



# An Analysis Of Health-Related Infrastructure In Selected Indianstates.

Dr. Gunwant B Gadbade, Assistant Professor, St. Gonsalo Garcia College, Vasai, Dist: Palghar Maharashtra, India.

## Abstract:

Better health is key to human wellbeing therefore every human being has a desire to have a healthier life. In the human development index, the life expectancy rate has been used as a direct indicator of the long and healthy life, however there are different factors that influence indirectly on the healthy life of people. The WHO report (1998) suggests that health expectancy is important than life expectancy. In this paper an attempt is made to analyse the health-related infrastructure in selected Indian states. The study found that India has less than one physician per 1000 population (0.77:1000) and it failed to achieve WHO standard. Average population served per government hospital in all over India has reduced, however ratio of average population served per available bed in govt hospital has increased.

**Keywords:** Health Infrastructure, Health, Attainments in Health Infrastructure, Status of Public Health System, Indian Health System.

## Introduction:

Better health is key to human wellbeing therefore every human being has a desire to have a healthier life. In the human development index, the life expectancy rate has been used as a direct indicator of the long and healthy life, however there are different factors that influence indirectly on the healthy life of people. The WHO report (1998) suggests that health expectancy is important than life expectancy. Therefore, health is considered as a key for economic and social sector development in any nation and expenditure on health has been observed as an investment in an economic issue that recognized more in recent years. India ranks 134 out of 193 countries in UNDP's Human development Index (2023-24), first time in three decades it has experienced the decline in the HDI score for continuously two years due to covid 19 pandemic. The HDI score of India has dropped from 0.645 in 2018 to 0.633 in 2021 and then slightly moved up to 0.644 in 2023,

itis indicating thatthere is huge scope for improvement in health sector of the country. The quality of primary health infrastructure depends on some indicators likedoctor population ratio, hospital population ratio and beds in the hospital population ratio. In all these indicators India failed to maintain the international standards.

### Database and Methodology:

In the present study, the secondary data is used as per the requirement of the study. The data taken from various institutions and government publications. Among them, major sources are RBI, Human Development Report 2022, NSSO reports, National Health Profile 2011 & 2018, CBHI, Ministry of Health and Family Welfare, Government of India and economic surveys of India. To analyse thehealth infrastructure parametersthe simple statistical tools are used like percentage, average, maximum and minimum, growth rate, correlation and coefficient of variation.

### State-wise Average Population Served/Govt. Allopathic Doctor:

Easy access of quality health care services is one of the important aspects of human wellbeing. The open market mechanism and private sector doesn't give any guarantee of providing the widespread and equal access of primary health care services to all people. Hence the adequate human resource and health infrastructure in the public health care system is precondition to provide affordable and quality health care services to mass of the population in developing countries like India. As per the standard of World Health Organization (WHO) doctor-population ratio should be 1:1000, however according to 2017

Sr. No	States	2011-12*	2016-17*	Change in %
1	Andhra Pradesh	11421	10189	-11%
2	Assam	7854	5395	-31%
3	Bihar	23174	28391	23%
4	Chhattisgarh	19585	15916	-19%
5	Gujarat	25168	11475	-54%
6	Haryana	9173	10189	11%
7	Himachal Pradesh	1394	4639	233%
8	Jammu & Kashmir	5152	3060	-41%
9	Jharkhand	17487	18518	6%
10	Karnataka	11933	13556	14%
11	Kerala	6289	6810	8%
12	Madhya Pradesh	17811	17192	-3%
13	Maharashtra	24540	16996	-31%
14	Odisha	10695	12744	19%
15	Punjab	7256	9817	35%

16	Rajasthan	8717	10976	26%
17	Tamil Nadu	25042	9544	-62%
18	Uttar Pradesh	19409	19962	3%
19	Uttarakhand	8742	7911	-10%
20	West Bengal	8416	10411	24%
	Minimum	1394	3060	
	Maximum	25168	28391	
	X	13462.9	12184.6	
	SDT	7380.9	6011.8	
	CV	54.8	49.3	

**Source:**National Health Profile 2011 & 2018, CBHI, Ministry of Health and Family Welfare Govt of India. \*Reference years for some states are different.

data, India has reported less than one physician per 1000 population (0.77:1000) means it failed to achieve WHO standard. Furthermore, the average population served per government allopathic doctor is an important parameter for judgement of healthcare system and India remains poor in this parameter also as this ratio is very high in India.

The Table 1 shows the average population served per government allopathic doctor. It reveals that in 2011 government allopathic doctor- population served ratio was ranged between minimum 1394 Himachal Pradesh followed by Jammu & Kashmir 5152 and maximum 25168 in Gujarat followed by Tamil Nadu 25042. In the reference year 2016-17 it varies between minimum 3060 in Jammu & Kashmir followed by Himachal Pradesh 4639 and maximum 28391 in Bihar followed by Uttar Pradesh 19962. The Coefficient of Variation (C.V) value indicates the interstate disparity, it can be observed that the CV value has reduced to 49.3 in 2016-17 compared to 54.8 in 2011-12, hence the interstate disparity in terms of government allopathic doctor- population served ratio has reduced slightly in 2017.

