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Health Infrastructure and Health Care Expenditure in Karnataka

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Abstract

Gone are the days, when economic development used to be measured by referring to growth rate in GDP, these are the days where development is measured by referring to a wide variety of socio-economic indicators. Of these health indicators play a vital role, owing to the greater emphasis being given to human development indices in the recent decades. In this connection health infrastructure and expenditure on health, assumes in significance. The study points out that health infrastructure has not been spread evenly throughout the state. As the study reveals most districts in the northern part of Karnataka have been suffering from inadequate health infrastructure. The state has not yet been successful in addressing the problems of health care inequalities. Turning to the trends in public expenditure on medical and public health, the data reveals interesting findings of the total public expenditure on medical and public health, the revenue expenditure has all along been higher than the capital expenditure. In respect of per capita health expenditure, there has been only a nominal rise i.e., from is Rs. 134 in 1995-96 to Rs. 263 in 2009-10. Interestingly health expenditure as per cent of NSDP which was 1.4 in 1995-96, turned out to be 1.5 in 2009-10 reflecting no tangible rise in health expenditure over the years. The public investment on health is not sufficient for the growing population. Hence, increased public investment on health is a necessary pre-requisite for achieving goals of growth, equity and stability.

Key Words: Health infrastructure, health expenditure, gross domestic product, net state domestic product, per capita.

1. Introduction

Health Infrastructure is an important indicator to understand the healthcare delivery provisions and mechanisms in a country. It also signifies the investments and priority accorded to creating the infrastructure in public and private sectors. The government of Karnataka has accorded greater significance to the health sector in the recent years. Good health has become one of the important human development indicators that have assumed greater significance and relevance for the overall development of the state. Access to better health facility has become an essential component of the health strategy adopted by the State. It has made much significant progress in respect to improving the health status of its people in the last few years, but still it has to go a long way in achieving the targeted health goals.

2. Importance of Health infrastructure

Better health is essential for overall development and happiness of any society. Provision of better health care to the people is an essential component of the state in achieving overall socio-economic development. Health is a major component of welfare of any society. Every welfare state must accord top priority to investment in health infrastructure for two reasons. First, improved health status may increase input and efficiency of human resources and stimulates economic growth. Second, Good health may reduce communicable diseases which would save unnecessary economic expenditure achieved as a result of reduction in communicable diseases has external economies.

Everyone wishes to be away from disease, disability and premature death. Good health is an important contributor to economic growth in any nation. In this background both policy makers and researchers have recognized the importance of investments in health and health infrastructure. Public spending on health and increase in incomes among the poor, seem to be the major determinants of health infrastructures, which would contribute to the better health status of the community. Such an outcome also depends on equitable sharing of provision of health services coupled with life enhancing activities like nutrition and education. Therefore, the role of Government is very important in order to achieve better health in a country.

3. Health infrastructure in Karnataka

The government of Karnataka has accorded priority status to health sector over the years and has taken efforts to improve the standard of living of people thereby creating a positive influence on the health and well being of the citizens of the State. The structural units of health sector are health infrastructure and its related health care financing, which are the key input indicators in the health delivery system. The state is following the national pattern of three tier health infrastructure in rendering Primary health care through Primary health centres (PHCs), Subcentres, and Community Health Centres for its people by way of implementing various national and state health programme of public health importance through its network of various types of health and medical institutions.

Coordinated efforts have been made under various rural health programmes to provide effective and efficient services to the people in the rural areas. But in an attempt to tackle both the broader causes of health problems and administrative political and other implementation problems, the WHO and UNICEF sponsored a concept called "Primary Health Care". Primary Health Care is one of the items under the restructured 20 Point Programme.

