# A Review of the Rural Health Care System in Gujarat

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## Abstract

**Health is not the mere absence of disease; it is a requisite for defining a person's overall well being. Articles 39(e) (f), 42, and 47 in part IV of the Indian Constitution clearly define a state's responsibility to guarantee a healthy life to the people of its country. The state's obligation towards the health of its people is beyond social reasons. It is more because healthy people can only contribute productively towards nation building and high economic growth. It is expected that the state with high economic growth will be able to allocate more towards providing basic health facilities. A brief look into the status of health care facilities and public expenditure on health contradicts this assumption, especially in the case of the state of Gujarat. The present paper made a modest attempt to review selected aspects of the health care system in Gujarat. The subject matter of the study is confined to rural areas, and the study used only the secondary data available from various sources.**

***Keywords:*** **health, public expenditure, Gujarat, human development**

**JEL Classification: H51, H52, H53, H75**

**Paper Submission Date : June 22, 2014 ; Paper sent back for Revision : August 20, 2014 ; Paper Acceptance Date : October 5, 2014**

Over the last two decades, Gujarat has witnessed rapid economic development. In fact, in the last decade (2000-01 to 2009-10), the state's economy grew faster than that of the nation. According to one study, the GSDP of Gujarat registered an annual growth rate of 10.27% , which was far greater than 7.60% growth of GDP recorded for the country as a whole (Hirway, 2012). In the previous decade, that is, 1993-94 to 1999-2000, the annual growth rate of GSDP for Gujarat was only marginally lower at 5.92% in comparison to 6.20% recorded for the country as a whole. A deeper analysis further reveals that Gujarat in the last one decade has registered impressive growth figures in all sectors of the economy – particularly agriculture, manufacturing, and services industries. These coupled with rapid urbanization resulted in a sharp rise in per capita income at an annual rate of 8.5% for the state in comparison to that of 6% for the country as a whole for the period from 2000-01 to 2009-10 (Planning Commission, 2014). Three important questions emerge from the above analysis:

**(1)** First, has the rapid economic growth of the state really trickled down to the rural areas with a matching improvement in the quality of life of the people measured by some quantitative health indicators ?

**(2)** Second, have the efforts of the government really improved the rural infrastructure of health to ensure sustainable development over a long period of time?

**(3)** Third, has the growth of GSDP enabled the government to spend more towards social sector development in rural areas?

These questions are pertinent because of late, the state has been severely criticized for its indifferent attitude towards the provision of health facilities to the people in general and the rural population in particular.

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**Table 1 . Human Development Index (for States)**

| States/UTs | 1981 | | 1991 | | 2001 | | 2007-08* | |
|---|---|---|---|---|---|---|---|---|
| | Value | Rank | Value | Rank | Value | Rank | Value | Rank |
| Andhra Pradesh | 0.298 | 9 | 0.377 | 9 | 0.416 | 10 | 0.473 | 9 |
| Assam | 0.272 | 10 | 0.348 | 10 | 0.386 | 14 | 0.444 | 10 |
| Bihar | 0.237 | 15 | 0.308 | 15 | 0.367 | 15 | 0.367 | 15 |
| Chhattisgarh | - | - | - | - | 0.278 | 16 | 0.358 | 17 |
| Gujarat | 0.36 | 4 | 0.431 | 6 | 0.479 | 6 | 0.527 | 6 |
| Haryana | 0.36 | 5 | 0.443 | 5 | 0.509 | 5 | 0.552 | 4 |
| Jharkhand | | - | - | - | 0.268 | 17 | 0.376 | 13 |
| Karnataka | 0.346 | 6 | 0.412 | 7 | 0.478 | 7 | 0.519 | 5 |
| Kerala | 0.5 | 1 | 0.591 | 1 | 0.638 | 1 | 0.79 | 1 |
| Madhya Pradesh | 0.245 | 14 | 0.328 | 13 | 0.394 | 12 | 0.375 | 14 |
| Maharashtra | 0.363 | 3 | 0.452 | 4 | 0.523 | 4 | 0.572 | 3 |
| Orissa | 0.267 | 11 | 0.345 | 12 | 0.404 | 11 | 0.362 | 16 |
| Punjab | 0.411 | 2 | 0.475 | 2 | 0.537 | 2 | 0.605 | 2 |
| Rajasthan | 0.256 | 12 | 0.347 | 11 | 0.424 | 9 | 0.434 | 11 |
| Tamil Nadu | 0.343 | 7 | 0.466 | 3 | 0.531 | 3 | 0.48 | 8 |
| Uttar Pradesh | 0.255 | 13 | 0.314 | 14 | 0.388 | 13 | 0.38 | 12 |
| West Bengal | 0.305 | 8 | 0.404 | 8 | 0.472 | 8 | 0.492 | 7 |
| **All India** | **0.302** | | **0.381** | | **0.472** | | **0.467** | |

Source: National Human Development Report, 2001, * India Human Development Report 2011

## Human Development Index

The Human Development Index (HDI) for Gujarat has always been higher than the all India figures, except when the gap between the two narrowed down during the period from 1981 to 2001 (Table 1). In spite of this, the ranking of Gujarat at Rank no. 6 in the HDI rank of states has not changed for the last three decades. It was only as early as 1981 that the state ranked fourth in HDI. However, the recent India Human Development Report (HDR) (2011) revealed that by 2007-08 (the period to which the HDI index relates), the HDI of Gujarat was 0.527. The five states which were ranked higher than Gujarat are Kerala, Punjab, Maharashtra, Haryana, and Karnataka. All these states are as well off as Gujarat in terms of GSDP. However, it seems that the first five highly ranked states could utilize their resources in such a manner that the development had the trickle down effect to the peripheries and rural sector of these states. This has resulted in a better socioeconomic structure, a reflection of which is made in terms of improvement in HDI.

