	137
Switzerland	40.5	173.6	50
U.K.	28.1	88	29
U.S.A.	24.5	0	29

Source: World Health Statistics, 2015, WHO.

Out of the sanctioned posts, a large percentage of posts are vacant at the national and state levels in the country. For example, 10.5 per cent of the sanctioned posts of Female Health Worker HW (Female)/ ANM are vacant against the 40.7 percent of the sanctioned posts of Male Health Worker HW (Male) as recorded in 2015. At the level of primary health care, there are 41.9% of Female Health Assistance/ LHV, 46.9% of Male Health Assistance and 27.0% of doctors sanctioned posts are vacant in the country as on 31st march 2015. The efficiency of functioning of the sub-centers can be seen by the level of the existing manpower. 5.3 per cent of the sub-centers are functioning without a HW (female)/ ANM and 46.5 percent are functioning without the HW (Male). 3.3 percents are those sub-centers which are functioning without HW (female)/ ANM as well as without a HW (male) as on 31st march 2015.

When we compared the female health worker availability in 2015 with that in 2005, as presented in the annexure 1.2, it is observed that there is an increase in the number of ANMs at SCs and PHCs at the national level. The number of In Position ANMs increased from 133194 in 2005 to 212185 in 2015; an increase almost by 59.3%. Looking at the picture of state level, it has been observed that only some states have shown increased number of ANMs at their SCs and PHCs in 2005 to 2015. The percentage of increase in the number of ANMs in the states of Assam is (0.61), Gujarat (0.07), Haryana (0.75), Karnataka (0.05), Kerala (0.43), Madhya Pradesh (0.33), Maharashtra 0.58), Odisha 0.22), Punjab 0.67), Uttar Pradesh (0.31), and West Bengal (1.06). Table 9; show a reduction in the number of ANMs in 2015 when compared with the figure in the year 2005. The reduction is observed in the states of Rajasthan, Tamil Nadu, and Andhra Pradesh.

Community Health Centres (CHCs) provide highly specialized health care accommodated with highly qualified doctors and medical professionals such as surgeons, obstetricians and gynecologists, physicians and pediatricians. The current position of total specialist's health care personnel at CHCs in 2015 is shown in table 10. The table shows that out of the total (11661) sanctioned posts against the required (21584) posts of total specialists at CHCs in the country during the year 2015, 2881 posts are vacant. The percentage of vacant posts against the sanctioned posts in India is 67.6 per cent. Moreover, as compared to the requirement for existing health care infrastructure, the country experiences a shortfall of 17525 numbers of posts of total specialists in the year 2015 (table 2.9).

The shortfall of total specialists is comparatively high in most of the states. In 2015, the highest shortfall of total specialists is recorded in the states of Kerala, out of the total 888 required total specialists only 39 are in position and state experiences a shortfall of 849 total specialists posts at CHCs. The percentage shortfall of total specialists in Kerala is 95.6, followed by Gujarat with a shortfall of 94.2 percent in the required total specialists at the CHCs, other states like Haryana has a shortfall of 93.1 percent, West Bengal has 91.8 percent. The lowest shortfall is recorded in the states of Karnataka with 39.1 percent and Maharashtra with 59.9 percent of the shortfall in the required total specialist's posts at CHCs in 2015 (figure 2.1).

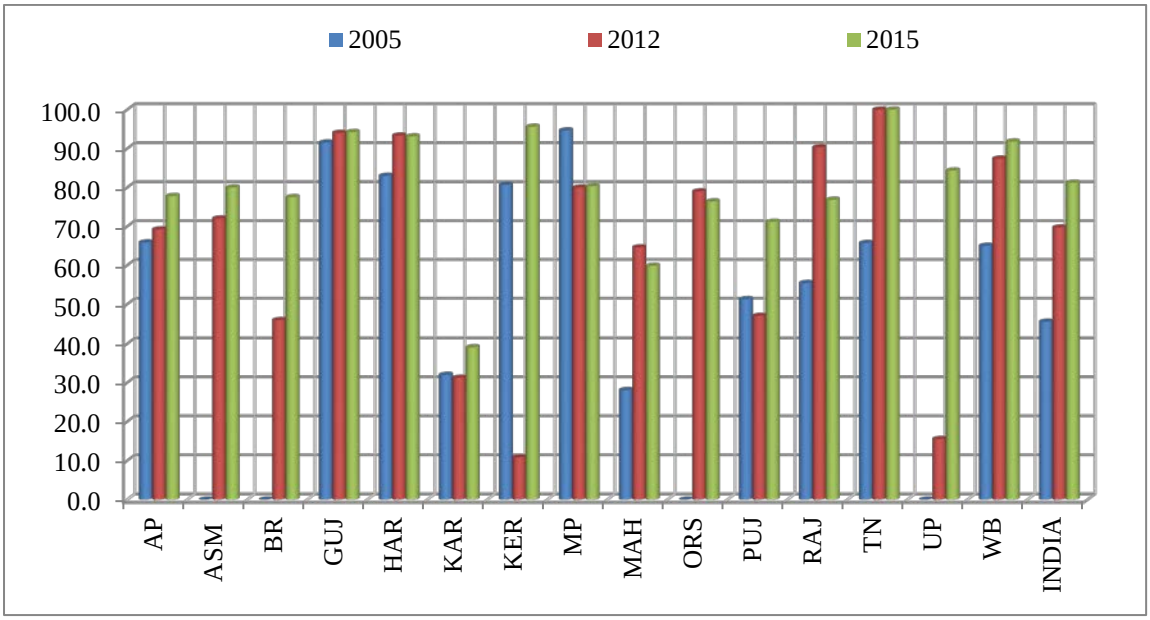
On comparing with the manpower in position in 2015 with that in 2005, as presented in the table 2.9, it was seen that in 2015, the total specialists in position has increased as against that in 2005.