4. District-wise Primary Health Centres in Karnataka as on May 2012

Karnataka, over the period, has made substantial progress in building credible health infrastructure at different levels. The state has a wide institutional network providing health services both in urban and rural areas. The aim of establishing primary health centres, was to provide a better and healthy way of living to the rural population, by combining curative, and preventive and promotive aspects of medicine into one integrated service package and carrying the services to the villages and homes through composite institutions. These primary health centres were to be focal points for the correlation of therapeutic, preventive and promotional aspects of health and well being. The PHCs are established and maintained by the State Governments under the Minimum Needs Programme (MNP)/ Basic Minimum Services (BMS) Programme. PHC is the first contact point between village community and the Medical Officers. It is managed by a Medical Officer supported by 14 Para-medical and other staff. It acts as a referral unit for 5-8 sub-centres and has 6

beds for in patients. The activities of PHC involve curative, preventive, promotive and family welfare services. The increase in Primary Health Centres is due to the upgradation of 516 Primary Health Units. The PHCs were envisaged to provide an integrated curative and preventive homes health care to the rural population.

Table-1
District-wise Primary Health centres in Karnataka as on May 2012

District	Rural Population	PHCs		
		No. of PHCs	Population per PHC	Rank
Bagalkote	1292036	49	26368	30
Bangalore (R)	719564	47	15310	13
Bangalore (U)	868971	102	15245	12
Belgaum	3567739	150	23785	27
Bellary	1613038	76	21224	23
Bidar	1276647	56	22797	24
Bijapur	1674311	67	24990	28
Chikballapur	975188	57	17109	18
Chikmagalur	898079	92	9762	1
Chitradurga	1332012	84	15857	16
Ch'nagar	845669	60	14094	11
D. Kannada	1091888	70	15598	14
Davanagere	1317816	105	12551	7
Dharwad	797430	34	23454	26
Gadag	685450	39	17576	19
Gulbarga	1732298	90	19248	21
Hassan	1399214	134	10442	2
Haveri	1242442	68	18271	20
Kedge	473659	30	15789	15
Kolar	1056953	63	16777	17
Koppal	1157659	50	23153	25
Mandya	1499831	114	13156	8
Mysore	1756412	133	13206	9
Raichur	1437359	56	25667	29
Ramanagara	815386	65	12544	6
Shimoga	1132286	103	10993	3
Tumkur	2078665	149	13951	10
U. Kannada	1018216	83	12268	5
Udupi	843829	71	11885	4
Yadgir	952482	49	19438	22
State Total	**37552529**	**2346**	**16007**	

Source**:** Director of Health and Family Services Government of Karnataka.
Note**:** Population has been taken from Census of India 2011.

Table-1 shows district wise distribution of Primary Health Centres (PHCs) in Karnataka as on May 2012. There were 2346 PHCs with an average population of 16007 in Karnataka in 2012. The highest number of Primary health Centres are located in Belgaum (150), Tumkur (149), Hassan (134), Mysore (133), Davanagere (105), Shimoga (103) and Bangalore Urban (102) respectively covering an average population of 23785, 13951, 10442, 13206, 12551, 10993, 15245 respectively. The lowest number of PHCs are located in Kodagu (30), Dharwad (34), Gadag (39), Bangalore Rural (47) and Bangalore Urban (49) covering an average population of 15,789, 23454, 17576, 15310, and 26368 respectively. In the same way the number of PHCs in other district ranged between 50 and 84 with the average population as shown in Table 1. There are more PHCs in Karnataka than the stipulated norms. Top five districts viz., Chikmagalur, Hassan, Shimoga Udupi and Uttar Kannada Districts had higher number of PHCs except Bangalore Urban. Remaining five districts namely Bagalkote, Raichur, Bijapur, Dharwad and Bellary had the lower number of PHCs in the State.

5. District-wise Sub-Centres in Karnataka as on May 2012

The sub-Center is the most peripheral health unit and first contact point between the primary health care system and the community. Each sub- Centre has one Female Health Worker / Auxiliary Nurse Midwife (ANM) and one Male Health Worker. One Female Health Assistant Lady Health Visitor (LHV) and one male health assistant, supervise six sub centers. The Sub-centres are assigned to perform tasks related to components of Primary health care. They are provided with basic drugs for minor ailments needed for taking care essential health needs of general public. The Government of India is providing 100 per cent central assistance to all sub- centres in the country since April 2002, in the form of salaries of ANMs and LHVs and rent. The Sub-Centres are assigned the tasks related to interpersonal communication in order to bring about behavioral change and to provide services in relation to maternal and child health, family welfare, nutrition, immunization, diarrhoea control and control of communicable diseases.