It should be noted here that the Human Development Index and all its relevant (and not so relevant) determinants are widely researched by Indian scholars and they provide strong base to study and further compare the performance of states with different alternative approaches and yardsticks (Guha , 2000 ; Kumar & Bhatia, 2008 ; Rao & Kumar, 1996 ; Shah, Subbarao, & Kumar, 1993; Verma & Kumar, 1993).

## Health Index

Since the study focuses on health, let us first study the health index of Gujarat vis-a-vis other states. It can be inferred from the Table 2 that in terms of the health index, Gujarat ranked 6th (among the 17 states identified for the study), and its performance was better than the all India average. Critics may point out that the performance of

**Table 2. Human Development Index and its Components (for States)**

| States/ Index | Health Index | | Income Index | | Education Index | |
|---|---|---|---|---|---|---|
| | 2000 | 2008 | 2000 | 2008 | 2000 | 2008 |
| Andhra Pradesh | 0.521 | 0.58 | 0.197 | 0.287 | 0.385 | 0.553 |
| Assam | 0.339 | 0.407 | 0.152 | 0.288 | 0.516 | 0.636 |
| Bihar | 0.506 | 0.563 | 0.1 | 0.127 | 0.271 | 0.409 |
| Chhattisgarh | 0.341 | 0.417 | 0.127 | 0.133 | 0.365 | 0.526 |
| Gujarat | 0.562 | 0.633 | 0.323 | 0.371 | 0.512 | 0.577 |
| Jharkhand | 0.434 | 0.5 | 0.1 | 0.142 | 0.271 | 0.485 |
| Haryana | 0.576 | 0.627 | 0.417 | 0.408 | 0.512 | 0.622 |
| Karnataka | 0.567 | 0.627 | 0.26 | 0.326 | 0.468 | 0.605 |
| Kerala | 0.782 | 0.817 | 0.458 | 0.629 | 0.789 | 0.924 |
| Madhya Pradesh | 0.363 | 0.43 | 0.127 | 0.173 | 0.365 | 0.522 |
| Maharashtra | 0.601 | 0.65 | 0.297 | 0.351 | 0.606 | 0.715 |
| Orissa | 0.376 | 0.45 | 0.076 | 0.139 | 0.372 | 0.499 |
| Punjab | 0.632 | 0.667 | 0.455 | 0.495 | 0.542 | 0.654 |
| Rajasthan | 0.52 | 0.587 | 0.293 | 0.253 | 0.348 | 0.462 |
| Tamil Nadu | 0.586 | 0.637 | 0.285 | 0.355 | 0.57 | 0.719 |
| Uttar Pradesh | 0.398 | 0.473 | 0.179 | 0.175 | 0.371 | 0.492 |
| West Bengal | 0.6 | 0.65 | 0.21 | 0.252 | 0.455 | 0.575 |
| **All India** | **0.497** | **0.563** | **0.223** | **0.271** | **0.442** | **0.568** |

Sources: India Human Development Report 2011

Gujarat is relatively poor because even a state like West Bengal has fared better than Gujarat. It should be interesting to note that West Bengal has always ranked higher in terms of the health index. Its position in HDI ranking falls only because of income index (Table 2). This makes an interesting point of debate. Why and how with less per capita expenditure (adjusted for inequality), West Bengal has been able to progress faster than Gujarat in terms of health index? Four other states - Kerala, Punjab, Tamil Nadu, and Haryana which performed better in health index also fared better in terms of overall HDI. Three states - Kerala, Punjab, and Haryana had a better income index, higher than that of Gujarat, and therefore, justify their better performance in terms of the health index. Maharashtra has a lower income index but higher health and education index, indicating better attempts of the government in the desired direction.

## Life Expectancy

Life expectancy refers to the average number of years a person is expected to live at the time of his birth. Life expectancy is one of the critical elements in measuring human development. The other two health indicators, that is, IMR and U5MR largely influence the life expectancy. The overall life expectancy in the country increased by over 10% between the periods of 1992-1996 and 2006 -2010 (Table 3). The female life expectancy as compared to males has improved marginally. Gujarat has performed better than the national average in terms of female and male life expectancy as well as combined life expectancy.