Table 2.9: Total Health Specialists at Community Health Centres (CHCs) in India and States

States	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Mean	S.D.	Var.
AP	224	224	166	235	480	480	408	346	275	275	159	297.5	110.1	37.0
ASM	200	NA	NA	365	142	209	216	122	119	121	121	179.4	76.2	42.5
BR	NA	NA	104	104	104	104	151	151	98	69	63	105.3	28.6	27.1
GUJ	122	92	82	81	76	79	76	76	74	74	74	82.4	13.5	16.4
HAR	45	49	39	45	79	70	45	29	26	29	30	44.2	16.3	36.9
KAR	694	691	691	691	691	726	584	495	495	495	502	614.1	94.7	15.4
KER	114	82	115	115	794	774	774	774	33	39	39	332.1	339.1	102.1
MP	NA	49	503	220	245	245	227	267	263	263	263	254.5	103.2	40.5
MAH	1099	1099	448	352	438	954	600	514	489	462	356	619.2	274.4	44.3
ORS	NA	NA	NA	NA	371	469	438	317	305	346	356	371.7	56.3	15.2
PUJ	315	226	177	210	254	300	300	279	255	202	173	244.6	48.2	19.7
RAJ	586	581	600	651	598	492	569	148	148	651	526	504.5	173.8	34.4
TN	48	48	725	NA	0	0	0	0	0	0	0	82.1	215.1	262.0
UP	NA	NA	413	618	618	1256	1894	1740	1740	484	448	1023.4	592.8	57.9
WB	133	133	624	186	175	175	175	175	1062	115	114	278.8	283.0	101.5
INDIA	**3953**	**3550**	**5117**	**4279**	**5789**	**6781**	**6935**	**5858**	**5805**	**4091**	**4078**	**5112.4**	**1135.9**	**22.2**

Source: Rural Health Statistics, 2005, 2012, 2015, Government of India

Figure 2.2: Percentage Shortfall of Total Specialists in India and States.



Source: Rural Health Statistics, 2005, 2012, 2015, Government of India

2.7- Healthcare Facilities in Primary healthcare:

Facilities at the Primary Health Centres also plays a crucial role in the health standard of the people. Generally, primary health centers (PHCs) are the first interaction point of health seekers and health personnel. Thus, the availability of facilities at PHCs is very important. Not only in the healthcare infrastructure (Scs,PHCs and CHCs), but the country also faces the lack of healthcare facilities at these centers, and the most vulnerable are the women and child. In rural areas, PHCs are the nearest advanced health care centers where rural people get health care.

In India as a whole, 25,308 PHCs are functioning, out of which only 70 percent have labour rooms, 30 percent have operation theaters, and the percentage of PHCs that have at least 4 beds is only 70.3 percent. The percentage of the shortfall in the availability of facilities with the Health care centers presented the complete picture of health status in the country. On account of the unavailability of labor rooms, women are birthing either at their homes or at an open place which results in serious health problems including the risk of maternal and neonatal deaths. In the case of an emergency when women need an operation for birthing, it becomes very important that the nearest health care center must have equipped with an operation theater. But in the case of India, only 39 percent of PHCs have such an important facility. The

next two days after delivery are very critical for the mother as well as for the newborn. For seeking postnatal care (Care after Delivery), mothers have to be in the health care centers. But the country experiences a shortfall in the number of beds with the PHCs. Only 70.3 percent of Primary Health Centres have at least 4 beds.

Looking at the state wise picture, it is observed that there is a huge inter-state disparity in the availability of health care facilities. Among the major states, only two states viz. Andhra Pradesh and Madhya Pradesh have 100 per cent required facilities at primary health centers. Uttar Pradesh has 100 per cent PHCs which have at least 4 beds as recorded in 2015, while the labour room and operation theater has 45.4 and 40.5 per cent respectively. The states of Assam and Orissa have the least number of Operation Theater and at least 4 beds in their PHCs. In 2015, Orissa has 0 per cent Operation Theater while the state has 77.6 per cent of PHCs where there is a labour room. In Kerala, out of the total 827 PHCs, only 62 has a labour room, 60 has Operation Theater and 251 has at least 4 beds.