Table - 2
District wise Sub-Centres in Karnataka as on May 2012

Districts	Rural Population	District wise Sub-Centres		
		No.of Sub Centres	Population per sub centres	Rank
Bagalkote	1292036	234	5522	26
Bangalore (r)	719564	167	4309	17
Bangalore (u)	868971	195	4456	19
Belgaum	3567739	549	6499	30
Bellary	1613038	272	5930	27
Bidar	1276647	280	4559	20
Bijapur	1674311	309	5418	25
Chikballapur	975188	199	4900	22
Chikmagalur	898079	375	2395	2
Chitradurga	1332012	283	4707	21
Ch'nagar	845669	245	3452	7
D. Kannada	1091888	440	2482	3
Davanagere	1317816	301	4378	18
Dharwad	797430	194	4110	15

Gadag	685450	168	4080	13
Gulbarga	1732298	347	4992	23
Hassan	1399214	456	3068	6
Haveri	1242442	303	4100	14
Kodagu	473659	206	2299	1
Kolar	1056953	275	3843	10
Koppal	1157659	185	6258	28
Mandya	1499831	385	3896	11
Mysore	1756412	438	4010	12
Raichur	1437359	223	6446	29
Ramanagara	815386	230	3545	8
Shimoga	1132286	305	3712	9
Tumkur	2078665	487	4268	16
U. Kannada	1018216	343	2969	5
Udupi	843829	301	2803	4
Yadgir	952482	176	5412	24
State Total	**37552529**	**8871**	4233	

Source: Director of Health and Family Services Government of Karnataka.

Note: Population has been taken from the Census of India 2011.

Table-2 gives district wise distribution of Sub-centres in Karnataka. There were 8871 Sub-centres functioning in the State with an average population of 4233 as on May 2012. The population covered by sub-centres in the districts of Belgaum, Koppal, Raichur, Bellary Bagalkote and Bijapur. Yadgir has been higher than the national norms. Similarly, the data suggest that the population covered by the sub-centres has been lowest in Kodagu, Chikmagalur Dakshina Kannada Udupi and Uttara Kannada regions with average population of 2299, 2395, 2482, 28003, 2969 respectively, than the national norms in the state as on May 2012.

6. District-wise Distribution of Community Health Centres in Karnataka as on 2012

CHCs are being established and maintained by the State Government under MNP/BMS programme. As per minimum norms, a CHC is required to be managed by four medical specialists i.e. Surgeon, Physician, Gynecologist and Pediatrician supported by 21 paramedical and other staff. It has 30 in-door beds with one OT, X-ray, Labour Room and Laboratory facilities. It serves as a referral centre for 4 PHCs and also provides facilities for obstetric care and specialist consultations. NRHM aims to strengthen services at CHCs by operatonalising 100% CHCs as 24 hour First Referral Units (FRUs), including posting of anesthetists. New Public Health Standards have been formulated for all cadres of primary health care functioning units including CHCs. The objectives of these public health standards are essentially to provide optimal expert care to the community, to achieve and maintain an acceptable standard of quality of care, to make the services more responsive and sensitive to the needs of the community. A set of assured service package is provided to population. An additional public health programme manager posting is recommended on contract basis at all CHCs for supervising surveillance operations, coordination of national health programmes management of ASHAs etc. A standard set of essential drugs and equipment is enlisted at CHCs level.