The life expectancy at birth of 60.5 years for men and 62.5 years for women in 1992- 1996 got improved to 67.2 years and 69.8 years for men and women respectively during 2006- 2010. In terms of female life expectancy, the improvement has been sharper. A comparative study of states shows that with respect to life expectancy, the states like Madhya Pradesh, Bihar, and Rajasthan have progressed faster than Gujarat. Even in

**Table 3. Life Expectancy at Birth**

| Sr No | States | Male | | | Female | | | Total Persons | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1992-96 | 2006-10 | % Change | 1992-96 | 2006-10 | % Change | 1992-96 | 2006-10 | % Change |
| 1 | Andhra Pradesh | 60.8 | 65.4 | **7.57** | 63 | 69.4 | **10.16** | 62 | 67.4 | **8.71** |
| 2 | Assam | 56.1 | 61.6 | **9.80** | 56.6 | 62.8 | **10.95** | 56.2 | 62.2 | **10.68** |
| 3 | Bihar | 60.2 | 67.1 | **11.46** | 58.2 | 66.7 | **14.60** | 59.4 | 66.9 | **12.63** |
| 4 | Chhattisgarh | - | 61 | **NA** | - | 64 | **NA** | - | 62.5 | **NA** |
| 5 | Gujarat | 60.5 | 67.2 | **11.07** | 62.5 | 71 | **13.60** | 61.4 | 69 | **12.38** |
| 6 | Haryana | 63.4 | 67.9 | **7.10** | 64.3 | 69.8 | **8.55** | 63.8 | 68.8 | **7.84** |
| 7 | Jharkhand | - | 66 | **NA** | - | 64 | **NA** | - | 65 | **NA** |
| 8 | Karnataka | 61.1 | 66.5 | **8.84** | 64.5 | 71.1 | **10.23** | 62.9 | 68.8 | **9.38** |
| 9 | Kerala | 70.2 | 72 | **2.56** | 75.8 | 76.8 | **1.32** | 73.1 | 74.5 | **1.92** |
| 10 | MP | 55.1 | 62.5 | **13.43** | 54.7 | 63.3 | **15.72** | 55.2 | 62.9 | **13.95** |
| 11 | Maharashtra | 63.8 | 67.9 | **6.43** | 66.2 | 71.3 | **7.70** | 65.2 | 69.5 | **6.60** |
| 12 | Orissa | 56.9 | 62.3 | **9.49** | 56.6 | 64.8 | **14.49** | 56.9 | 63.5 | **11.60** |
| 13 | Punjab | 66.4 | 68.7 | **3.46** | 68.6 | 71.6 | **4.37** | 67.4 | 70 | **3.86** |
| 14 | Rajasthan | 58.6 | 66.1 | **12.80** | 59.6 | 69.2 | **16.11** | 59.5 | 67.6 | **13.61** |
| 15 | Tamil Nadu | 62.8 | 67.6 | **7.64** | 64.8 | 70.6 | **8.95** | 63.7 | 69.1 | **8.48** |
| 16 | Uttar Pradesh | 57.7 | 64 | **10.92** | 56.4 | 64.4 | **14.18** | 57.2 | 64.2 | **12.24** |
| 17 | West Bengal | 61.8 | 68.2 | **10.36** | 63.1 | 70.9 | **12.36** | 62.4 | 69.5 | **11.38** |
| | All India | 60.1 | 65.8 | **9.48** | 61.4 | 68.1 | **10.91** | 60.7 | 66.9 | **10.21** |

Source : India Human Development Report, 2011

the states of Uttar Pradesh and Orissa, female life expectancy improved dramatically during the reference period (Table 3). Improvement in life expectancy depends upon a host of factors, important among them are decline in death rate at various ages, particularly post 50 years of age, and system of health care availability for the aged, particularly for the aged poor.

Life expectancy had only 65% weight in the health index as per the HDR 2001. In the latest India Human Development Report (2011), life expectancy was given 100% weight. The report (Institute of Applied Manpower Research, 2011) does not explain why the combination of life expectancy at age one and infant mortality rate (relative weight of 65:35) have been replaced by crude life expectancy. The change in methodology has made the HDI of both the reports non comparable. More importantly, the change conceals the relatively lower improvements made by the state in infant mortality rate in the last decade. In case of Gujarat, therefore, the health index would further deteriorate once we recomputed the HDI using the old method.

## Infant Mortality Rate

It refers to the likelihood of a child dying within the very first year of birth. During the last decade, the IMR reduced significantly across all the major states. The reason behind the positive change in IMR is increasing health awareness among the people along with improved medical facilities. Gujarat ranks 7th in infant mortality rate among 17 states. What is more astonishing is the states like Jharkhand, Tamil Nadu, and West Bengal reported sharper decline in infant mortality rate in the last one decade (Table 4). The Table further reveals that in the rural areas, the infant mortality rate declined by 20% during the period from 2000 - 2009 ; 12 states (among the 17) progressed better than Gujarat.

Developed states like Karnataka, Maharashtra, and Tamil Nadu were successful in reducing IMR by over

