

# MPRA

Munich Personal RePEc Archive

## **Trends and Patterns in Health Care Use and Treatment Costs in India during 1986 and 2004**

Anil Gumber and Biplab Dhak and N Lalitha

Sheffield Hallam University, UK, Gujarat Institute of Development  
Research, Ahmedabad, India, Gujarat Institute of Development  
Research, Ahmedabad, India

November 2011

Online at <http://mpra.ub.uni-muenchen.de/50354/>

MPRA Paper No. 50354, posted 4. October 2013 12:53 UTC

# **Trends and Patterns in Health Care Use and Treatment Costs in India during 1986 and 2004**

**Anil Gumber\*, Biplab Dhak \*\* and N. Lalitha\*\***

## **I. Introduction**

Health care in India is provided by both public and private sector. The public expenditure on health at 0.95 of GDP in 2005 is the lowest in comparison with China and Sri Lanka (1.82 and 1.89 per cent of GDP respectively, Shivakumar et al. 2011). The share of private sector in total health expenditure was highest with 78.05 per cent, and the external flows contributed 2.28 per cent. Among all the sources, households contributed a lion's share, 71.13 per cent of total health expenditure. This high proportion of household expenditure on health naturally put undue burden on poor in India where 27.5 per cent of people (2004-05) are below poverty line.

Out of pocket expenditure in India accounts for 94 percent of the total private health expenditure (cited in Berman et al., Table 1, 2010). The burden of out of pocket expenditure falls on the quarter or third of the households with incomes below the poverty line (Deolalikar et al. 2008). Methodological differences apart, several scholars have shown that out of pocket health expenditure is responsible for making people vulnerable to poverty (Gumber 2000, World Bank 2001, van Doorslaer et al. 2006, Sakthivel 2009, Berman et al. 2010). In India, uniformly, private health expenditure is higher than the public expenditure without any exception of states. Even at the time of independence, the Bhore Committee (1946) had recommended that comprehensive health care should be universally accessed by all regardless of their ability to pay. Successive policy documents have emphasized on promoting health for all. However, the events of the 1990s have changed the scenario. The economic reforms introduced fiscal discipline

---

\* Anil Gumber is with School of Allied Health Professions, Faculty of Health, University of East Anglia, Norwich NR4 7TJ, UK. Email: [anilgumber@hotmail.co.uk](mailto:anilgumber@hotmail.co.uk) B. Dhak and N.Lalitha are with Gujarat Institute of Development Research (GIDR), Ahmedabad as Assistant Professor and Professor respectively. The authors thank Mr. Bharat at GIDR for all the help in data processing.

in the state expenditures gets reflected in the form of reduction in the non-salary components of the social sector and health sector is not an exception which saw a heavy decline in the states' expenditure on health. It has been demonstrated that the fiscal reforms of the 1990s have taken a toll on the social expenditures of the states which has had an impact on the health and education expenditure of the states (Sen 2002, Dev 2007, Deolalikar et al. 2008). Particularly in health, this has resulted in increasing the cost of health care. The rising health care costs have a range of impacts on the poor: (1) it reduces the consumption on other items including food (2) increased indebtedness, (3) growing untreated illness and (4) gender bias in health seeking behaviour (Sen 2003). Further, there are differences in the health outcomes of the different states. For instance, Bihar, Rajasthan, Madhya Pradesh, Uttar Pradesh and Orissa which constitute 45 per cent of India's population, have high incidence of infant and child mortality and child malnutrition. Other states such as Kerala, Tamil Nadu and Gujarat, non communicable diseases are fast replacing the communicable diseases and malnutrition is the leading cause of child morbidity and mortality (Deolalikar et al. 2008). Though public health system has several draw backs in India, it has been evident from the previous National Sample Survey Organisation (NSSO) Rounds that public health services are the preferred options particularly for the inpatient care (Gumber 2002). Further, health outcomes especially infant mortality responds more to public health and local clinical interventions than to hospital care (Deolalikar et al. 2008). Therefore, it is of immense interest to see how the states have performed before and after the introduction of fiscal reforms which would be useful for any policy suggestions.

In this article, we have compared the health and morbidity scenario prevalent at three different time points using the NSSO surveys conducted during 1986-87, 1995-96 and 2004 and attempt to see through the trends in health care use and treatment costs, whether the states have recovered from the fiscal shock and restored their social spending particularly the expenditure on health. The primary focus is on morbidity and disease prevalence and their treatment, on the utilisation of health services and on the cost of health care across rural and urban areas of major states in India. Although the Ministry of Health and Family Welfare (Government of India 2007) has provided a consolidated

report of these three rounds, neither analyses nor systematic inferences are drawn from the data.

According to the National Health Accounts 2005, the government accounted for 19.67 per cent of health expenditure, while the states spent 73.53 per cent on health. There is a clear demarcation between Central and State provision and financing of various health services. As these three Rounds cover three important periods of growth. The liberalization period of the '80s followed by the fiscal contraction that saw the decline in social spending (Bhat et al. 2006, Sakthivel 2009) in the '90s which in succession followed by the globalization. We have considered 17 major states of India and the all India averages presented include all the states and union territories in India. A few bifurcations of states have taken place since November 2000; hence in order to compare between NSSO Rounds we have added Chhatisgarh with Madhya Pradesh, Uttaranchal with Uttar Pradesh and Jharkhand with Bihar. Further, in order to compare the increase in the cost of treatment in real terms, we have deflated the cost of treatment by wholesale price index for pharmaceutical products at 1993-94 prices.

The paper is structured in four sections. In Section II, a brief health scenario in India and the expenditure on health by different states are presented. Section III examines the health care use pattern and associated cost of treatment for inpatient and outpatient care. The last section presents the conclusions.

## **II. Health Scenario in India**

With the increasing attention towards achieving better health, India has achieved significant health improvement in terms of higher life expectancy and lower level of mortality over the last 50 years. According to health indicators compiled by Government of India (Central Bureau of Health Intelligence 2006, Registrar General 2006a): the crude death rate declined from 25 per 1000 population in 1951 to 8 in 2001 and the life expectancy at birth has risen from 36 years in 1951 to 62.5 years in 2002. Other health indicators like infant mortality rate, maternal mortality rate also have declined over the

period as a cumulative impact of various measures introduced in previous five year plans. The infant mortality rate has been halved from 120 per 1,000 live births in the 1970s to 60 in 2003. The maternal mortality ratio is estimated to have declined from 400 maternal deaths per 100,000 live births in 1997-98 to 300 in 2001-03 (Registrar General 2006b). In spite of these improved health outcomes, substantial inequities in the health outcomes prevail among the states (Balarajan et al. 2011).

However, the achievement has been slow in compared to other Asian countries (China, Indonesia, Thailand, Malaysia, the Republic of Korea, and Sri Lanka) and simultaneously new challenges are on the way to deal with. The main challenge is the rapidly growing burden of disease. India is going through epidemiological transition and that is reflected in growing burden of diseases. The burden of chronic diseases accounts for 53 per cent of deaths (44 per cent of disability adjusted life years) and the share of communicable diseases, maternal and peri-natal disorders, and nutritional deficiencies is 36 per cent of deaths (42 per cent of disability adjusted life years) (Balarajan et al. 2011). As per the latest NSSO report, the morbidity rate, a state of illness, has increased from 55/1000 in 1995-96 to 91/1000 in 2004. More importantly, there has been a complex change in the pattern of disease occurrence. Epidemiological transition entails substitution of chronic degenerative non-communicable diseases for communicable diseases as the primary causes of morbidity and mortality. Until late seventies, India with the higher level of mortality experienced and majority of deaths were from infectious, parasitic and respiratory diseases (Sen Gupta and Kapoor 1970). But the recent picture shows that India has undergone changes with respect to causes of deaths and rate of mortality. According to the Registrar General of India report (1998), non-communicable diseases and injuries are now the leading causes of death surpassing a considerable margin of deaths attributable to communicable diseases. Another recent study conducted in Andhra Pradesh (Joshi et al. 2006) points to similar evidence with regard to majority of deaths occurring due to non-communicable diseases and injuries. Tamil Nadu has also indicated a greater proportion of rural deaths occurring due to chronic and non-communicable diseases (Gajalakshmi and Peto 2004). There are also high prevalence of communicable diseases like malaria, tuberculosis, Diarrheal, HIV/AIDS causing a large proportion of

deaths and disease burden. Some of the high prevalent diseases at the year 2005 and the projected cases for the year 2015 are presented in Table 1.