Table 2.10: Facilities at Primary Health Centres for Women and Child health care

		Number of PHCs With					
States	**No. of PHCs**	**Labour Room**	**%**	**Operation Theatre**	**%**	**At least 4 beds**	**%**
AP	1069	1069	100	1069	100	1069	100
ASM	1014	720	71	28	2.8	296	29.2
BR	1883	795	42.2	496	26.3	NA	NA
GUJ	1247	1123	90.1	1158	92.9	1123	90.1
HAR	461	324	70.3	54	11.7	274	59.4
KAR	2353	1677	71.3	1239	52.7	2267	96.3
KER	827	62	7.5	60	7.3	251	30.4
MP	1171	1140	97.4	435	37.1	1154	98.5
MAH	1811	1640	90.6	1489	82.2	1811	100
ORS	1305	1013	77.6	0	0	28	2.1
PUJ	427	272	63.7	107	25.1	251	58.8
RAJ	2083	1556	74.7	607	29.1	1507	72.3
TN	1372	1229	89.6	73	5.3	888	64.7
UP	3497	1587	45.4	1416	40.5	3497	100
WB	909	909	100	104	11.4	841	92.5
INDIA	**25308**	**17815**	**70.4**	**9875**	**39**	**17796**	**70.3**

Source: Rural Health Statistics, 2015, Ministry of Family and Health Welfare, Govt. of India

The overall situation of available facilities is somewhat in a good position, but the state level data has plagued the situation. Until and unless, people did not get the better health care facilities at their nearest places, health standard of the people could not be improved.

2.8- Average Rural Population Covered by Health Centres:

In spite of a vast network of primary health care in rural areas in the country, there exists a wide gap of accessibility of healthcare infrastructure across the states. Moreover, health is a state subject; there are imbalances and variations in the availability of primary health care centers in rural areas between the states.

Table 2.11: Average Rural Population Covered by a SC, PHC, and CHC.

States	Total Rural Population	SC	covered population	PHC	covered population	CHC	covered population
AP	49,386,799	4501	0.91%	32979	6.68%	193020	39.08%
ASM	31,169,272	5801	1.86%	26437	8.48%	177530	56.96%
BR	103,854,637	9491	0.91%	49040	4.72%	1319163	127.02%
GUJ	60,383,628	4770	0.79%	29961	4.96%	115649	19.15%
HAR	25,353,081	6495	2.56%	36364	14.34%	151462	59.74%
KAR	61,130,704	4045	0.66%	16780	2.74%	194142	31.76%
KER	33,387,677	3819	1.14%	21075	6.31%	77996	23.36%
MP	72,597,565	5997	0.83%	45426	6.26%	157357	21.68%
MAH	112,372,972	5818	0.52%	33990	3.02%	170989	15.22%
ORS	41,947,358	5229	1.25%	26797	6.39%	92760	22.11%
PUJ	27,704,236	5877	2.12%	40619	14.66%	115628	41.74%
RAJ	68,621,012	3575	0.52%	24736	3.60%	90830	13.24%
TN	72,138,958	4276	0.59%	27195	3.77%	96700	13.40%
UP	199,281,477	7569	0.38%	44414	2.23%	200928	10.08%
WB	91,347,736	6005	0.66%	68408	7.49%	179202	19.62%
IND	**1,210,193,422**	**5437**	**0.04%**	**33323**	**0.28%**	**155463**	**1.28%**

Source: Rural Health Statistics, Ministry of Health and Family Welfare, Government of India

The states of Assam, Haryana, Kerala, Orissa, Punjab, Andhra Pradesh, and West Bengal have more average rural population covered by a Sub-Centre as compared to other states. The states of Punjab, Haryana, Assam, Andhra Pradesh, and West Bengal have the best coverage of the rural population by a primary health center. Likewise, the states of Bihar, Assam, Punjab, Andhra Pradesh, Haryana, Kerala, and West

Bengal have more average of the rural population covered by a community health center. The states with a high population like Uttar Pradesh, Maharashtra, and Bihar have a low percentage of population converge among all the states. Bihar has more than 10 crores of the population, out of which only 0.19 percent of the population is covered by the sub-centres.

2.9- Availability of Primary health Care in rural areas (SC/ PHC/ CHC):

A large part of our population lives in rural areas and still experiences a decisive improvement in their living standard. The percentage of below poverty line (BPL) population is declining continuously, but only at a modest speed. Many people still lack access to health care services because of unavailability of healthcare infrastructure without which rural people can not avail better health care services. There is a wide gap in the availability of primary health care in rural areas. Table 13 shows the average rural area covered by primary health care in India and in its states. In India, there is a huge gap in the availability of primary health care centers

Table 2.12: Average Rural Area (Sq. Km.) - Covered by Primary Healthcare Centres (as on 31st march 2014).