**Table 4. Infant Mortality Rate**

| Sr No | State | Male | | | Female | | | Total Rural Only | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2000 | 2009 | % Change | 2000 | 2009 | % Change | 2000 | 2009 | % change |
| 1 | Andhra P | 66.4 | 48 | **-27.71** | 64.2 | 50 | -22.12 | 74 | 54 | **-27.03** |
| 2 | Assam | 65.9 | 58 | **-11.99** | 82.9 | 64 | -22.80 | 78 | 64 | **-17.95** |
| 3 | Bihar | 61.8 | 52 | **-15.86** | 61.4 | 52 | -15.31 | 63 | 53 | **-15.87** |
| 4 | Chhattisgarh | 92.3 | 50 | **-45.83** | 66.1 | 57 | -13.77 | 95 | 55 | **-42.11** |
| 5 | Gujarat | 58.8 | 47 | **-20.07** | 66.8 | 48 | -28.14 | 69 | 55 | **-20.29** |
| 6 | Haryana | 63 | 48 | **-23.81** | 70.9 | 53 | -25.25 | 69 | 54 | **-21.74** |
| 7 | Jharkhand | 59.4 | 42 | **-29.29** | 78.8 | 46 | -41.62 | 74 | 46 | **-37.84** |
| 8 | Karnataka | 65.4 | 41 | **-37.31** | 47.3 | 42 | -11.21 | 68 | 47 | **-30.88** |
| 9 | Kerala | 14.5 | 10 | **-31.03** | 13.3 | 13 | -2.26 | 14 | 12 | **-14.29** |
| 10 | MP | 81.4 | 66 | **-18.92** | 93.2 | 68 | -27.04 | 93 | 72 | **-22.58** |
| 11 | Maharashtra | 45.8 | 28 | **-38.86** | 50 | 33 | -34.00 | 56 | 37 | **-33.93** |
| 12 | Orissa | 98.3 | 65 | **-33.88** | 92.4 | 66 | -28.57 | 99 | 68 | **-31.31** |
| 13 | Punjab | 45 | 37 | **-17.78** | 61.5 | 39 | -36.59 | 56 | 42 | **-25.00** |
| 14 | Rajasthan | 76.4 | 58 | **-24.08** | 81.2 | 61 | -24.88 | 82 | 65 | **-20.73** |
| 15 | Tamil Nadu | 48.5 | 27 | **-44.33** | 53.7 | 29 | -46.00 | 56 | 30 | **-46.43** |
| 16 | Uttar Pradesh | 80.7 | 62 | **-23.17** | 86.5 | 65 | -24.86 | 87 | 66 | **-24.14** |
| 17 | West Bengal | 54.3 | 33 | **-39.23** | 47 | 33 | -29.79 | 54 | 34 | **-37.04** |
| | All | 66.8 | 49 | **-26.65** | 68.9 | 52 | -24.53 | 74 | 55 | **-25.68** |

Source: - India Human Development Report, 2011

35%. Even states like Chhattisgarh, Jharkhand, Orissa, and West Bengal brought it down by 30%. It is unfortunate to observe in the Table 4 that Gujarat is the only developed state which remained unsuccessful in bringing down IMR. From 58.8 deaths per 1000 in the year 2000 to 47 deaths in 2009, IMR reduced by just 20% in Gujarat, which is not only less than the overall India rate, but is also less than what IMR was in the states of Haryana, Rajasthan, and Uttar Pradesh. Poor performance of Gujarat in relation to mortality rate can be traced to poor provisions for health infrastructure facilities in comparison to say Kerala (which is far ahead than Gujarat). Other reasons include poor female literacy in Gujarat, which has negative implications on health awareness, hygiene, and sanitation, and therefore, also on deterioration of IMR. However, to a certain extent, Gujarat has been able to bring down IMR rate for females in comparison to other major states. Female IMR has always remained higher than male IMR largely due to gender discrimination in our country. With Kerala being an exception, IMR has always remained high for rural areas, irrespective of the development of the state; so has been the change in IMR during the last decade. For both developed and poor states, the fall in IMR for rural areas has been disappointing.

## Child Mortality Rate

Yet another health indicator is of child or under five mortality rate (U5MR), which refers to chances of a child dying within attaining 5 years of age. The rate is mainly affected by undernourishment, economic insecurity of the parents, and lack of adequate medical facilities. Almost all major states except Assam, Haryana, Karnataka, and Orissa were successful in bringing down the U5MR by over 25% between the period from 1998 and 2008. Still, the rate is much higher than what is advocated by the Millennium Development Goals (MDG). Gujarat, for instance, has U5MR as 60 (live deaths per 1000) for the state and 77 for rural areas, which is exceptionally high

**Table 5. Under Five Mortality Rate (U5MR)**

| Sr No | States | Total Persons | | | For Rural 2008 | | |
|---|---|---|---|---|---|---|---|
| | | 1998-99 | 2008 | % Change | Male | Female | Persons |
| 1 | Andhra Pradesh | 85.5 | 58 | **-32.16** | 62 | 67 | **64** |
| 2 | Assam | 89.5 | 88 | **-1.68** | 85 | 101 | **93** |
| 3 | Bihar | 105.1 | 75 | **-28.64** | 70 | 84 | **77** |
| 4 | Chhattisgarh* | 90.3 | 71 | **-21.37** | 68 | 80 | **74** |
| 5 | Gujarat | 85.1 | 60 | **-29.49** | 70 | 76 | **72** |
| 6 | Haryana | 76.8 | 65 | **-15.36** | 66 | 75 | **70** |
| 7 | Jharkhand* | 93 | 65 | **-30.11** | 61 | 77 | **69** |
| 8 | Karnataka | 69.8 | 55 | **-21.20** | 61 | 64 | **62** |
| 9 | Kerala | 18.8 | 14 | **-25.53** | 13 | 15 | **14** |
| 10 | MP | 137.6 | 92 | **-33.14** | 95 | 101 | **98** |
| 11 | Maharashtra | 58.1 | 41 | **-29.43** | 48 | 51 | **49** |
| 12 | Orissa | 104.4 | 89 | **-14.75** | 91 | 95 | **93** |
| 13 | Punjab | 72.1 | 49 | **-32.04** | 48 | 63 | **55** |
| 14 | Rajasthan | 114.9 | 80 | **-30.37** | 80 | 97 | **88** |
| 15 | Tamil Nadu | 63.3 | 36 | **-43.13** | 38 | 40 | **39** |
| 16 | Uttar Pradesh | 122.5 | 91 | **-25.71** | 89 | 106 | **97** |
| 17 | West Bengal | 67.6 | 42 | -37.87 | 45 | 44 | **45** |
| | **All India** | **94.9** | **69** | **-27.29** | **71** | **81** | **76** |

Source: India Human Development Report, 2011 *Data for 2005

in comparison to 42 deaths per 1000 suggested by the MDG (Resolution adopted by the General Assembly, 2000); same is the condition of some other states including Assam, Madhya Pradesh, and Uttar Pradesh (Table 5).