Table 1: Disease Burden Estimations, 2005 and 2015

| Diseases   | Current estimate- 2005/lakhs* | Projected estimate- 2015/lakhs |
|--|-------------------------------|--------------------------------|
| <b>I. Communicable Diseases, Maternal &amp; Perinatal Conditions</b> |                               |                                |
| Tuberculosis   | 85 (2000)                     | -                              |
| HIV/AIDS   | 51(2004)                      | 190                            |
| Diarrheal  | 760                           | 880                            |
| Malaria and other vector borne disease                               | 20.37(2004)                   | -                              |
| IMR  | 63(2002)                      | 53.14                          |
| Maternal mortality   | 440                           | -                              |
| <b>II. Non-communicable disease</b>                                  |                               |                                |
| Cancer   | 8.07(2004)                    | 9.91                           |
| Diabetes   | 310                           | 460                            |
| Mental health problem  | 650                           | 800                            |
| Cardiovascular diseases  | 290(2000)                     | 640                            |
| Asthma   | 405.20(2001)                  | 596.36                         |
| <b>III. Other non-communicable diseases</b>                          |                               |                                |
| Injuries   | 9.8                           | 10.96                          |

Source: Report of the National Commission on Macroeconomics and Health, 2005. Ministry of Health and Family Welfare, Government of India, 2005

\* Number in the parenthesis indicates year of estimation.

In view of the prevailing diseases, it is essential that the government health expenditure in India has to be increased considerably. Both curative health care provision and financing are considered to be a State's subject. On average, out of the total government health spending, the State's share is about 80 per cent. There is a clear demarcation between Central and State provision and financing of various health services. State fully finances hospital services, primary health care facilities and ESIS (Employees' State Insurance Scheme). The medical education and family welfare programmes are fully financed by the Central government. Most of the national disease control programmes are funded on 50:50 share arrangements with the states. (However, in terms of total expenditure on these programmes the State's contribution turns out to be about three-fourths i.e. only basic inputs are shared equally, and the State has to bear all the administrative cost including salaries of the staff). Centre and States share capital

investment equally. Out of the total expenditure on medical education and research, Central government's share is little over 40 per cent. Thus, by and large, the State fully finances all the curative care services. It implies that the state economic conditions and financial and human resources have direct bearing on the health outcomes.

**Table 2: Public and Private Health Expenditure in India 2004-05.**

|                     | Expenditure (in Rs.000) |                     |                   | Expenditure (in Rs.) |                    | In %                         |   |
|---------------------|-------------------------|---------------------|-------------------|----------------------|--------------------|------------------------------|---|
|                     | Public Expenditure      | Private Expenditure | Total Expenditure | Per Capita Public    | Per Capita Private | Public Exp. as Share of GSDP | Public Exp. as Share of State Expenditure |
| <b>Major States</b> |                         |                     |                   |                      |                    |                              |   |
| Andhra Pradesh      | 15,166,809              | 69,133,745          | 84,300,554        | 191                  | 870                | 0.72                         | 3.22                                      |
| Assam               | 4,546,276               | 17,217,791          | 21,764,067        | 162                  | 612                | 0.86                         | 3.08                                      |
| Bihar               | 8,264,168               | 37,256,449          | 45,520,617        | 93                   | 420                | 1.12                         | 4.12                                      |
| Gujarat             | 10,673,668              | 40,606,301          | 51,279,969        | 198                  | 755                | 0.57                         | 3.06                                      |
| Haryana             | 4,609,237               | 19,866,486          | 24,475,723        | 203                  | 875                | 0.49                         | 3.19                                      |
| Himachal Pradesh    | 4,003,601               | 5,598,467           | 9,602,068         | 630                  | 881                | 1.74                         | 4.98                                      |
| Karnataka           | 12,901,254              | 33,041,496          | 45,942,750        | 233                  | 597                | 0.87                         | 3.77                                      |
| Kerala              | 9,431,012               | 87,545,011          | 96,976,023        | 287                  | 2663               | 0.88                         | 4.65                                      |
| Madhya Pradesh      | 9,375,858               | 41,694,492          | 51,070,350        | 145                  | 644                | 0.87                         | 3.19                                      |
| Maharashtra         | 20,900,906              | 103,402,991         | 124,303,897       | 204                  | 1008               | 0.55                         | 2.88                                      |
| Orissa              | 7,010,724               | 27,553,390          | 34,564,114        | 183                  | 719                | 0.98                         | 4.41                                      |
| Punjab              | 6,322,375               | 28,456,190          | 34,778,565        | 247                  | 1112               | 0.65                         | 3.01                                      |
| Rajasthan           | 11,283,333              | 34,868,833          | 46,152,166        | 186                  | 575                | 0.98                         | 3.90                                      |
| Tamil Nadu          | 14,334,228              | 66,562,101          | 80,896,329        | 223                  | 1033               | 0.71                         | 3.43                                      |
| Uttar Pradesh       | 22,805,122              | 151,006,063         | 173,811,185       | 128                  | 846                | 0.92                         | 3.86                                      |
| West Bengal         | 14,485,984              | 91,102,485          | 105,588,469       | 173                  | 1086               | 0.69                         | 4.32                                      |

Source: Table 1.3, National Health Accounts, 2004-05, Government of India.

The per capita public expenditure ranged from Rs.93 in the case of Bihar to Rs.630 in the case of Himachal Pradesh (HP). Per capital private expenditure was the highest in Kerala with Rs.2663. However, there appears to be no fixed pattern of public health spending between the developed and least developed states. Bihar spends 1.12 per cent of GSDP on health while Tamil Nadu spends 0.71 and Haryana spends just 0.49 per cent (Table 2). Again if we look at the morbidity pattern of the states during 2004, we find that Kerala, Punjab, West Bengal and Maharashtra have high morbidity while poorer states Jharkhand, Bihar, Uttaranchal and Rajasthan have relatively low morbidity rates (NSS, 60<sup>th</sup> Round).

With this background in the following paragraphs, the health care use pattern is analysed with reference to the 17 major states in India.

### **III. Health Care Use Pattern**

The increase in percentage of illnesses treated based on medical advice indicate the health seeking behavior of the consumers rather than as an indicator of morbidity alone. This data analysed by gender also brings out the inequities in the health seeking behavior in rural and urban areas. Thus at the all India level, share of treated illnesses for both males and females has remained almost the same in rural and urban areas in 2004 as compared to 1986-87 (Table 3). But within the states, there are wide variations indicating both positive and negative trends. On the positive side, in both rural and urban areas of AP, Assam, Haryana and Maharashtra, health seeking behaviour of both males and females has improved during 2004 compared to 1986-87. In certain states like HP, MP, Orissa, Rajasthan and Tamil Nadu, this improvement is noticed only in rural areas. In comparison with rural areas, health seeking behavior in urban areas for both the sexes has either declined or almost remained the same between 1986-87 and 2004 except for AP, Assam, Haryana and Maharashtra that was mentioned earlier.