To spread and reach the public healthcare services to mass of poor people, the government allopathic doctor and average population served ratio must be reduced with development. In this regard we have observed the change in the ratio during the two-time point period, it is clear that many states have performed well to reduce this ratio, especially Tamil Nadu has reduced highest by – 62% and the ratio declined from 25042 in 2011 to 9544 people per government allopathic doctor followed by Gujarat has reduced the ratio by -54%. However, some states experienced disappointing results as the ratio has increased instead of decrease. Himachal Pradesh has faced highest increase in the ratio it was by 233%, followed by Punjab with 35% increase in the ratio.

### **State-wise Average Population Served Per Govt. Hospital and Govt. Hospital Bed:**

India is emerged as second most populous country in the world, therefore, the challenge of Indian government has increased to provide easy access of affordable and adequate healthcare services to its large population. In this context the government need to increase number of government hospitals and make provision of adequate number of beds with increase in population. The average population served per

government hospital and bed in hospitals is an important parameter to judge the quality of public healthcare system. It is evident from the table that the performance of India on this parameter is dismal.

The table makes clear that the average population served per government hospital in all over India has reduced from 98970 in 2011-12 to 55591 in 2016-17. However, the ratio of average population served per available bed in govt hospital has increased from 1512 in 2011-12 to 1844 in 2016-17. In the major states, the average population served per government hospital ranged between minimum 13685 in Uttarakhand followed by 23970 in Odisha to maximum 451325 in Bihar followed by 229118 in Uttar Pradesh in 2011-12. In 2011-12 the out of 20 major states 12 states had recorded ratio of average population per govt hospital more than India’s average, while 8 states maintained less than India’s average.

**Table 2: Average Population Served Per Govt. Hospital and Bed In 2011-12 and 2016-17**

Sr. No	Reference Year	2011-12*		2016-17*		Rate of Change in %	
		Population Per Govt. Hospital	Population Per Govt. Hospital Bed	Population Per Govt. Hospital	Population Per Govt. Hospital Bed	Population Per Govt. Hospital	Population Per Govt. Hospital Bed
	<b>All India</b>	<b>98970</b>	<b>1512</b>	<b>55591</b>	<b>1844</b>	<b>-44%</b>	<b>22%</b>
1	Andhra Pradesh	178243	2225	342484	3819	92%	72%
2	Assam	194863	3912	26762	1914	-86%	-51%
3	Bihar	451325	5606	100589	8645	-78%	54%
4	Chhattisgarh	105202	2433	116397	2647	11%	9%
5	Gujarat	135694	313	129270	1946	-5%	522%
6	Haryana	159721	3122	42001	2496	-74%	-20%
7	Himachal Pradesh	45707	809	8928	577	-80%	-29%
8	Jammu & Kashmir	120641	2813	94083	1066	-22%	-62%
9	Jharkhand	59490	5494	59825	3079	1%	-44%
10	Karnataka	63309	913	24056	979	-62%	7%
11	Kerala	74861	1045	27873	939	-63%	-10%
12	Madhya Pradesh	155470	2490	170166	2661	9%	7%
13	Maharashtra	82264	1654	166880	2306	103%	39%
14	Odisha	23970	2653	23729	2312	-1%	-13%
15	Punjab	130066	2658	43067	1638	-67%	-38%
16	Rajasthan	83076	2640	97005	2291	17%	-13%
17	Tamil Nadu	112959	1391	57297	899	-49%	-35%
18	Uttar Pradesh	229118	3499	47782	2904	-79%	-17%
19	Uttarakhand	13685	1194	22824	1233	67%	3%
20	West Bengal	139676	1283	58697	1170	-58%	-9%
	Minimum	13685	313	8928	577		
	Maximum	451325	5606	342484	8645		

X	127967	2407.35	82985.75	2276.05		
SDT	94866.72	1441.39	77612.91	1731.98		
CV	74.13	59.87	93.53	76.10		

**Source:** National Health Profile 2011 & 2018, CBHI, Ministry of Health and Family Welfare Govt of India. \*Reference years for some states are different.