## Health Care for Women

An important aspect of the female health care system is the availability of proper childbirth facilities - an indicator directly influencing infant and female mortality rate, particularly in rural areas. The percentage of live birth deliveries at an institution with health facilities has been much lower than desired. However, several states, especially the developed states, have improved the percentage of institutional deliveries of live births as shown in the Table 6. The southern states of Andhra Pradesh, Karnataka, and Tamil Nadu have sound delivery facilities in rural areas, and even Orissa and West Bengal have better institutional delivery facilities. The proportion of institutional deliveries in these states has been around 50% now. Kerala is the only model state with about 99% institutional delivery facilities. No doubt, the maternal mortality rate is very low in Kerala and Tamil Nadu due to the availability of better institutional delivery than those available in other states.

The available data for 2005-06 reveals that in rural Gujarat, about 60% deliveries took place at home and the proportion of institutional deliveries was only about 40% (Table 6). Gujarat stands out to be the only exception among the list of developed states where most of the deliveries take place at home under unhealthy conditions and more often than not, without the help of a female health worker or a trained nurse. This is also one of the major reasons of high infant mortality rate in the state.

**Table 6. Distribution of Live Births (Rural) by Place of Delivery, 2005-06 (in %)**

| Sr No | States | Delivery at Health Facility/Institution | | | | Delivery at Home | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Institutional | Public Sector | NGO/ Trust | Private Sector | Home | Own Home | Parent's Home | Other | Others |
| 1 | Andhra Pradesh | 55.9 | 21.1 | 0.5 | 34.4 | 43.5 | 28 | 15.1 | 0.4 | 0.6 |
| 2 | Assam | 17.9 | 10.7 | - | 7.2 | 82.1 | 78.1 | 3.7 | 0.3 | 0.1 |
| 3 | Bihar | 16.7 | 2.7 | - | 14 | 82.9 | 72.4 | 10.4 | 0.1 | 0.4 |
| 4 | Chhattisgarh | 6.3 | 3.9 | 0.5 | 1.9 | 93.7 | 84.9 | 8.3 | 0.6 | - |
| 5 | Gujarat | 39.2 | 10.3 | 0.9 | 28 | 60.4 | 50 | 9.9 | 0.5 | 0.4 |
| 6 | Haryana | 26.7 | 10 | - | 16.7 | 73.3 | 68.4 | 4.5 | 0.4 | - |
| 7 | Jharkhand | 10.3 | 1.9 | 1.7 | 6.7 | 89.2 | 76.2 | 12 | 1.1 | 0.5 |
| 8 | Karnataka | 54.8 | 33 | 1.1 | 20.6 | 44.7 | 25 | 18.7 | 1.1 | 0.5 |
| 9 | Kerala | 99 | 35.7 | 0.3 | 63 | 0.9 | 0.7 | 0.2 | - | 0.2 |
| 10 | Madhya | 17.1 | 12.9 | - | 4.3 | 82.7 | 73.4 | 9.2 | 0.1 | 0.2 |
| 11 | Maharashtra | 48.9 | 21.4 | 0.2 | 27.4 | 50.8 | 29.7 | 20.6 | 0.5 | 0.3 |
| 12 | Orissa | 31.3 | 26.7 | 0.1 | 4.5 | 68.1 | 61.3 | 6.7 | 0.1 | 0.6 |
| 13 | Punjab | 47.6 | 11.3 | 0.2 | 36.1 | 52.3 | 41.4 | 10.8 | 0.1 | 0.1 |
| 14 | Rajasthan | 20.8 | 14.5 | - | 6.3 | 79.1 | 67.4 | 11.4 | 0.3 | 0.1 |
| 15 | Tamil Nadu | 84 | 49 | 1.2 | 33.8 | 15.7 | 11.6 | 3.5 | 0.6 | 0.4 |
| 16 | Uttar Pradesh | 15.8 | 5.9 | 0.1 | 9.8 | 84 | 75 | 8.2 | 0.9 | 0.2 |
| 17 | West Bengal | 32.2 | 26.2 | 0.1 | 5.9 | 67.5 | 49.6 | 17.7 | 0.1 | 0.4 |
| | **All India** | **28.9** | **14.4** | **0.3** | **14.2** | **70.8** | **59.8** | **10.6** | **0.5** | **0.3** |

Source : Ministry of Health and Family Welfare. (2011). Family welfare statistics in India (NFHS)

## Health Care Infrastructure

According to IHDR (2011), in Gujarat, the public sector provided health facilities to only about 35% of the rural households. The share fell to 17% in urban areas. This means that majority of the households- 65% in rural and 83 % in urban Gujarat were dependent upon private health care facilities. States like Orissa (79%), Rajasthan (74%), Tamil Nadu (58%), and Kerala (52%) have done better in terms of health care provisions provided by the public sector to the rural households (Table 7). Considering the fact, an aggressive intervention is required by the government to put in place an adequate rural health care system.