At all India level, there is a marginal decline in the health seeking behaviour in males in rural and urban areas in 2004 compared to 1986-87. However, variations exist among the different states. In AP, Rajasthan, and TN there has been a continuous increase in the share of treated illness of males in rural areas. In majority of other states, there has been a decline in 1995-96, which has however increased in 2004. In contrast, both Kerala and Karnataka there is a decline in all the three periods. Interestingly, while in Gujarat and UP there is a steep decline in the share of treated illness in 2004 compared to 1995-96, in Assam there is a steep increase in the share of treated illness among males in both rural and urban areas.

There is a marginal increase in the health seeking behaviour of females in both rural and urban India in 2004 as compared to 1986-87. Among the states, AP and MP stand apart



as the share of females in the treated illnesses has continued to increase in all the three periods in both rural and urban areas. In Assam it is evident that while the share of untreated illness among the females increased steeply during the 90s, in 2004, the trend has reversed in both rural and urban areas. Such a trend is not evident in other states.

Even after the diagnosis of the illness, medical help/assistance is not sought by all which could be due to various socio-economic reasons. The NSS surveys had sought responses on lack of access due to (a) no nearby medical facility, (b) lack of faith (c) long waiting (d) financial reasons (e) ailment non considered serious and (f) all other reasons. At the all India level, in rural and urban areas, 13 and 1.5 per cent of responses cited lack of medical facility as the reason for no treatment in 2004 (Table 4). Policy makers should note the increasing percentage particularly in rural areas since 1986, which indicates that a certain percentage of population is excluded from access to basic primary health care.

Lack of faith could also come from the fact if the patient had not responded to the treatment provided in health care which is again increasing in rural areas of India. Lack of availability of medical equipment is also a contributing factor to lower diagnostic aspect of care in the government facilities (Narang 2011)<sup>1</sup>.

The other reason which the policy makers should note of it is in both rural and urban areas, the percentage of respondents who had said that the ailment was not serious enough to seek medical help is decreasing since 1986-87, thus indicating the rising acute and chronic morbidity scenario in the country.

The other disturbing trend that comes to the surface in 2004 is the percentage respondents who cited the lack of financial reasons for not accessing medical care has increased in both rural and urban areas indicating the widening inequality in access to health care. People who are poor are most likely to report financial costs as reasons for foregoing care

---

<sup>1</sup> In Tamil Nadu, a study on primary health care (PHC) centres showed that in the pre-Tamil Nadu Medical Services Corporation days, when the government facility used to repeatedly dispense similar coloured pills for different ailments, patients showed their disapproval by throwing the medicine within the compound of the PHC itself (Lalitha, 2006).

when there is an illness and this effect has increased with time in both rural and urban areas (Balarajan et al 2011). Nearly half of the people in the bottom expenditure quintile reported financial reasons for not seeking treatment (Gumber 1997).

At the state level, the number of states reporting lack of access to medical facility has increased in AP, Assam, Bihar, HP, Tamil Nadu, UP and West Bengal in 2004. On the other hand in states like Gujarat, Haryana, J&K, Karnataka, Kerala, MP, Orissa, Punjab, Rajasthan and Maharashtra though this percentage had increased in 1995-96, it has reduced in 2004 perhaps indicating the improved availability. Interestingly, only in the urban areas of AP and Karnataka, percentage reporting lack of facility has increased in 2004.

Health inequalities due to financial reasons had increased in both rural and urban areas in all the three years in Assam, Gujarat, Jammu and Kashmir, Karnataka and Tamil Nadu.

Except for Bihar, where the percentage of respondents reporting ailment not serious that increased marginally from 36.8 per cent in 1995-96 to 37.6 in 2004, in all other states, it has declined indicating the increasing health vulnerability of people in rural areas. Further, as compared to the rural areas, urban area presents an interesting picture, where AP, Assam, Bihar, Gujarat, Haryana, Kerala, Maharashtra, and Orissa, the percentage reporting ailment considered not serious has increased in 2004 as compared to 1995-96.

### **Use of Public Health Services**

Public health services play an important role in the health of poor. Unless people have an alternative, they may be compelled to pay high prices or be forced to opt of health services altogether (Sen et al. 2002). In a country where the private health expenditure averages at more than 70 per cent, it is important to understand the share of public health providers in providing inpatient and outpatient care. But, the share of private sector in health care is actively encouraged by the government through the provision of tax exemptions and land for hospitals at a subsidized rate (Sen et al. 2002).

Share of public health providers in treated illness which was about 60 per cent in rural and urban areas in the provision of inpatient care in 1986 has declined to 41.7 and 38.2 in 2004 (Table 5a). Among the states, the share of public providers in inpatient care for rural people was the lowest in Bihar (21.7 per cent) while in Jammu and Kashmir this was 91 per cent. Though there is an overall decline, it is obvious that the decline from 1986-1995 is steeper than the decline in the later period (1995-2004). Further, though all the states have registered a decline in the public provision of health for both rural and urban population, AP, Assam and MP have done better in 2004 compared to 1995-96, at least for the rural people. In the provision of public health services in urban areas, Tamil Nadu is the only state which showed improvement as compared to AP which registered a very marginal increase.

As compared to inpatient care, the share of public providers in the provision of outpatient care is much lower for both rural and urban population (Table 5b). As evident, the share of public providers in the outpatient care for rural population in AP, HP, Kerala, Orissa, Punjab, UP and West Bengal in 2004 is better than the share in 1986-87, while Assam, Karnataka and Maharashtra have done better in 2004 as compared to 1995. Hence, we find the overall share of public providers in outpatient care though declined in 1995 has revived in 2004 particularly in rural areas. Nevertheless, it leaves a huge gap of 76 per cent to be filled by the private providers.

At the all India level, the decline in the share of public providers in the treated illnesses in urban areas has been better than the inpatient services, as we find, the share in spite of the decline to 20 per cent in 1995 from the level of 27 per cent in 1986, has been at least maintained at 20 per cent in 2004. Implicitly 80 per cent of the urban outpatient care is catered to by the private providers which obviously would increase the cost of health care. The share of public providers in treated illnesses has increased in 2004 even in comparison with 1986 share only in the states of HP, J&K, Orissa and Punjab, though compared to 1995-96, a few more states like AP, Assam, Haryana, MP, Rajasthan, UP and West Bengal have done better in 2004.

### **Provision of Free Health Services by the Public Sector**

The share of private sector agencies in the provision of free health services for both inpatient and outpatient care is negligible. Therefore, those who avail of government facility also have provision to receive free treatment. To capture this aspect, Table 6a provides information on percentage of patients who received free hospital beds (as a proxy for free inpatient care) and free medicine (as a proxy for free outpatient care). At all India level, the percentage of rural and urban patients receiving free beds has declined in 2004 (37 and 32) compared to 1986-87 (60.7 and 55.2). The decline is much steeper from 1986-87 to 1995 (41.6) as compared to the later period. While almost all the states have shown a steep decline between 1986 and 1995 in the provision of free beds the exceptions are Andhra Pradesh, Madhya Pradesh, Bihar, Gujarat and Karnataka, which appears to have revived in 2004 as compared to 1995 situation. Himachal Pradesh, Haryana and Karnataka are the only three states which have improved the availability of free beds in urban areas in 2004.

In the outpatient care, at all India level free medicines were available to less than 20 per cent of patients in 1986 in rural and urban areas indicating that scenario of availability of free medicines is worse than the availability of free beds (Table 6b). This has further reduced for both rural and urban patients and thus in 2004 availability of free medicines for rural and urban patients is restricted to just 6.4 and 6.8 per cent. This is a huge burden on the people as is evident from the share of medicines in the inpatient and outpatient care is the highest as compared to other components. As analysed by Berman et al. (2010) the out of pocket expenditure arising due to meeting of health costs particularly the non-availability of free medicines would impoverish the poor further. We also see that states which have shown improvement in rural services are not the same which have improved the urban services marking the mismatch.