State/UT	Sub Centre	Primary Health Centre	Community Health Centre
Andhra Pradesh	2.62	7.09	17.16
Assam	2.31	4.93	12.78
Bihar	1.74	3.95	20.49
Gujarat	2.89	7.24	14.23
Haryana	2.32	5.49	11.19
Karnataka	2.53	5.16	17.54
Kerala	1.57	3.7	7.11
Madhya Pradesh	3.31	9.1	16.94
Maharashtra	3.01	7.26	16.29
Odisha	2.7	6.11	11.36
Punjab	2.28	6	10.12
Rajasthan	2.73	7.17	13.75
Tamil Nadu	2.07	5.23	9.86
Uttar Pradesh	1.91	4.62	9.82
West Bengal	1.62	5.47	8.85
All India	**2.55**	**6.3**	**13.6**

Source: Rural Health Statistics, Ministry of Health and Family Welfare, Govt. of India

2.10- Health Care in Tribal areas:

In order to achieve a good health standard, it is very important to make easy access to the health care centers. India has vast land with geographical diversity. The tribal population is the most vulnerable population in India. Geographic factors determine to a great extent access to and use of health services (Shannon et al. 1969, Snow et al. 1994). The population lives in the so far hilly areas, where they do not have an adequate transportation system. To ensure adequate access to health care services, the government of India established a large network of healthcare centers in the tribal areas of the country. Though the tribal areas have a large network of healthcare centers, there is a shortfall in the required number of primary healthcare centers. In 2015, there are 27,958 sub-centres (SCs), 3,957 PHCs, and 998 CHCs are functioning in the country. At all India level, there is a shortfall of 6,796 sub-centres, 1,267 PHCs, and 309 CHCs. Among the states, there is a huge diversity in the shortfall of tribal healthcare infrastructure in the country. Table 14 presents the interstate diversity in tribal healthcare infrastructure.

Table 2.13: Primary Health Care Centres in Tribal Areas in India

States	Tribal Population in rural areas	Number of SCs, PHCs, CHCs in tribal Areas								
		Sub Centre			PHCs			CHCs		
		R	P	S	R	P	S	R	P	S
AP	2293102	764	691	73	114	130	*	28	11	17
ASM	3665405	1221	1283	*	183	283	*	45	31	14
BR	1270851	423	23	400	63	6	57	15	0	15
GUJ	8021848	2673	2775	*	401	382	19	100	70	30
HAR	0	0	0	0	0	0	0	0	0	0
KAR	3429791	1143	321	822	171	64	107	42	7	35
KER	433092	144	831	*	21	137	*	5	12	*
MP	14276874	4758	2952	1806	713	332	381	178	104	74
MAH	9006077	3002	2057	945	450	315	135	112	67	45
ORS	8994967	2998	2689	309	449	426	23	112	135	*
PUJ	0	0	0	0	0	0	0	0	0	0
RAJ	8693123	2897	1574	1323	434	210	224	108	63	45
TN	660280	220	564	*	33	66	*	8	20	*
UP	1031076	343	NA	NA	51	NA	NA	12	NA	NA
WB	4855115	1618	3195	*	242	304	*	60	108	*
INDIA	**93819162**	**31257**	**27958**	**6796**	**4676**	**3957**	**1267**	**1156**	**998**	**309**

Source: Rural Health Statistics, 2015, Ministry of Health and Family Welfare, Govt. of India

Where: R- Required, P- Position, S- Shortfall

Table 14 shows that the states of Haryana and Punjab have no tribal population. Among the states, the highest shortfall in the number of sub-centres is reported in the states of Bihar (400) out of total 423 required sub-centers in the state, followed by the states of Karnataka (822), Rajasthan (1323) out of total 1143 and 2897 required sub-centers respectively. In the case of PHCs, the highest shortfall is reported in the states of Bihar with a shortfall of 57 PHCs out of 63 required PHCs in the state followed by the states of Karnataka and Rajasthan. The states of Bihar, Karnataka, Rajasthan, Madhya Pradesh, and Maharashtra reported the highest shortfall in the number of sub-centers in 2015. Bihar is the only state that reported 100 percent shortfall of CHCs during the year 2015. Karnataka shows a shortfall of 35 CHCs out of total 42 required community health Centres (CHCs).