Sub centres, primary health centres, and community health centres comprise of a three tier rural health care system in India. Sub centres in the rural areas are the first tier of the rural health care system in India. Due to the wide geographical area, Andhra Pradesh, Bihar, Maharashtra, Rajasthan, Uttar Pradesh, and West Bengal have the highest number of sub centres. During the last reference period of 2005 - 2011, we observed that no major additions were done to the sub centres in these regions. The state of Chhattisgarh and Orissa saw remarkable increase in sub centres during this period. However, in the states of Assam, Jharkhand, and Karnataka, over 10% of the sub centres were closed down. With over 62% of the population in Gujarat living in rural areas (aprox 3.5 crore), there are merely about 7000 sub centres. During the last 5 years, there has been no addition to this facility for the rural poor (NFHS, 2011).

The second tier in the rural health care system in the state comprises of primary health centres (PHC). These centres have the basic facilities for consultancy and minor surgeries, managed by single doctors. The number of primary health centres increased only by 5% since 2005 in Gujarat. This is much less as compared to the improvement made by developed states like Maharashtra, Andhra Pradesh, Karnataka, and Tamil Nadu. It also compares poorly to the less developed states of West Bengal, Uttar Pradesh, Madhya Pradesh, and Rajasthan

**Table 7. Sub - Centres, PHCs, & CHCs**

| S. No. | State | Sub Centre | | | PHCs | | | CHCs | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2005 | 2011 | % change | 2005 | 2011 | % change | 2005 | 2011 | % change |
| 1 | Andhra Pradesh | 12522 | 12522 | 0.00 | 1570 | 1624 | 3.44 | 164 | 281 | 71.34 |
| 2 | Assam | 5109 | 4604 | -9.88 | 610 | 938 | 53.77 | 100 | 108 | 8.00 |
| 3 | Bihar | 10337 | 9696 | -6.20 | 1648 | 1863 | 13.05 | 101 | 70 | -30.69 |
| 4 | Chhattisgarh | 3818 | 5076 | 32.95 | 517 | 741 | 43.33 | 116 | 148 | 27.59 |
| 5 | Gujarat | 7274 | 7274 | 0.00 | 1070 | 1123 | 4.95 | 272 | 305 | 12.13 |
| 6 | Haryana | 2433 | 2508 | 3.08 | 408 | 444 | 8.82 | 72 | 107 | 48.61 |
| 7 | Jharkhand | 4462 | 3958 | -11.30 | 561 | 330 | -41.18 | 47 | 188 | 300.00 |
| 8 | Karnataka | 8143 | 8870 | 8.93 | 1681 | 2310 | 37.42 | 254 | 180 | -29.13 |
| 9 | Kerala | 5094 | 4575 | -10.19 | 911 | 809 | -11.20 | 106 | 224 | 111.32 |
| 10 | Madhya Pradesh | 8874 | 8869 | -0.06 | 1192 | 1156 | -3.02 | 229 | 333 | 45.41 |
| 11 | Maharashtra | 10453 | 10580 | 1.21 | 1780 | 1809 | 1.63 | 382 | 365 | -4.45 |
| 12 | Orissa | 5927 | 6688 | 12.84 | 1282 | 1228 | -4.21 | 231 | 377 | 63.20 |
| 13 | Punjab | 2858 | 2950 | 3.22 | 484 | 446 | -7.85 | 116 | 129 | 11.21 |
| 14 | Rajasthan | 10512 | 11487 | 9.28 | 1713 | 1517 | -11.44 | 326 | 376 | 15.34 |
| 15 | Tamil Nadu | 8682 | 8706 | 0.28 | 1380 | 1204 | -12.75 | 35 | 385 | 1000.00 |
| 16 | Uttar Pradesh | 20521 | 20521 | 0.00 | 3660 | 3692 | 0.87 | 386 | 515 | 33.42 |
| 17 | West Bengal | 10356 | 10356 | 0.00 | 1173 | 909 | -22.51 | 95 | 348 | 266.32 |
| | **All India** | **146026** | **148124** | **1.44** | **23236** | **23887** | **2.80** | **3346** | **4809** | **43.72** |

Source : Ministry of Health and Family Welfare. (2011). Family welfare statistics in India (2011)

(Table 7).

The community health centres were established with the objective of providing modern specialized health care facilities to the rural people. They also help in providing alternative for the district hospitals. There has been a remarkable increase in the percentage of CHCs for all states except Bihar and Maharashtra; however, the number of CHCs with reference to the rural population is low for all the major states. Gujarat currently has some 300 CHCs, which increased by about 12% in the given reference period (Table 7). This is much less in comparison to some less developed states like West Bengal, Uttar Pradesh, Orissa, and Madhya Pradesh. Andhra Pradesh has more than 12,000 sub centres. Bihar, Rajasthan, West Bengal, and Maharashtra have more than 10,000 sub centres. Gujarat needs to boost its health care system in rural areas, particularly with reference to the facilities provided by the public sector.