**Table 7 Components of inpatient expenditure in public and private sector (%)**

| Type of Hospital | Sector | Doctor' fee | Diagnostic Test | Bed etc. | Medicine | Blood etc. | Food | Total |
|------------------|--------|-------------|-----------------|----------|----------|------------|------|-------|
| Private          | Rural  | 26          | 9               | 17       | 40       | 3          | 5    | 100   |
|                  | Urban  | 27          | 11              | 17       | 38       | 4          | 3    | 100   |
| Public           | Rural  | 4           | 12              | 4        | 66       | 4          | 9    | 100   |
|                  | Urban  | 5           | 15              | 6        | 62       | 5          | 8    | 100   |

Source: Table 4.3, National Health Accounts, 2004-05.

The National Health Accounts 2004-05 notes with concern that “among various components highest expenditure was incurred on medicine both in public and private health care institutions and this varied within a range of 38-66 percent. In public health care institutions around 66 per cent of the expenditure has been incurred on medicine in rural areas while it was slightly lower at the urban areas at 62 per cent. Non availability of drugs in the inpatient has pushed up the expenditure on medicines in the public sector” (p.31)

At the state level, Kerala<sup>2</sup>, Rajasthan, Punjab, UP, West Bengal are the few states which have tried to improve the free medicines availability in 2004 as compared to 1995 at least in the rural areas. While Gujarat, Haryana, Himachal Pradesh and UP are the four states that have tried to improve the free medicinal availability in urban areas in 2004 as compared to 1995, only HP has reached the level of 1986. Even Tamil Nadu whose drug procurement and supply model is hailed as the model for other states to follow (Lalitha 2009), has registered a decline in 2004.

#### **IV. Cost and Burden of Treatment**

Undoubtedly, price is the most important consideration in choosing the public over the private facility especially for the treatment of chronic and catastrophic illnesses. We find that the ratio of the cost of private and public inpatient treatment in rural and urban India was 1.03 and 1 respectively in 2004 (Table 8a). This implies that there is no difference in cost of inpatient treatment between public and private hospitals. Interestingly in comparison with both 1986-87 and 1995-96 ratios, in both rural and urban areas we observe much higher inpatient treatment costs in private hospitals than public hospitals. Alternatively, it implies that the cost of treatment between private and public hospitals is narrowing in the ‘2000s. This could have been possible due to the following reasons: (1)

---

<sup>2</sup> Kerala based on the Tamil Nadu model has revised its drug procurement and supply pattern since 2007-08.

the severe competition between the private sector has resulted in reduction in the cost of services in the private sector, (2) public sector has started levying user charges in several states which is increasing the cost of treatment in the public sector almost equivalent to private sector and (3) the user fees for the services provided by the private sector in the scheme of public-private partnership.

User charges were introduced in different states at different points of time. Karnataka was the first to introduce user charges on hospital services in 1996, Orissa in 1997, MP in 1998, UP in 2000 and West Bengal and Rajasthan in 2001 (Shariff and Mondal 2009).

The private cost of inpatient treatment for rural patients is higher than the national average in all the states except Haryana. Bihar and Haryana are the only two states which are below the national average in terms of inpatient treatment costs for urban patients.

As compared to this, the cost ratio between private and public providers for outpatient care for rural patients at the national level has increased from 0.7 to 1.34 during 1986-2004 (1.44 in 1995) (Table 8b). For urban patients the ratio has increased consistently from 0.9 in 1986 to 1.2 and 1.4 in 1995 and 2004, respectively. Overall this implies that private providers have become costlier over time. Though, there is no clear trend emerging between the rural and urban areas for different states, we observe that for both rural and urban patients, the outpatient cost of private provider is lower than the national average in Bihar, Rajasthan, Madhya Pradesh (only in rural) and Orissa. While we can say it is partly reflecting on the general health seeking behaviour of people, it can also be said that though there is user fees charged in the public hospitals in Orissa, Rajasthan and MP, perhaps the private sector charges have not risen as in other states like Tamil Nadu or Karnataka. It could also be due to the better performance of the public sector in those states. "A well functioning public health care system not only assures effective services to those at the lower end of the socio-economic hierarchy but can also set a ceiling for the prices and a norm for the quality in the private sector. It can therefore be a major anchor for equity overall in the health service system. Inter-state comparisons within India appear to confirm this as states with better public health services have lower prices in the private sector" (cited in Sen et al. 2002).

Further, though Sen et al. (2002) study identified an inverse relationship between private sector cost and private sector's share in the treatment; in 2004, we do not find such a relationship. For instance, though in Tamil Nadu, the cost of inpatient treatment in private hospitals was 13 times higher than those in the public hospitals for rural patients, yet the public providers accounted only for 40 per cent of the share in inpatient treatment.

### **Cost of Treatment**

The average expenditure on treatment (such as fees, medicines, clinical and diagnostic tests, surgery, and hospital bed charges in real terms) per hospitalisation episode in 2004 was Rs. 3408 for rural and Rs. 5272 for urban inpatients for the country as a whole (Table 9a). As expected, the cost of treatment was higher for urban than rural patients due to cost of living and the nature of care sought. The inpatient treatment cost in rural patients was the least in Assam and highest in Punjab. Andhra Pradesh is the only state where the inpatient treatment costs have reduced particularly in the rural population. For urban patients, Kerala provides the cheapest inpatient care, while Punjab it is the costliest.

It is evident that the cost of care has increased drastically for all the states over the period 1986-87 to 2004, depicting in the range of 4.6 to 15.6 per cent annual growth rate. At the all India level, rural inpatient costs have increased at the rate of 6.5 per cent per annum. We find that except for Bihar, Orissa, Haryana and Maharashtra, in all other states, the costs of inpatient care for rural population has risen above the national average, with Tamil Nadu registering the highest at 15.7 per cent. However, if we compare the annual change in the costs since 1995-96, then the national average itself drops to 3.6 per cent. Here again we find that with the exception of Andhra Pradesh, where the costs of treatment have declined by 4.2 per cent per annum, Bihar and Kerala, are the only states where the increase in the costs is below the national average.

While urban inpatient costs have increased more than the rural inpatient costs at 7.9 per cent per annum during 1986-2004, the costs continue to remain growing at 7.7 per cent during the sub period of 1995-2004. Further inter-state variations are wider for urban than the rural inpatient costs, as we find the costs to have increased annually from 3.6 per cent in the case

of UP to 27 per cent in the case of Haryana during 1986-2004. During the sub-period 1995-2004, the annual increase in the costs for all the states has been less than that of 1986-2004 periods.

At all India level, cost of outpatient treatment for rural and urban population was Rs182 and Rs.180 (real terms) respectively in 2004. We observe that for both rural and urban population the average cost has increased compared to the previous years. For the different states, the cost ranged from Rs.110 to 245 for both rural and urban patients. For rural population, we find that in Bihar, HP, J&K and in MP, the outpatient care costs have declined in 2004, in comparison with 1986 costs in real terms (which is also reflected in the negative annual change in the cost). While in Maharashtra, the costs have remained at the same level, an increase is observed with reference to other states. For urban population HP, Maharashtra, MP, Rajasthan and UP have shown a decline in 2004 compared to 1986-87 (which again reflects in the negative growth rate in the long term). We however are not able to reflect on the steeper decline in the cost during the sub period in the case of Haryana and Madhya Pradesh.

The long term annual change in the cost of rural and urban outpatient care has been less than the annual change observed in the sub period at the all India level. Particularly for the rural population the annual increase in cost in the sub period has almost doubled. Karnataka has registered the highest annual change both during the long term as well as in the sub period, followed by Tamil Nadu. The annual increase in cost of urban outpatient care in the long term is the highest in Tamil Nadu, if we leave out Assam which shows an exceptionally higher increase because of the lowest cost registered in 1986-87.