Table-3
District wise Distribution of CHCs in Karnataka as on 2012

District	Rural Population			
		No. of CHC	Population per CHC	Rank
Bagalkote	1292036	12	107670	12
Bangalore (r)	719564	4	179891	29
Bangalore (u)	868971	6	144829	24
Belgaum	3567739	24	148656	25
Bellary	1613038	17	94885	7
Bidar	1276647	10	127665	18
Bijapur	1674311	12	139526	22
Chikballapur	975188	7	139313	21
Chikmagalur	898079	10	89808	6
Chitradurga	1332012	15	88801	5
Ch'nagar	845669	6	140945	23
D. Kannada	1091888	11	99263	8
Davanagere	1317816	10	131782	19
Dharwad	797430	3	265810	30
Gadag	685450	6	114242	14
Gulbarga	1732298	22	78741	4
Hassan	1399214	19	73643	2
Haveri	1242442	11	112949	13
Kodagu	473659	8	59207	1
Kolar	1056953	6	176159	28
Koppal	1157659	11	105242	10
Mandya	1499831	13	115372	15
Mysore	1756412	15	117094	17
Raichur	1437359	9	159707	26
Ramanagara	815386	7	116484	16
Shimoga	1132286	11	102935	9
Tumkur	2078665	13	159897	27
U. Kannada	1018216	13	78324	3
Udupi	843829	8	105479	11
Yadgir	952482	7	136069	20
State Total	**37552529**	**326**	115192	

Source: Director of Health and Family Services Government of Karnataka.
Note: Population has been taken from the Census of India 2011

Table-3 shows district wise distribution of Community Health Centres in Karnataka. There were 326 CHCs functioning with an average population of 115192 as on May 2012. As per the population norms of community health centres the population served by CHC was the lowest in Kodagu, Hassan, Uttara Kannada, Gulbarga, Chitradurga, Chikmagalur and Bellary distrcts with average population of 59,207, 73643, 78,324, 78741, 88801, 89808 and 94885 respectively. Furthermore, the highest population was covered by the CHC in the districts of Bangalore Rural,

Kolar, Tumkur, Raichur, Belgaum, Bangalore Urban and Chamarajanagar with an average population of 179891, 176159, 159897, 159707, 148656,144829 and 140945 respectively than the population norms.

Pattern of Public Expenditure on Medical and Public Health of the State Government from 1990-91 to 2013-14 at Constant prices

Pattern of Public Expenditure on Medical and Public Health of the State Government from 1990-91 to 2013-14 at current prices

Year		Revenue expenditure			Capital expenditure			Total health expenditure	Per Capita	% to NSDP	% to Total Expenditure	Revenue expenditure as % of total health expenditure	Capital Expenditure % to total health expenditure
		Plan	Non-plan	Total	Plan	Non- plan	Total						
1990-91	1991-92	19097	41293	60390	1633	-	1633	62023	139	1.0	6.2	97.36	2.63
1991-92	1992-93	19325	44260	63584	1137	-	1137	64366	142	1.1	6.1	98.78	1.77
1992-93	1993-94	21788	50954	72743	1438	-	1438	74180	161	1.0	6.5	98.06	1.94
1993-94	1994-95	22761	50220	72981	1912	-	1912	74893	159	1.1	6.4	97.44	2.55
1994-95	1995-96	27619	49545	77163	1873	-	1873	79002	164	1.1	7.3	97.67	2.37
1995-96		18263	43609	61872	2111	-	2111	63984	131	1.4	6.1	96.69	3.30

1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
20731	21588	18848	17464	22100	21719	20072	18363	16337	24773	22108
43201	48483	59866	72368	68222	70141	81602	67370	69539	69750	69864
63932	70071	78714	89833	90321	91861	101674	85734	85876	94523	91972
1140	9330	11232	11727	8435	9234	5014	2731	797	724	12690
-	-	-	-	-	-	-	-	-	-	-
1140	9330	11232	11727	8435	9234	5014	2731	797	724	12690
59461	79401	89946	101560	98757	101095	105534	97627	122244	95247	122641
119	157	176	196	188	192	198	181	223	174	221
1.6	1.3	1.3	1.2	1.2	1.2	1.2	1.4	1.2	1.7	1.5
5.9	7.1	7.6	7.6	6.3	5.6	4.9	4.7	4.4	5.3	4.6
98.08	88.29	87.51	88.45	91.45	90.86	96.34	87.81	70.24	99.23	74.99
1.92	11.75	12.49	11.55	8.54	9.13	4.75	2.80	0.65	0.76	10.35