## Shortage of Medical Staff

Not only the rural health care centres are less in number than required in Gujarat, they also face acute shortage of all types of staff, including doctors, nurses, pharmacists, lab technicians, and female health workers. A basic health care unit in a rural area requires at least a doctor, a female health worker, and a nurse for its functioning. As in 2011, Gujarat required 345 doctors, 1966 female health workers, and more than 550 nurses in its various health centres. The states that boost about higher HDI and higher health index (Kerala, Punjab, and Tamil Nadu) have an adequate number of doctors. Even states like Bihar, Jharkhand, and West Bengal did not report any shortfall of doctors (Table 8).

Twelve states did not have any shortfall of female health workers in health centres. On the contrary, in rural Gujarat, one fourth of the health centres did not have female health workers, which is the highest among the

**Table 8. Shortfall of Medical Staff - I (2011)**

| S. No. | State/UT | Doctors | | Female Health Workers | | Nurses | |
|---|---|---|---|---|---|---|---|
| | | Shortfall | in % | Shortfall | in % | Shortfall | in % |
| 1 | Andhra Pradesh | Nil | Nil | Nil | Nil | Nil | Nil |
| 2 | Assam | Nil | Nil | Nil | Nil | Nil | Nil |
| 3 | Bihar | Nil | Nil | Nil | Nil | 617 | 26.22 |
| 4 | Chhattisgarh | 317 | 42.78 | 387 | 6.65 | 1280 | 72.03 |
| 5 | Gujarat | 345 | 30.72 | 1966 | 23.41 | 553 | 16.97 |
| 6 | Haryana | Nil | Nil | Nil | Nil | Nil | Nil |
| 7 | Jharkhand | Nil | Nil | Nil | Nil | 774 | 47.02 |
| 8 | Karnataka | 221 | 9.57 | Nil | Nil | Nil | Nil |
| 9 | Kerala | Nil | Nil | 1211 | 22.49 | 363 | 15.27 |
| 10 | Madhya Pradesh | 342 | 29.58 | Nil | Nil | 1020 | 29.25 |
| 11 | Maharashtra | Nil | Nil | Nil | Nil | Nil | Nil |
| 12 | Orissa | 703 | 57.25 | Nil | Nil | 2821 | 72.95 |
| 13 | Punjab | Nil | Nil | Nil | Nil | Nil | Nil |
| 14 | Rajasthan | 45 | 2.97 | Nil | Nil | Nil | Nil |
| 15 | Tamil Nadu | Nil | Nil | 136 | 1.37 | Nil | Nil |
| 16 | Uttar Pradesh | 831 | 22.51 | 1749 | 7.22 | 4670 | 64.00 |
| 17 | West Bengal | Nil | Nil | Nil | Nil | Nil | Nil |
| | All India | 2866 | 12.00 | 6555 | 3.81 | 13262 | 23.04 |

Source: Ministry of Health and Family Welfare. (2011). Family welfare statistics in India (2011)

given states. Nine states, including Andhra Pradesh and West Bengal did not have a shortage of nurses. In comparison to this, little less than one fifth health centres in Gujarat function without a trained nurse. Thus, the institutional delivery system in which the rural sector of Gujarat already lags, further becomes ineffective as the health centres functioning without a doctor, nurse, or at least a health worker cannot provide any medical assistance to helpless households. Lack of minimum manpower support not only affects the delivery facilities adversely, it renders the entire pre natal and post natal health care ineffectual.

Besides doctors, nurses, and female health workers, the specialists required at the health centres are also remarkably low in rural Gujarat. The health specialists include surgeons, obstetricians and gynaecologists, physicians, and pediatricians. More than one third of the health centres were without lab technicians and pharmacists. Understandably, in more than 90% of the centres, no specialists were available. About 10 states had a shortfall of specialists by over 50% in 2005, and the situation worsened by 2011. Nearly 13 major states had shortfall of specialists by over 50% in 2011, which indicates less preference of young specialists towards working in rural PHCs. The condition is alarming as all India shortfall of specialists stood at 64% in 2011. Gujarat had a whopping shortfall of nearly 94%, that is, around 1144 specialists in 2011 (Table 9). This shows that the state might be the most preferred destination for industrialists and professionals, but certainly not for doctors and medical specialists.

## Public Expenditure on Health

According to the World Health Organization, the public expenditure on health consists of revenue and capital expenditure incurred through both centre and state budgets. In addition, it also includes amount received through external grants, aids, and borrowing from international agencies and NGOs. Public spending on health care in