## **V. Conclusions**

In this paper, we have detailed the trends in health seeking behaviour of people and choosing between government and private sources, reasons for not accessing health care and the cost of treatment by examining three Rounds of NSS data on health care use and morbidity pattern. Our overall observation is that the public health providers played a major role in meeting health care needs in India in 1986-87. While the fiscal reforms had



affected the health spending by the states over time and by 2004, though several states have attempted to restore the public provision of health care, it appears this would take some more years to catch-up the levels achieved during the 1986-87. We observe that while a majority of both men and women sought treatment for their illness, the percentage of people reporting lack of access to medical facility is more for rural than for urban populations indicating the urban centric position of health providers and the public health care needs to fill in this gap. At the same time the percentage of people reporting illness not serious enough requiring treatment has declined over the survey periods, indicating a better health seeking behaviour of people in both rural and urban areas. It also reflects on increasing the level of morbidity in the country. Better public health provision would bring down considerably the loss of number of working hours and days due to illness and thereby increase the income/livelihood opportunities and thus reduce the vulnerability.

During the years, government has also promoted private health providers through a variety of schemes to meet the growing demand; however the cost of private health provision has remained high. We do observe that the gap between the cost of providing treatment between public and private is reducing indicating the rising cost of treatment in public health facility which might be due to providing care to critical patients which the private sector hesitate to handle.

The disturbing trend of steep reduction in the percentage of people getting free medicines needs to be corrected. In Tamil Nadu, the Tamil Nadu Medical Services Corporation is in charge of the procurement of quality medicines and supplying to different levels of health care has significantly improved the availability of medicines in government health care since 1995. The limited budgets of the state governments can be effectively utilised if the state governments strictly follow an essential drug list and purchase the generic drugs through pooled procurement system. It is suggested here that even if the government is not able to provide free medicines to all the patients, it should at least streamline the availability of the essential generic medicines. There are a few initiatives already making a difference in the geographical areas where they are functioning. Bihar which is one of the less developed states of India has also adopted subsidised provision of generic drugs.

“Every medical college, district hospital and the primary health centre in the state has a shop where generic medicines at less than 50 per cent of the maximum retail price are sold and yet Bihar government is earning 45 per cent revenue on the project” (GOI, 2010).

Since the mid 2000s the central government has taken innovative initiatives to improve public health care in India. For instance, with an objective raising the public health spending to achieve universal health care, the central government has launched the National Rural Health Mission in 2005 with a prime focus on Madhya Pradesh, Rajasthan and Uttar Pradesh states.

The government has also initiated an insurance scheme as protecting the population from financial risks due to health care costs has become an important objective of health systems and thus the Rashtriya Swasthya Bima Yojana was launched in 2007. Several state governments like Karnataka, Tamil Nadu and Rajasthan also launched special medical insurance scheme to protect the population from adverse financial risks arising due to catastrophic diseases.

Realizing the limitations of the state provision of health particularly in rural and remote areas and the growing preference of the consumers for the private health providers many states have started adopting innovative public-private partnership in health sector for various services (Baru and Nundy 2008, Bhat and Jain 2006) with a view of directing the growth of private sector to contribute to public goals. As effectiveness of public spending also depends on the choice of health interventions, target population and technical efficiency (Deolalikar et al. 2008) partnering with private health providers could work towards reducing the health inequalities in the country.

**Table 3: Share of Treated Illnesses (as Percentage of All Illnesses Not Requiring Hospitalisation) by Gender, 1986-87 to 2004**

| States           | males rural |         |      | males urban |         |      | females rural |         |      | females urban |         |      | both sexes rural |         |      | both sexes urban |         |      |
|------------------|-------------|---------|------|-------------|---------|------|---------------|---------|------|---------------|---------|------|------------------|---------|------|------------------|---------|------|
|                  | 1986-87     | 1995-96 | 2004 | 1986-87     | 1995-96 | 2004 | 1986-87       | 1995-96 | 2004 | 1986-87       | 1995-96 | 2004 | 1986-87          | 1995-96 | 2004 | 1986-87          | 1995-96 | 2004 |
| Andhra Pradesh   | 63.2        | 76.9    | 79.7 | 77.3        | 87.2    | 88.8 | 56.3          | 71.9    | 73.2 | 66.2          | 82.8    | 86.8 | 59.7             | 74.5    | 76.2 | 71.4             | 85      | 87.7 |
| Assam            | 77.1        | 56.2    | 76.9 | 90          | 68.5    | 97.3 | 76.3          | 55.7    | 81.2 | 84.8          | 59.6    | 91.9 | 76.7             | 56      | 79   | 87.3             | 63.6    | 94.3 |
| Bihar            | 85.2        | 78.6    | 80.3 | 92.7        | 84.2    | 87.1 | 84.1          | 77.6    | 80.9 | 91.2          | 84.8    | 88.4 | 84.7             | 78.1    | 80.6 | 91.5             | 84.5    | 87.7 |
| Gujarat          | 89.1        | 94.7    | 80.4 | 94.3        | 95.8    | 92   | 87.9          | 89.4    | 85   | 95.2          | 97.1    | 93.9 | 88.5             | 92.1    | 82.7 | 94.7             | 96.5    | 92.9 |
| Haryana          | 90.3        | 98.7    | 94.6 | 91          | 97.8    | 94.7 | 90.7          | 95.4    | 92.5 | 91            | 98.8    | 97.8 | 90.5             | 97      | 93.5 | 91               | 98.4    | 95   |
| Himachal Pradesh | 94.8        | 89      | 93.7 | 100         | 96.9    | 100  | 98.1          | 86.2    | 95.6 | 100           | 97.6    | 91.5 | 96.5             | 87.5    | 94   | 100              | 97.2    | 92   |
| Jammu & Kashmir  | 90.5        | 94.7    | 85.7 | 98.3        | 96.8    | 93.7 | 85.1          | 92.7    | 78.1 | 98.1          | 98.6    | 94.7 | 87.9             | 93.7    | 82   | 98.2             | 97.6    | 94.2 |
| Karnataka        | 88.5        | 83.9    | 76.8 | 93.4        | 89.6    | 84.8 | 87.3          | 72      | 77.2 | 96.7          | 93.2    | 87.1 | 87.9             | 77.5    | 77   | 95.1             | 91.4    | 86   |
| Kerala           | 93.4        | 87.9    | 83   | 91.5        | 89.6    | 88.9 | 91.2          | 88.6    | 86.3 | 89.4          | 88.8    | 90.7 | 92.2             | 88.3    | 87   | 90.4             | 89.2    | 89.9 |
| Madhya Pradesh   | 74.5        | 85.1    | 85.5 | 88.6        | 94.8    | 96.7 | 71.8          | 82.4    | 89.1 | 86.3          | 91.5    | 94.1 | 80               | 83.7    | 87.4 | 95.4             | 93.3    | 95.3 |
| Maharashtra      | 79.8        | 90.4    | 88.6 | 95.2        | 92.2    | 91.3 | 80.2          | 86.8    | 87.7 | 95.5          | 92.4    | 92.6 | 73.3             | 88.6    | 88.1 | 87.4             | 92.3    | 91.9 |
| Orissa           | 70.7        | 69.3    | 75.7 | 88.4        | 84.3    | 86.8 | 68.8          | 66.1    | 76.4 | 89.5          | 88.6    | 86.3 | 69.7             | 67.7    | 76   | 88.9             | 86.6    | 86.6 |
| Punjab           | 94.6        | 99.4    | 94.8 | 97.4        | 96.5    | 96.8 | 93            | 98.6    | 93.2 | 95.3          | 96.5    | 96.4 | 93.8             | 99      | 93.9 | 96.4             | 96.5    | 96.6 |
| Rajasthan        | 84.5        | 86      | 88.6 | 90          | 80.6    | 88.8 | 81.7          | 95.1    | 91.7 | 90.3          | 88.5    | 90   | 83.2             | 89.8    | 90.2 | 90.2             | 89.6    | 89.4 |
| Tamil Nadu       | 75.2        | 75.9    | 77.6 | 89.2        | 90.9    | 89.8 | 75.7          | 79.2    | 78.6 | 88.4          | 92.8    | 83.9 | 75.3             | 77.6    | 78.1 | 88.8             | 92      | 86.5 |
| Uttar Pradesh    | 89          | 91.3    | 76.7 | 87.9        | 94.7    | 87.6 | 85.5          | 89.9    | 76   | 87.7          | 92.6    | 88   | 87.4             | 90.6    | 76.4 | 87.8             | 93.5    | 87.8 |
| West Bengal      | 84.4        | 79.4    | 83.4 | 90.7        | 91      | 84.8 | 81.5          | 80.8    | 77.1 | 85.2          | 88.8    | 81   | 83               | 80.1    | 80.3 | 87.9             | 89.9    | 82.8 |
| All-India        | 82.8        | 83.8    | 81.9 | 90.2        | 91      | 89.6 | 80.2          | 81.6    | 81.7 | 88.1          | 90.3    | 88.7 | 81.5             | 82.7    | 82   | 89.1             | 90.7    | 89.1 |