2.11- National Rural Health Mission (NRHM):

To address the health needs of the rural population, the Indian government has started National Rural Health Mission (NRHM) in 2005. The main function of the mission is to establish a fully functional, community owned, and decentralized healthcare system in rural areas. Under the mission, a wide range of healthcare determinants, such as water, nutrition, social and gender equality are taken together to improve the health condition of most privileged sections of the Indian society. Under the national rural health mission, priority is given to the north eastern states and Empowered Action Group (EAG) States as well as Jammu and Kashmir and Himachal Pradesh enjoys special attention. The mission is a commitment of the government to increase government spending on healthcare from 0.9 percent to 2-3 percent of GDP. The mission aims to check the availability of healthcare infrastructure to enable health system to cater effectively as promised under the minimum needs programme and promote existing policies of healthcare for strengthening the public health management and service delivery system.

Provision of female health activist in each village, village health plan prepared by the local people team under the guidance of Health and Sanitation Committee of the Panchayat, strengthening the rural hospital for more curative and preventive care to the community, integrate Health and Family Welfare Programmes and funds for effective utilization of resources and for a sound delivery system of primary

healthcare are the main key components of the National Rural Health Mission (NRHM).

The National Rural Health Mission is launched with the goals of reduction in maternal mortality rate and infant mortality rate; universal healthcare access to healthcare services such as child health, women's health, nutrition and immunization, water, sanitation, and hygiene. NRHM seeks to upgrade the local healthcare tradition into the public healthcare system. The mission plans to decentralize all the programmes for district management of health for the effective results of the mission. The mission aims to seek the interstate and inter-regional disparities in the country especially in the high focus states, including unmet needs of public healthcare infrastructure among the 18 high focus states. The mission also seeks to have a control over the population growth through population stabilization and to balance the gender and demographic imbalances in the country, especially in rural areas.

National Rural Health mission is launched with the strategies to increase the access to improved healthcare services at the local level or at the household level through the local female health activist called as Accredited Social Health Activist (ASHA). Under the mission, the existing healthcare infrastructure is sought to be strengthed, such as Sub-Centre, Primary Health Centre, and Community Health Centre through an untied fund to enable the local people to easily access the primary health care centres, and also a Community Health Centre per lakh population with 30-40 bed for improved curative and preventive care to a normative stand.

In the 12^{th} plan of the planning commission, the National Rural Health Mission (NRHM) will be strengthened under the National health Mission. The focus of the mission to cover the rural population still continues beside including the non-communicable diseases and expanding its health coverage to urban health population. Thus union cabinet, In May 2013, launched the National Urban Health Mission (NUHM) as a sub-mission of National Health mission (NHM) together with the NRHM being the other sub-mission.

Major Programmes or Initiatives under the Mission:

A. Accredited Social Health Activists (ASHAs)
B. Health care contractors

C. Janani Suraksha Yojna (JSY)
D. National Mobile Medical Units (NMMUs)
E. National Ambulance Services (NAS)
F. Janani Shishu Suraksha Karyakram (JSSK)
G. Rashtriya Bal Swasthya Karyakram (RBSK)
H. Mother and Child Health Wings (MCH Wings)
I. Free Drug and Free Diagnostic Service
J. District Hospital and Knowledge Centre (DHKC)

2.12- Urban Health Care in India:

Almost 30 percent of the total population lives in urban areas. This proportion of the population is well aware and has ready access to health care. Data from various government reports indicate that the health condition of urban population is much better than rural populations. However, migration from rural to urban creates problems in urban areas in the name of the urban slum; the slum population faces greater health problems due to unhygienic living condition, over-crowding, lack of safe drinking water etc. Thus, there is a need to be more focused on urban health.

Realizing the insufficiency of available healthcare infrastructure to meet the growing burden of health problems of urban population, the municipalities, state, and central government have tried to make more affordable health care facilities in urban areas. The Majority of hospitals and beds, doctors, and other healthcare workers are in urban areas. The urban health facilities provide services to both rural and urban people. Unlike the rural healthcare system, there have been no efforts to provide well organized 3 tier health care delivery system such as primary, secondary and tertiary health care system. Thus in many areas, there are primary health care facilities and some of the existing infrastructure is under-utilized while, there is over-crowding in the secondary and tertiary care centers.

2.13- Secondary Healthcare:

Secondary health care refers to the second tier of three tier structure of the Indian healthcare system in which patients refer from the primary healthcare to the specialist in better hospitals for treatment. In India, secondary healthcare includes district hospitals and community health centers at the block level.

Secondary health care also takes care of the primary health care needs of the urban population. The rural-urban migration leads to more urban population and this inevitably leads to over-crowding in the district hospitals and also to underutilization of the specialized services at the district hospitals. During the ninth five-year plan, it was an identified priority to boost the secondary health care system. As health is a state subject thus, every state tries to strengthen secondary health care in the state. In addition to the fund's states get from the central government or state plan, some states have taken the loan to build up district hospitals which are equipped with specialized machines and services.