	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	Growth rate
	21873	37602	39755	65146	52229	66760	123194	5.3
	84991	91357	87823	139267	106084	121242	135199	4.8
	106865	128959	127578	204413	158313	188002	258393	5.1
	29768	28852	25927	36442	21973	19058	18269	13.5
	-	-	-	-	-	-	-	0
	29768	28852	25927	36442	21973	19058	18269	13.5
	144385	141102	149488	240855	180285	207060	276662	5.8
	258	250	263	394	292	328	433	4.3
	1.4	1.5	1.5	1	0.7	0.8	1	
	6.1	6.7	6.2	6.47	4.69	5.15	6.19	
	74.01	91.39	85.34	84.86	87.81	90.79	93.39	
	20.62	20.45	17.34	15.14	12.19	9.21	6.61	

Source: Hand Book of Statistics on State Finance, RBI
Note : Expenditure Rupees in lakhs, Per capita in rupees

Table-4 reveals the plan and non-plan expenditure on medical and public health in respect of revenue and capital account at constant prices. It can be seen that the total health expenditure incurred by the government has increased from Rs, 62023 lakhs in 1990-91 to Rs. 276662 lakhs in 2013-14 (around 4 times) reflecting a growth rate of 6 per cent. The plan expenditure on medical and public health in the case of revenue account, increased from Rs.19097 lakh in 1990-91 to Rs. 123194 in 2013-14 (around 4 times). The rate growth of plan expenditure on health was 5.3 per cent which has been higher than the growth rate of non-plan revenue expenditure. Similarly non-plan expenditure, at constant prices has increased from Rs. 41293 lakh in 1990-91 to Rs. 135199 lakh in 2013-14 leading to a rise by 3 times with growth rate of 4.8 per cent. The growth rate of non-plan expenditure is lower than the growth rate of plan expenditure in respect of revenue expenditure on health. The share of revenue expenditure to total health expenditure which has witnessed fluctuating

trends changed during the study period. The share of revenue expenditure to total health expenditure has increased from 97.36 per cent in 1990-91 to 98.08 per cent in 1996-97. The share of revenue expenditure on health was highest in 2005-06 at 99.23 per cent. In the same way, the plan expenditure on health in respect of capital account increased from Rs.1633 lakh in 1990-91 to Rs. 18269 lakh in 2013-14 (around 11times). The growth rate of plan expenditure in respect of capital account was very impressive at 13 .5 percent which is higher than the plan and non plan expenditure in respect of revenue account. There is no scope for non-plan expenditure in capital account. Public expenditure on health in per capita which was Rs. 139 in 1990-91 increased to Rs. 433 in 2013-14, reflecting growth rate of 4.3 per cent. The Health expenditure as a share of total expenditure has increased from 6.2 per cent to 6.2 in 1990-91 to 6.19 per cent during 2013-14, and health expenditure as a share of NSDP has ranges between 1.0 per cent and 1.7 per cent during the study period. The per cent of NSDP was higher in 2005-06 with 1.7per cent. The plan and non-plan expenditure on medical and public health in respect of both revenue and capital account revealed that the share of capital expenditure to total health expenditure was as low as 0.65 per cent in 2004-05. It is to be noted that the share of capital expenditure to total health expenditure turned out to be highest 20.62 per cent in 2007-08 and 20.45 per cent in 2008-09.

7. Conclusion

The most important steps for improving the health status of a nation is to provide basic health care facilities to all its citizens. There were 2346 PHCs in Karnataka serving an average 16007 persons in 2012. Belgaum has the highest number of Primary Health Centres, followed by Tumkur, Hassan, Mysore, Davanagere, Shimoga and Bangalore Urban. The lowest number of PHCs is in Kodagu followed by Dharwad, Gadag and Bangalore Rural. There were 8871 Sub- centres functioning in the State serving an average 4233 persons as on May 2012. There were 326 CHCs functioning in the state. As per the population norms of Community health centres the population served by CHC was the lowest in Kodagu, followed by Hassan, U. Kannada, Gulbarga, Chitradurga, Chikmagalur and Bellary. Whereas, it was lowest in Bangalore Rural, followed by Kolar, Tumkur, Raichur, Belgaum, Bangalore Urban and Chamarajanagar.