**Table 4: Percentage Distribution of Untreated Ailments by Reason for Non-Treatment, 1986-87 to 2004**

| State            | Survey Year | Rural                      |               |              |                   |                                |        | Urban                      |               |              |                   |                                |        |
|------------------|-------------|----------------------------|---------------|--------------|-------------------|--------------------------------|--------|----------------------------|---------------|--------------|-------------------|--------------------------------|--------|
|                  |             | No nearby medical facility | Lack of faith | Long waiting | Financial reasons | Ailment not considered serious | Others | No nearby medical facility | Lack of faith | Long waiting | Financial reasons | Ailment not considered serious | Others |
| Andhra Pradesh   | 1986-87     | 0.9                        | 1.1           | 0.2          | 10.1              | 74.4                           | 7.2    | 0                          | 1.2           | 0.8          | 8                 | 84.6                           | 5.5    |
|                  | 1995-96     | 3.2                        | 4.7           | 0.3          | 26.2              | 56.2                           | 7.9    | 0                          | 10.7          | 2.1          | 20.3              | 54.8                           | 10.7   |
|                  | 2004        | 8                          | 2.2           | 0            | 26.6              | 39.2                           | 23.91  | 0.6                        | 3.7           | 0.3          | 13                | 75                             | 7.5    |
| Assam            | 1986-87     | 0.5                        | 1.1           | 1.1          | 5.3               | 87.7                           | 4.3    | 0                          | 0.1           | 5.7          | 3.7               | 82.9                           | 7.7    |
|                  | 1995-96     | 11.5                       | 4.5           | 0.9          | 9.2               | 58                             | 13     | 0.2                        | 8.7           | 0.3          | 20.5              | 58                             | 10.9   |
|                  | 2004        | 14.7                       | 3.9           | 0            | 22.2              | 44.4                           | 14.7   | 0                          | 0             | 0            | 36.1              | 63.9                           | 0      |
| Bihar            | 1986-87     | 1.9                        | 1.3           | 0.8          | 18                | 74.7                           | 3.3    | 0                          | 0.2           | 0            | 9.1               | 86.1                           | 4.5    |
|                  | 1995-96     | 5.3                        | 1.5           | 1.9          | 40.4              | 36.8                           | 9.6    | 0                          | 2.9           | 0.8          | 24.9              | 55.4                           | 13     |
|                  | 2004        | 10.6                       | 1.6           | 0.1          | 27.2              | 37.6                           | 22.7   | 0                          | 0.2           | 1.5          | 15.5              | 71.5                           | 11.3   |
| Gujarat          | 1986-87     | 0.3                        | 0.6           | 9            | 17.4              | 74.7                           | 6      | 0                          | 5.7           | 0            | 13.3              | 77.2                           | 3.8    |
|                  | 1995-96     | 23.1                       | 2.7           | 0            | 2.8               | 66.4                           | 5      | 0                          | 5.5           | 19.2         | 0                 | 52.4                           | 9.7    |
|                  | 2004        | 4.1                        | 3.7           | 2.32         | 24.3              | 42.2                           | 23.2   | 0                          | 2.1           | 2            | 9.8               | 55.4                           | 30.7   |
| Haryana          | 1986-87     | 0.6                        | 3.6           | 1            | 14.1              | 70.6                           | 10.2   | 0                          | 6.2           | 0            | 7.1               | 75.1                           | 11.6   |
|                  | 1995-96     | 9.6                        | 16.6          | 0            | 12.9              | 55.9                           | 5      | 0                          | 0             | 0            | 12.9              | 22.8                           | 64.3   |
|                  | 2004        | 0                          | 8.7           | 0            | 14.1              | 42.2                           | 34.9   | 0                          | 0             | 0            | 0                 | 29                             | 71     |
| Himachal Pradesh | 1986-87     | 14.1                       | 4.1           | 1.1          | 4.3               | 70.9                           | 5.5    | 0                          | 0             | 0            | 0                 | 0                              | 0      |
|                  | 1995-96     | 2.4                        | 7.4           | 0.6          | 0.5               | 52.9                           | 32.3   | 0                          | 0             | 0            | 0                 | 63.2                           | 35.9   |
|                  | 2004        | 6.2                        | 0             | 0            | 21.9              | 4.6                            | 67.2   | 0                          | 0             | 64           | 36                | 0                              | 0      |
| Jammu & Kashmir  | 1986-87     | 3.9                        | 8.1           | 0            | 67.5              | 15.2                           | 5.3    | 0                          | 5.3           | 0            | 4.5               | 90.2                           | 0      |
|                  | 1995-96     | 14.3                       | 0             | 4.4          | 0.3               | 73.3                           | 7.7    | 0                          | 0             | 6.4          | 13.6              | 57.2                           | 19.9   |
|                  | 2004        | 4.4                        | 0             | 0            | 44                | 20                             | 31.5   | 0                          | 0             | 0            | 2.3               | 51.5                           | 46.2   |
| Karnataka        | 1986-87     | 5.3                        | 3.4           | 0.2          | 14.6              | 67.6                           | 8.9    | 0.7                        | 1.7           | 0            | 11.3              | 81.6                           | 4.7    |
|                  | 1995-96     | 7.5                        | 4.8           | 0            | 22                | 58.4                           | 5.4    | 0                          | 1.6           | 0            | 11.6              | 73.7                           | 12.9   |