## Table 9. Shortfall of Medical Staff - II (2011)

| S. No. | State/UT | Specialists* | | Pharmacists | | Lab Technicians | |
|---|---|---|---|---|---|---|---|
| | | Shortfall | in % | Shortfall | in % | Shortfall | in % |
| 1 | Andhra Pradesh | 716 | 63.70 | 88 | 4.62 | 429 | 22.52 |
| 2 | Assam | 216 | 50.00 | Nil | Nil | Nil | Nil |
| 3 | Bihar | 129 | 46.07 | 1494 | 77.29 | 1435 | 74.24 |
| 4 | Chhattisgarh | 510 | 86.15 | 341 | 38.36 | 612 | 68.84 |
| 5 | Gujarat | 1144 | 93.77 | 524 | 36.69 | 453 | 31.72 |
| 6 | Haryana | 383 | 89.49 | 145 | 26.32 | 235 | 42.65 |
| 7 | Jharkhand | 686 | 91.22 | 174 | 33.59 | 147 | 28.38 |
| 8 | Karnataka | 136 | 18.89 | 73 | 2.93 | 1432 | 57.51 |
| 9 | Kerala | 122 | 13.62 | 20 | 1.94 | 765 | 74.06 |
| 10 | Madhya Pradesh | 1105 | 82.96 | 1158 | 77.77 | 883 | 59.30 |
| 11 | Maharashtra | 860 | 58.90 | Nil | Nil | 673 | 30.96 |
| 12 | Orissa | 1070 | 70.95 | 340 | 21.18 | 1275 | 79.44 |
| 13 | Punjab | 216 | 41.86 | Nil | Nil | 78 | 13.57 |
| 14 | Rajasthan | 935 | 62.17 | 1342 | 70.89 | Nil | Nil |
| 15 | Tamil Nadu | 1540 | 100.00 | 124 | 7.80 | 693 | 43.61 |
| 16 | Uttar Pradesh | 166 | 8.06 | Nil | Nil | 3212 | 76.35 |
| 17 | West Bengal | 1217 | 87.43 | 239 | 19.01 | 732 | 58.23 |
| | All India | 12301 | 63.95 | 6444 | 22.46 | 13611 | 47.43 |

Source: - Ministry of Health and Family Welfare. (2011). Family welfare statistics in India (2011)

* Surgeons, Physicians & Pediatricians

## Table 10. State Wise Public Expenditure on Health (2005)

| S. No. | State | Per Capita Exp as % of GSDP | Per Capita Expenditure (in ₹) | Public Expenditure as % of Total Exp |
|---|---|---|---|---|
| 1 | Andhra Pradesh | 0.72 | 191 | 18 |
| 2 | Assam | 0.86 | 162 | 20.9 |
| 3 | Bihar | 1.12 | 93 | 18.2 |
| 4 | Chhattisgarh | 0.7 | 146 | NA |
| 5 | Gujarat | 0.57 | 198 | 20.8 |
| 6 | Haryana | 0.49 | 203 | 18.8 |
| 7 | Jharkhand | 0.78 | 155 | NA |
| 8 | Karnataka | 0.87 | 233 | 28.1 |
| 9 | Kerala | 0.88 | 287 | 9.7 |
| 10 | Madhya Pradesh | 0.87 | 145 | 18.4 |
| 11 | Maharashtra | 0.55 | 204 | 16.8 |
| 12 | Orissa | 0.98 | 183 | 20.3 |
| 13 | Punjab | 0.65 | 247 | 18.2 |
| 14 | Rajasthan | 0.98 | 186 | 24.5 |
| 16 | Tamil Nadu | 0.71 | 223 | 17.7 |
| 17 | Uttar Pradesh | 0.92 | 128 | 13.1 |
| 18 | West Bengal | 0.69 | 173 | 13.7 |

Source : Institute of Applied Manpower Research, Planning Commission. (2011). India human development report (2011) .

India has always remained low, both at the centre and state level. The central government's expenditure on health increased to 2.15% of the total central government expenditure and 1.30% of GDP for 2011-12 from 1.25% of GDP in 2006- 07 (Ministry of Finance, Economic Survey, 2011 - 2012).

The per capita public expenditure in Gujarat is more than double of that of Bihar, but only two third of Kerala, and is significantly lower than that of Punjab and Tamil Nadu. Majority of the states (13 to be precise out of 17) reported a higher public expenditure as proportion of GSDP. Gujarat reported only about half a percentage, 0.57% expenditure on health out of its GSDP. For the state of affairs that we have analyzed, this proportion should be raised to at least 1% so that the state can aggressively push health care system in rural areas (Table 10).

## Conclusion and Policy Implications

Gujarat has recorded impressive growth figures in the last one decade. However, the growth has not been translated into improvement in its human development index. In fact, the HDI rank of the state has remained stagnant for the last three decades. The change in calculation of health index with 100% weight now being given to life expectancy has actually helped Gujarat to retain its rank of HDI at 6th position, which otherwise could be jeopardized, had the infant mortality rate also included in the calculation of the health index in the new HDR (2011).

Three important policy issues emerge from the above discussion. First, development in the state domestic product is no guarantee for an improvement in the human development index, unless the government deliberately makes a serious attempt to plug the loopholes in the development of social infrastructure such as education and health. In a specific context of Gujarat, the government must inject additional resources to boost social infrastructure as a support measure for the social development of the state. Second, the infant mortality rate has serious implications on both composition and growth of the human development index. Therefore, the government must strategically plan the measures to enhance health awareness and particularly the importance of hygiene and sanitation among rural households. Third, the public health infrastructure (especially in the rural sector) is not only inadequate, but poor. Due to lack of primary health centres (PHCs), doctors, nurses, and other medical staff, people are deprived of even minimum health care support. In many cases, people are forced to depend upon private hospitals, which are admittedly costlier. The out-of-pocket expenditure on health is significantly higher both in urban and rural areas. The state needs to take urgent steps to remove the shortage of doctors and nursing staff, open more PHCs, and make public health care facilities available to the people at large.

## Limitations of the Study and Scope for Further Research

The present study is based on relevant information as available from the secondary sources particularly, government reports on health surveys, which have obvious limitations of sampling and dimensional studies. Thus, the study could only be confined to an analysis of health care system in states, with special reference to Gujarat. There is ample scope to improve this analysis by undertaking a micro level study by conducting primary survey and visiting rural and tribal areas of the state.

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