There were 61,625 hospital beds in the state indicating that there is one bed for 992 persons. The district wise distribution of bed strength was highest in Bangalore Urban (7628) followed by Mysore (3240) and Hassan (3264). The availability of beds per person is lowest in Bijapur (1598), followed by Yadgir (1547), Bagalkote (1489), Bangalore Rural (1404) and Belgaum (1475).

As on May 2012, the department of health and family welfare consists of 2390 full time doctors. 114 doctors were working on the contractual basis. Astonishingly 29339 doctors are employed as part time doctors. There is a shortage of doctors in the Government hospitals which is a major worrying factor in the department of health and family welfare. There were 97 PHCS in 6 taluks of Shimoga district. In Shimoga districts there is a PHC for 11046.7 population. Among taluks Bhadravathi has the highest number of PHC's per person (12737.6) followed by Shimoga (12202.8), Soraba (11876) and Hosanagara (10995.7) whereas average PHC's Available per person is lowest in Thirthahalli (9171.3), Sagara (9878.1) and Shikaripura (10473.3).

There are 295 Sub-centres in taluks of Shimoga District. Soraba had the highest number of Sub-Centres with an average population of 3493, the second highest Sub-Centres are in Thirthahalli and Sagar with the average population of 2620, and 2822.

Shimoga had 2 CHCs, excluding the Hosanagara taluk and there is only one CHC in all the taluks of Shimoga district. The highest population served by the CHC was in taluk of Shimoga (85420)

districts followed by Bhadravathi (178327), Soraba (178145), Shikaripura (167573) and Sagara (138294). The numbers of CHC in Shimoga district are inadequate.

On the whole it can be concluded that, it is very essential to take necessary steps to provide health infrastructure facilities to all the districts so that regional inequality in case of health status and health care can be removed.

The total health expenditure incurred by the government has increased from Rs. 62023 in 1990-91 to Rs. 276662 lakhs in 2013-14 (around 4 times) amounting to almost 6 per cent growth rate. The plan expenditure on medical and public health of revenue account has increased from Rs. 19097 lakh in 1990-91 to Rs. 123194 in 2013-14 (around 4 times). The growth rate of plan expenditure on health was 5.3 per cent which is higher than the growth rate of non-plan revenue expenditure. Similarly non-plan expenditure at constant prices has increased from Rs. 41293 lakh in 1990-91 to Rs. 135199 lakh in 2013-14 (around 3 times) at 4.8 per cent growth rate. The growth rate of non-plan expenditure is lower than the growth rate of plan expenditure of revenue expenditure on health. The growth rate of plan expenditure in capital account was very impressive at 13 .5 percent which is higher than the plan and non plan expenditure of revenue account. Public expenditure on health in per capita terms was Rs. 139 in 1990-91, which has increase to Rs. 433 in 2013-14 (around 3 times) at 4.3 percent rate of growth. Health expenditure as a share of total expenditure has increased from 6.2 per cent in 1990-91 to 6.19 per cent during 2013-14, and health expenditure as a share of NSDP ranges between 1.0 per cent and 1.7 per cent during the study period. The per cent of NSDP was higher in 2005-06 with 1.7 per cent. The plan and non-plan expenditure on medical and public health of revenue and capital account revealed that the share of capital expenditure to total health expenditure was low as 0.65 per cent in 2004-05 .The higher share of capital expenditure to total health expenditure was during 2007-08 and 2008-09, with the percentage of 20.62 and 20.45 per cent respectively.

As improved health status enhances productivities and incomes, ensuring access to the poor is critical for inclusive development. The economic gains are relatively greater for poor people, who are typically most handicapped by ill health and who stand to gain the most from the development of under-utilized natural resources. The public investment on health is not sufficient for the growing population. Hence it can be concluded that, increased public investment on health is a necessary pre-requisite for achieving goals of growth, equity and stability.

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