|                |         |      |     |      |      |      |      |      |      |     |      |      |      |
|----------------|---------|------|-----|------|------|------|------|------|------|-----|------|------|------|
|                | 2004    | 2.9  | 3.9 | 0    | 33.9 | 29.1 | 30.2 | 2.5  | 4.9  | 0   | 31.7 | 35.4 | 25.5 |
| Kerala         | 1986-87 | 0    | 1.7 | 0    | 14.7 | 81   | 2.6  | 0    | 0.2  | 0   | 4.5  | 88.9 | 6.4  |
|                | 1995-96 | 5.7  | 1.2 | 0    | 12.9 | 69.8 | 9.1  | 1.1  | 1.3  | 0   | 12.4 | 68.6 | 14.4 |
|                | 2004    | 0.2  | 1   | 0.3  | 24.3 | 58.4 | 15.8 | 0    | 0.3  | 1.2 | 10.6 | 82.4 | 5.4  |
| Madhya Pradesh | 1986-87 | 5.4  | 2.5 | Negl | 15.8 | 73.3 | 3    | 0.3  | 2.6  | 0.4 | 8.6  | 88.8 | 4.3  |
|                | 1995-96 | 19.8 | 2.6 | 0    | 21   | 45.4 | 7.5  | 10.8 | 15.3 | 0   | 10.4 | 52.4 | 10.9 |
|                | 2004    | 11.7 | 0.8 | 0    | 22.7 | 48.6 | 16.1 | 0    | 1.1  | 2.3 | 23.3 | 45.6 | 27.8 |
| Maharashtra    | 1986-87 | 1.6  | 1.4 | 0.8  | 7.2  | 85.5 | 3.5  | 0.5  | 0.4  | 2.7 | 8.2  | 80.4 | 7.8  |
|                | 1995-96 | 8.2  | 3.4 | 0    | 20.1 | 63.7 | 4.2  | 0    | 0    | 0.3 | 25.1 | 63.3 | 11.3 |
|                | 2004    | 7.2  | 2.5 | 0.7  | 40.7 | 36.1 | 12.9 | 1.1  | 2    | 0.3 | 18.8 | 69.6 | 8.3  |
| Orissa         | 1986-87 | 6.6  | 1.2 | 0    | 68.6 | 17.4 | 6.2  | 0.9  | 0    | 0   | 12.1 | 85.5 | 1.5  |
|                | 1995-96 | 19.5 | 5.1 | 0.4  | 23   | 38.3 | 10.8 | 0    | 0    | 4   | 45.4 | 35.6 | 10   |
|                | 2004    | 13.5 | 1.2 | 0    | 23.8 | 28.4 | 33.2 | 3    | 7.1  | 0   | 42.2 | 36.5 | 11.1 |
| Punjab         | 1986-87 | 1.3  | 3.1 | 0    | 6.2  | 82.7 | 6.7  | 0    | 2    | 0   | 2.1  | 93.2 | 2.8  |
|                | 1995-96 | 21.3 | 5.5 | 0    | 49   | 7.7  | 16.5 | 0    | 4.5  | 0   | 47.3 | 48.2 | 0    |
|                | 2004    | 1.5  | 3.7 | 2.5  | 41.5 | 27.8 | 23   | 0    | 0    | 0   | 49.1 | 42.2 | 8.7  |
| Rajasthan      | 1986-87 | 8.6  | 3.2 | 0.7  | 69.5 | 14.7 | 3.3  | 0.1  | 0.6  | 0.3 | 11.2 | 86.4 | 1.5  |
|                | 1995-96 | 7.1  | 2.2 | 0    | 60.3 | 25.7 | 4.7  | 0    | 1.3  | 0   | 4.9  | 72.2 | 21.6 |
|                | 2004    | 4.1  | 6.5 | 1.8  | 37.1 | 25.2 | 25.3 | 13.1 | 0    | 1.3 | 34.8 | 35.1 | 15.8 |
| Tamil Nadu     | 1986-87 | 1.6  | 2.5 | 1.3  | 15.1 | 71.6 | 8    | 0    | 0.9  | 2.5 | 7.5  | 79.9 | 9.2  |
|                | 1995-96 | 0.8  | 4.7 | 1.1  | 21.6 | 66.1 | 5.6  | 0    | 5.1  | 0   | 11.7 | 46.6 | 36   |
|                | 2004    | 3.9  | 2.3 | 1.8  | 31.8 | 52.2 | 8.1  | 1.1  | 4.7  | 4.4 | 23.6 | 45.6 | 20.6 |
| Uttar Pradesh  | 1986-87 | 2.9  | 2.6 | 0.1  | 18.6 | 73.8 | 2    | 0.4  | 0.8  | 0.9 | 15.1 | 75.7 | 7.2  |
|                | 1995-96 | 10.8 | 4.5 | 0    | 22.4 | 51   | 9.6  | 0    | 11.2 | 1   | 22.5 | 64.6 | 0.7  |
|                | 2004    | 21.8 | 5.3 | 0.8  | 31.1 | 31.7 | 9.3  | 0    | 0.9  | 3.9 | 31.4 | 51.5 | 12.3 |
| West Bengal    | 1986-87 | 3.9  | 2   | 0    | 12.1 | 78.3 | 3.7  | 0.1  | 1.5  | 2.1 | 11.8 | 78.4 | 6    |
|                | 1995-96 | 7.9  | 0.5 | 0    | 43.1 | 34.6 | 13.2 | 0    | 2    | 0.3 | 19.7 | 65.9 | 10.6 |
|                | 2004    | 22.7 | 2.5 | 3.6  | 42.3 | 20.4 | 8.4  | 1.6  | 0.9  | 2.5 | 27.8 | 52.9 | 14.3 |
| All-India      | 1986-87 | 2.9  | 1.9 | 0.3  | 15.3 | 74.6 | 5    | 0.1  | 1.8  | 1.1 | 9.6  | 81.1 | 6.3  |
|                | 1995-96 | 8.8  | 3.7 | 0.5  | 24.2 | 51.1 | 9.9  | 0.8  | 5.3  | 1.1 | 19.8 | 59.4 | 12.4 |
|                | 2004    | 13   | 4.1 | 0.8  | 28.5 | 35.7 | 17.9 | 1.5  | 3.7  | 2   | 24   | 50.4 | 18.4 |

**Table 5a: Share of Public Providers in Treated Illnesses, 1986-87 to 2004**

| State            | Inpatient care |         |      |         |         |      |
|------------------|----------------|---------|------|---------|---------|------|
|                  | Rural          |         |      | Urban   |         |      |
|                  | 1986-87        | 1995-96 | 2004 | 1986-87 | 1995-96 | 2004 |
| Andhra Pradesh   | 30.8           | 22.2    | 27.4 | 41.7    | 35.4    | 35.8 |
| Assam            | 89.8           | 69.2    | 75   | 82.4    | 63      | 55.2 |
| Bihar            | 50.1           | 24.1    | 21.7 | 46.8    | 31.9    | 26.5 |
| Gujarat          | 56             | 31.4    | 31.3 | 61.8    | 36.3    | 26.1 |
| Haryana          | 54.1           | 30.3    | 20.6 | 56.7    | 37      | 29   |
| Himachal Pradesh | 88             | 86.5    | 78.1 | 78.9    | 91.3    | 89.7 |
| Jammu & Kashmir  | 96.5           | 97.7    | 91.2 | 96.1    | 95.9    | 86.4 |
| Karnataka        | 59.8           | 45      | 40   | 50      | 29.3    | 28.9 |
| Kerala           | 43.6           | 39.5    | 35.6 | 56.3    | 37.3    | 34.6 |
| Madhya Pradesh   | 80.4           | 40.4    | 57.2 | 79      | 54.7    | 48.7 |
| Maharashtra      | 45.8           | 30.9    | 28.7 | 49.4    | 30.7    | 28   |
| Orissa           | 90.7           | 84.2    | 79.1 | 82.2    | 77.9    | 73.1 |
| Punjab           | 49.2           | 37.7    | 29.4 | 52      | 26.5    | 26.4 |
| Rajasthan        | 81             | 63.3    | 52.1 | 86.5    | 72.1    | 63.7 |
| Tamil Nadu       | 56.9           | 40.4    | 40.8 | 58.2    | 34.2    | 37.2 |
| Uttar Pradesh    | 58.3           | 46.1    | 27.8 | 61.1    | 39      | 31.5 |
| West Bengal      | 91.9           | 79.9    | 78.7 | 75.9    | 71.3    | 65.4 |
| All-India        | 59.7           | 43.8    | 41.7 | 60.3    | 41.9    | 38.2 |