We found that, the govt hospital-population ratio for the selected 20 major states 127967 that was more than India's average 98970 in 2011-12. In 2011-12 the average population per govt hospital bed was observed minimum 313 in Gujarat followed by Himachal Pradesh and Kerala 809 and 913 respectively and maximum 5606 was recorded in Bihar followed by Jharkhand 5494 and Assam 3912. India's this ratio was average 1512 person per govt hospital bed which was less than 13 states and more than 7 states of total 20 selected states in this study. It is evident from the data that govt hospital bed-population ratio for the selected 20 major states 2407.35 that was also more than India's average 1512 in 2011-12

The table reveals that compare to 2011-12 reference year in 2016-17 the ratio of hospital –population in both minimum and maximum term have been reduced. So, it indicates that hospital –population parameter of the public healthcare service has improved in 2016-17, but not up to the satisfactory level. In the reference year 2016-17 the govt hospital -population

ratio in selected 20 states changed between minimum 8928 in Himachal Pradesh followed by 22824 in Uttarakhand and maximum 342484 in Andhra Pradesh followed by Madhya Pradesh and Maharashtra 170166 and 166880 respectively. It can be observed that the average population per government hospital has decreased from 127967 in 2011-12 to 82985 in 2016-17. On the other hand, in 2016-17 the average population served per government hospital bed ratio varies between 577 lowest in Himachal Pradesh followed by 899 and 939 in Tamil Nadu and Kerala respectively and highest 8645 in Bihar followed by Andhra Pradesh and Jharkhand 3819 and 3089 respectively. There was one government hospital bed for average 2276 population in all selected 20 states, that was more than all India average 1844 population per government hospital bed in 2016-17. It can be noted that the average population per government hospital also decreased in 2016-17 (2276) compare to 2407 in 2011-12.

In this study the change in the population per government hospital and per government hospital bed has been measured in percent. The data reveals that out of total 20 selected major states, 7 states have failed to reduce the average population per government hospital. Hence, these states have less proportional change in government hospitals and beds than proportional change in population during the given period 2011-12 to 2016-17. Maharashtra has registered the highest (103%) increase in this ratio followed by Andhra Pradesh (92%), Uttarakhand (67%), Rajasthan (17%), Chhattisgarh (11%), Madhya Pradesh (9%) and Jharkhand (1%). While 13 states have succeeded to reduce the ratio, it indicates that in these 13 states the proportional increase in new hospitals was more than proportional increase in population. The highest reduction was observed in Assam (-86%) followed by Himachal Pradesh (-80%) and Bihar (78%). In all over India one hospital for average population ratio has been reduced by (-44%) during the given period 2011-12 to 2016-17.

It is notable that the average population per government hospital bed has increased at all India level by 22% in the study period. In the selected 20 major states, 7 states faced the increase while 13 states experienced decrease in the government hospital bed-population ratio. It is striking that, in the Gujarat the average population per government hospital bed ratio has increased by 522% during the given period, followed by Andhra Pradesh by 72%, Bihar 54% Maharashtra by 39%, Chhattisgarh by 9% Karnataka by 7% and Uttarakhand by 3%. It indicates that in the above mentioned 7 states the proportional increase in government hospital bed was less than proportional increase in the population during the given period. On the other hand, 13 states have shown the decrease in the ratio highest performance realized 62% in Jammu & Kashmir followed by 51 % in Assam, 44% in Jharkhand, 38% and 35% in Punjab and Tamil Nadu respectively.

The Coefficient of Variation (C.V) value has been calculated to focus on the interstate disparity in terms of availability of government hospital and bed for average population in the selected 20 major states. It has been observed that the interstate disparity has increased in 2016-17 compare to 2011-12. The Coefficient of Variation (C.V) value for average population served per government hospital was 74.13 that increased to 93.53 in 2016-17 and (C.V) value for average population served per government hospital bed has increased from 59.87 in 2011-12 to 76.10 in 2016-17. Hence the interstate disparity has increased in both terms, however the average population served per government hospital disparity has increase more than average population served per government hospital bed in the given period.

### **Conclusion:**

The health is a fundamental indicator of quality of human life. Therefore in this study an attempt is made to analyse the health-related infrastructure in selected Indian states. This study has confirmed that the India's performance is poor in both terms doctor-population ratio and average population served per government allopathic doctor. The average population served per government hospital in all over India has reduced from 98970 in 2011-12 to 55591 in 2016-17. However, the ratio of average population served per available bed in govt hospital has increased from 1512 in 2011-12 to 1844 in 2016-17. It has been observed that the interstate disparity has increased in terms of status of health-related infrastructure during 2016-17 to 2011-12. So, the government should increase the expenditure on health and utilize it efficiently for further improvements in health indicator.

**References:**

1. Grace Maria Antony, K. Visweswara Rao and N. Balakrishna (2001), "Suitability of HDI for Assessing Health and Nutritional Status." Economic and Political Weekly, Vol. 36, No. 31 (Aug. 4-10, 2001), pp. 2976-2979.
2. Gadbade GB and Kokate C.N (2021), Analysis of Recent Trends and Patterns of Social Sector Expenditure in India: Special Reference to Health and Education, AksharWangmay, Special issue I, ISSN:2229-4929.
3. Kumar Raman and Pal Ranabir (2018), "India Achieves WHO Recommended Doctor Population Ratio: A Call for Paradigm Shift in Public Health Discourse", Journal of Family Medicine and Primary Care, Volume 7 pp 845.
4. National Health Profile 2011 & 2018, CBHI, Ministry of Health and Family Welfare Govt of India.
5. UNDP (2022), "Human Development Report", UNDP, UN Plaza, New York, USA.