Table 2.14: Number of Secondary health care centers functioning in India and her states

States	Sub Divisional Hospital	District Hospital (DH)	Mobile Medical Units
AP	31	8	0
ASM	13	25	65
BR	45	36	7
GUJ	31	21	30
HAR	20	20	9
KAR	146	32	19
KER	79	16	13
MP	66	51	84
MAH	86	23	40
ORS	27	32	114
PUJ	41	22	24
RAJ	19	34	52
TN	240	31	407
UP	0	160	133
WB	37	22	40
INDIA	**1022**	**763**	**1253**

Source: Rural Health Statistics, 2015

Secondary Health Care system consists of Sub Divisional Hospitals, District Hospitals, and Mobile Medical Units. Currently, in 2015, India have 1022 Sub Divisional Hospitals (SDH), 763 District Hospitals (DH), and 1253 Mobile Medical Units (MMU). There is a huge inter-state disparity in India in terms of secondary

health care infrastructure. Among the states, Tamil Nadu (240) has the highest number of Sub Divisional Hospitals followed by the Karnataka (146). Uttar Pradesh has not a single Sub Divisional Hospital (SDH) in the year 2015, while the number of District Hospitals and Mobile Medical Units are 160 and 130 respectively. The highest number of Mobile Medical Units is in the states of Tamil Nadu. Tamil Nadu leads in the mobile Medical Units with a number of 407 mobile medical units (Table 15)

The states of Andhra Pradesh, Kerala, West Bengal, Assam, and Gujarat have the least number of district Hospitals. Among these states, Andhra Pradesh (08) has the lowest number of District Hospitals in 2015.

Table 2.15: Doctors in Position at District, Sub District, and Sub Divisional Hospitals

States	District Hospitals		Sub-District/ Sub Divisional Hospitals	
	Sanction	In position	Sanction	In position
Andhra Pradesh	395	241	405	316
Assam	NA	683	NA	155
Bihar	NA	1088	NA	92
Gujarat	NA	NA	NA	NA
Haryana	563	741	225	167
Karnataka	1703	1254	1940	1329
Kerala	NA	498	487	623
Madhya Pradesh	2143	1422	646	505
Maharashtra	1292	983	1362	1144
Orissa	1598	858	363	244
Punjab	684	565	708	481
Rajasthan	1716	1110	498	376
Tamil	1639	1339	2630	2298
UPNadu	2551	2108	0	0
West Bengal	1065	882	1935	1307
INDIA	**19646**	**18436**	**12067**	**10018**

Source: Rural Health Statistics, 2014, Govt. of India, Ministry of Health and Family Welfare, Statistics Division

Table 2.15 presents the shortfall of doctors at the secondary health care centers in India and its major states. In 2015, there were 19,646 doctors sanctioned in the District Hospitals, among whom 18436 were in position. At the Sub-District/ Sub

Divisional Hospitals, 10018 doctors were in the position during the year 2015 against the 12067 sanctioned posts. Almost 93.8 percent district hospitals and 80 percent of Sub-District/ Sub Divisional Hospitals have doctors. The unavailability of doctors at these health care centers is one of the drawbacks of Indian Health Care System.

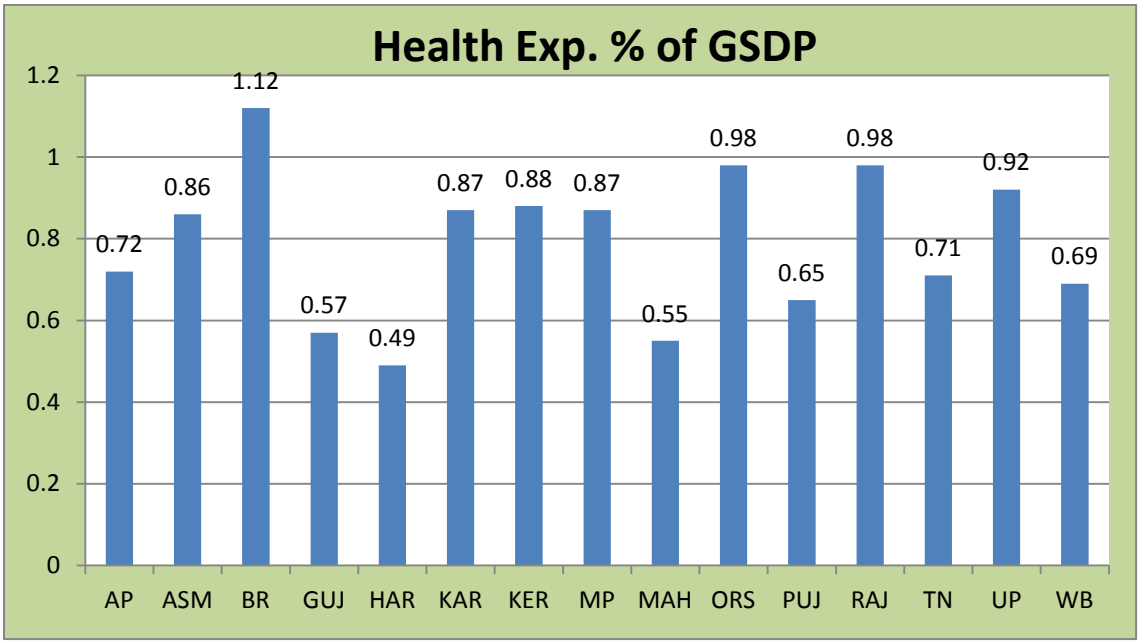
Looking at the state wise situation, the picture is very gloomy. It may be noted that there is a huge inter-state variation in doctor's availability with District, Sub-District/ Sub Divisional Hospitals. Almost all the states experience a shortfall of doctors.

2.14- Public-Private Partnership (PPP) in Healthcare:

To address the unmet needs of healthcare, the cooperation between private and public sector is playing a vital role. The public and private partnership (PPP) is very important and is an institutional arrangement for implementing and managing the government health programmes or schemes in partnership with the private sector. The private sector includes all the non-governmental agencies, self-help groups, corporate sector, individual and community-based organizations.

Public-Private Partnership (PPP) in health care is an approach to delivering public health care services through the combined efforts of public, private and other organizations by contributing to their core competency. PPP in the healthcare sector is defined as an arrangement between the public (government) and the private sector in delivering health care services to the citizens. PPPs provide a means for coordinating with non-governmental agencies to undertake integrated, comprehensive efforts to meet the basic needs. Their strategy leads to better health outcomes. Partnership with the private sector has emerged as a new path of reforms, in part due to financial constraints in the public sector. Due to deficiencies in the healthcare system, the poor people in India have been forced to go for healthcare from the private sector, and often they borrow to pay them for seeking health care. Healthcare which is very crucial to the growth of an economy has seen the vast improvement over the past decade in India. Yet, India's total expenditure on healthcare as a percentage of Gross Domestic Product (GDP) is still lowest in the world. Gross Domestic Product (GDP) is a meaningful indicator for comparison between countries, and in the case of states, Gross State Domestic Product (GSDP) is considered as the most meaningful indicator for comparison.

Figure 2.3: State Health Exp. As % of GSDP:



Source: NHA, 2001-02 & 2004-05

Total health expenditure in India was 4.25 per cent of GDP in 2004-05. Out of this percentage, the share of government expenditure on health was less than one percent. There is an urgent need to increase this percentage to 2-3 percent of GDP. Due to the resource constraints, increased government expenditure share in total health expenditure is not possible. Thus, there is an urgent need to patch up with the private sector to finance the health care system for a healthy healthcare delivery system. Figure 2.2, presents the health expenditure as a percentage of GSDP for some selected states. Here, we find that there is a huge diversity among the states in terms of public health expenditure. Andhra Pradesh (0.72), Gujarat (0.57), Haryana (0.49), Kerala (0.88), Karnataka (0.87), Punjab (0.65), Rajasthan (0.98), Uttar Pradesh (0.92), West Bengal (0.69) are demonstrating very low health expenditure. Among these states, Bihar is the only state demonstrating 1.12 per cent of GSDP in health care.

2.15- Tertiary Health Care in India:

The third level of Indian health care system is called as tertiary health care. At the tertiary health care, specialized preventive care is given to the patients usually on referral from primary and secondary health care centers. Tertiary health care includes medical colleges and advanced medical research institutes.

Tertiary care has played a key role in achieving universal health care. Though it is required at the last stage of treatment or we can say that, only in 1 percent of cases, it plays an important role in calculating the healthcare system structure as a whole. As tertiary health care centers support primary and secondary health care, it is very necessary for effective care at the primary health care centers (PHCs and CHCs). The high cost of health care seeker in most of the health care system is due to the high expenses involved in tertiary health care centers. Tertiary health care center is a healthcare center within which medical education and research take place. While primary and secondary health care centers in the country are inadequate, tertiary care is even more inadequate because of the high expenses of installation and high expenses of seeking care in these health care centers.

Table 2.16: Number of medical colleges in the country from 1990-91 to 2014-15.

Year	No. of Medical Colleges	Admissions
1991-92	146	12199
1992-93	146	11241
1993-94	146	10400
1994-95	152	12249
1995-96	165	7039
1996-97	165	3568
1997-98	165	3949
1998-99	147	11733
1999-00	147	10104
2000-01	189	18168
2004-05	229	24690
2005-06	242	26449
2006-07	262	28928
2007-08	266	30290
2008-09	289	32815
2009-10	300	34595
2010-11	314	29263
2011-12	356	38210
2012-13	381	43576
2013-14	381	48567
2014-15	385	46456
CAGR %	**0.04**	**0.06**

Source: National Health Policy, Ministry of Health and Family Welfare, Govt. of India

Here we use compound annual growth rate to identify the growth rate of medical colleges and their admission capacity. In 1990-91 there were only 146 medical colleges with 12199 admission capacity in these colleges which increased to 385

medical colleges in 2014-15 with 46564 admissions. While medical colleges in the country show a compound annual growth rate (CAGR) of 0.04 percent during the study period, admissions in these colleges increased by an annual growth percentage of 0.06 percent (Table 2.16). The growth percentage is very low in medical colleges and in the number of students enrolled in these colleges respectively. Country experiences shortage of doctors particularly at the rural level, as we have seen above in the health manpower section.

Table 2.17: Number of institutions and admission capacity in General Nurse Midwives and Auxiliary Nurse Midwives in India.

Year	General Nurse Midwives		Aux. Nurse Midwives	
	No. of Institution	Admission Capacity	No. of Institution	Admission Capacity
2003-04	635	NA	237	NA
2005-06	1312	50628	271	6942
2006-07	1597	59138	312	7467
2007-08	1620	62647	329	6502
2008-09	1820	65109	491	10680
2010-11	2028	80332	676	15335
2011-12	2670	109224	1642	46719
2013-14	2865	115844	1853	52479

Source: National Health Policy, Ministry of Family and Health Welfare, Govt. of India

The number of general nurse midwives institute and auxiliary nurse midwives also shows a good progress in the country. In the year 2013-14, there were 2,865 and 1853 general nurse midwives and auxiliary nurse midwives training institutes running in the country. These institutes have 115844 and 46719 number of admission capacities respectively (Table 2.17).

Tertiary health care is one of the key aspects of the common public health care system that require intensive care and medical care in an emergency condition. Generally, tertiary health care should be well integrated and well equipped with all the modern medical technology. Because most often patients would be taken care of at the primary and secondary health care centers. Patients would be referred to the tertiary health care centers in case of insufficient treatment and referred back to the primary and secondary health care centers after getting treatment at tertiary health care centers. These services, especially for emergency treatment, should be available to the

common public as closest to their place of living as possible. However, in the country, tertiary health care is not working with the general public health care system. The Indian health care system functions up to the district level, and includes, PHCs, CHCs, Sub-District/ District Hospitals). Apart from this chain of health care system tertiary health care system working under the department of medical education. While some of the medical colleges are supposed to working for the government, but they do not have enough resources, healthcare infrastructure, and manpower to do the efficient job of health care.

The tertiary health care institutions under the government sector face a shortfall of resources. These institutions do not have enough funds for equipment and maintenance of equipment, supply of consumables and improvement in the existing infrastructure to meet the rapidly growing burden of population and diseases. There is an urgent need to increase the facilities at tertiary health care up to an optimum level, to enhance the quality of services provided at the tertiary health care centers.

2.16- Conclusion:

India is a vast country, with more than 1.2 billion population, and it stands as the second most populous country after China. There is a huge inter-state diversity in the primary healthcare system in India. To attain a uniform health care system the country needs a huge fund to establish adequate healthcare infrastructure in rural areas. Among the developed and some other developing countries, India lags behind in terms of health status, per capita health expenditure, public health expenditure etc. The infrastructure is old and requires repair. OPD patient load is very high, the institutional delivery load is also very high, however, the PHC has only 4-beds which require being augmented, there is no referral transport service available and laboratory services are inadequate (NRHM, Second Common Review Mission Report, 2009). Thus, there is a need to increase the public health spending in the country to drop down the inadequacy and improves the healthcare system.

Healthcare is the right of every people, but the lack of qualified doctors/ nurses and other basic amenities of seeking health care thwarts its accessibility to 60 per cent of the population in the country. Almost 70 percent of the population lives in rural India where the availability of medical facilities is only a dream and the existing facilities are in a deplorable condition. Considering this picture of public health care system, it

is apparent that there is a dire need of adequate health care infrastructure and of some new medical practices that ensures the quality of healthcare accessibility to the most deprived part of the country such as the remote areas, tribal/ hilly areas. The SCs, PHCs, and CHCs are all inadequate in number. The existing infrastructure is underutilized because of the lack of the doctors, nurses and other health personnel. At an all India level the condition is not so worse but due to the inter-state diversity in the availability of health care infrastructure to the rural people, the scenario of Indian health care system has become more pity. All the states have less than what they require. There is a huge diversity among the states in terms of availability, accessibility of the rural health care centers especially the primary health care centers in rural areas.

All the three sectors of the public health care system are inadequate. Secondary and tertiary health care system are the key aspects of public health care system because they provide emergency treatment to the patients in case of an emergency. But the secondary and tertiary health care in the country is also not sufficient to cater such a huge population. The annual growth rate of medical colleges during the study period is only 0.02 per cent.

There is a need to invest more in the health care system to establish new healthcare centers especially, in the rural areas. The country is experiencing a lack of doctors, nurses, health worker, and other health personnel, thus there is a need to announce some fellowship or scholarship to the poor students to study healthcare and to cater their counterparts.