**Table 5b: Share of Public Providers in Treated Illnesses, 1986-87 to 2004**

| States         | Outpatient care |         |      |         |         |      |
|----------------|-----------------|---------|------|---------|---------|------|
|                | rural           |         |      | urban   |         |      |
|                | 1986-87         | 1995-96 | 2004 | 1986-87 | 1995-96 | 2004 |
| Andhra Pradesh | 21.6            | 22      | 22.3 | 22.6    | 19      | 20.4 |
| Assam          | 53              | 29      | 35.6 | 29.6    | 22      | 29.1 |
| Bihar          | 16.9            | 13      | 7.8  | 18      | 33      | 16.9 |
| Gujarat        | 35.1            | 25      | 22   | 19.6    | 22      | 18   |
| Haryana        | 16.9            | 13      | 12   | 21.7    | 11      | 19.9 |

|                  |      |    |      |      |    |      |
|------------------|------|----|------|------|----|------|
| Himachal Pradesh | 60.7 | 39 | 68.6 | 47.7 | 48 | 86.1 |
| Jammu & Kashmir  | 59.8 | 44 | 53.8 | 47.4 | 28 | 50.9 |
| Karnataka        | 36.4 | 26 | 34.6 | 31.3 | 17 | 16.7 |
| Kerala           | 34   | 28 | 38   | 34.8 | 28 | 24   |
| Madhya Pradesh   | 27.1 | 23 | 22.7 | 25.9 | 19 | 24.8 |
| Maharashtra      | 36.5 | 16 | 17.4 | 35.3 | 17 | 11.7 |
| Orissa           | 52.7 | 38 | 56.8 | 47.9 | 34 | 58.3 |
| Punjab           | 13.4 | 7  | 17.6 | 15.6 | 6  | 18.9 |
| Rajasthan        | 56.1 | 36 | 45.5 | 57.5 | 41 | 53.9 |
| Tamil Nadu       | 38.7 | 25 | 30.7 | 35.5 | 28 | 22.1 |
| Uttar Pradesh    | 10.4 | 8  | 11.7 | 17.2 | 9  | 15.3 |
| West Bengal      | 19.6 | 15 | 21.1 | 25.3 | 19 | 21.4 |
| All-India        | 25.6 | 19 | 24.1 | 27.2 | 20 | 20   |

**Table 6a: Percentage of Patients Receiving Free Hospital Bed 1986-87 to 2004**

| State            | Free hospital bed (Inpatient care) |         |      |                 |         |      |
|------------------|------------------------------------|---------|------|-----------------|---------|------|
|                  | Rural inpatient                    |         |      | urban inpatient |         |      |
|                  | 1986-87                            | 1995-96 | 2004 | 1986-87         | 1995-96 | 2004 |
| Andhra Pradesh   | 33.3                               | 21.9    | 31.1 | 41.3            | 36.8    | 33.9 |
| Assam            | 95.5                               | 76.5    | 60.2 | 76.1            | 58      | 41.3 |
| Bihar            | 47.7                               | 20      | 22.4 | 56.5            | 38.9    | 30.4 |
| Gujarat          | 40                                 | 26.1    | 27.7 | 39.4            | 25.4    | 18.7 |
| Haryana          | 54                                 | 29.6    | 11.6 | 53.3            | 16.7    | 20.1 |
| Himachal Pradesh | 86.5                               | 79      | 74.1 | 77.3            | 71      | 80.5 |
| Jammu & Kashmir  | 93.4                               | 96.8    | 83.2 | 91.6            | 88.1    | 78.5 |
| Karnataka        | 58.8                               | 37.8    | 38.2 | 36.6            | 25.3    | 28.2 |
| Kerala           | 45.1                               | 37.5    | 33.6 | 45.2            | 31.7    | 29.5 |
| Madhya Pradesh   | 77.2                               | 39.2    | 49.1 | 73.3            | 49.1    | 41.6 |
| Maharashtra      | 42.8                               | 28.7    | 22.5 | 39.7            | 28.6    | 20.6 |
| Orissa           | 88.7                               | 83.1    | 78.8 | 88              | 75.2    | 65.1 |

|               |      |      |      |      |      |      |
|---------------|------|------|------|------|------|------|
| Punjab        | 46.3 | 26.8 | 11.5 | 46.1 | 18.7 | 10.7 |
| Rajasthan     | 81.8 | 65.8 | 50.8 | 84.9 | 70.5 | 61.3 |
| Tamil Nadu    | 59.5 | 42.9 | 42.5 | 57.8 | 38.9 | 37.8 |
| Uttar Pradesh | 59.1 | 39.8 | 16.8 | 56.1 | 32.6 | 21.8 |
| West Bengal   | 90.4 | 79.6 | 71.8 | 69.4 | 64.5 | 51.9 |
| All-India     | 60.7 | 41.6 | 37   | 55.2 | 38.2 | 32   |

Note: \* denotes the All-India average based on the weighted average of 17 major states (states are weighted according to their share in the total estimated hospitalised / ill persons).

**Table 6b: Percentage of patients receiving free medicines 1986-87 to 2004**

| States           | Rural outpatient               |         |      | Urban outpatient |         |      |
|------------------|--------------------------------|---------|------|------------------|---------|------|
|                  | free medicines outpatient care |         |      |                  |         |      |
|                  | 1986-87                        | 1995-96 | 2004 | 1986-87          | 1995-96 | 2004 |
| Andhra Pradesh   | 20.8                           | 20.1    | 10.3 | 24.2             | 8.5     | 6.9  |
| Assam            | 31                             | 12.6    | 2.7  | 10.5             | 6       | 5.6  |
| Bihar            | 5.2                            | 1.5     | 0.2  | 26.6             | 10.4    | 3.7  |
| Gujarat          | 21.5                           | 9.5     | 8.6  | 13.9             | 10.2    | 11.7 |
| Haryana          | 8.2                            | 3.7     | 1.3  | 12.2             | 1.7     | 3.2  |
| Himachal Pradesh | 24.1                           | 4.5     | 3.6  | 8.8              | 6.8     | 9    |
| Jammu & Kashmir  | 20.3                           | 5.1     | 3.6  | 12.7             | 5.2     | 2.8  |
| Karnataka        | 26.5                           | 16.3    | 14.6 | 25.4             | 8.2     | 4.8  |
| Kerala           | 29.8                           | 9.3     | 11.1 | 25.4             | 8.7     | 6.6  |
| Madhya Pradesh   | 24.5                           | 3.3     | 2.9  | 17.9             | 7.8     | 7.7  |
| Maharashtra      | 17                             | 8.6     | 6.3  | 21.9             | 8.8     | 4.5  |
| Orissa           | 25                             | 8       | 7.8  | 24.6             | 5       | 5.1  |
| Punjab           | 6.5                            | 0.6     | 1.2  | 7.6              | 2.3     | 1.6  |
| Rajasthan        | 15.6                           | 0.1     | 3.2  | 17.5             | 9.8     | 7.5  |
| Tamil Nadu       | 37.3                           | 27.8    | 25.7 | 34.3             | 25.1    | 20.6 |
| Uttar Pradesh    | 6                              | 1.8     | 2.2  | 10.5             | 4       | 4.5  |
| West Bengal      | 15.4                           | 3.7     | 4    | 18.5             | 8.2     | 4.9  |
| All-India        | 17.5*                          | 7.7     | 6.4  | 19.7*            | 9.3     | 6.8  |



**Table 8a: Ratio of Cost of Treatment Between Private and Public Provider, 1986-87 to 2004**

| States           | Inpatient |         |         |         |         |         |
|------------------|-----------|---------|---------|---------|---------|---------|
|                  | Rural     |         |         | Urban   |         |         |
|                  | 1986-87   | 1995-96 | 2004-05 | 1986-87 | 1995-96 | 2004-05 |
| Andhra Pradesh   | 2.2       | 3.8     | 2.54    | 5.2     | 5.4     | 9.1     |
| Assam            | 0.6       | 1       | 1.89    | 3.4     | 3.2     | 7.5     |
| Bihar            | 1.3       | 1.2     | 1.58    | 1.6     | 1.6     | 0.9     |
| Gujarat          | 2.3       | 2.2     | 2.83    | 2.9     | 2.2     | 2.6     |
| Haryana          | 1.5       | 1.3     | 0.51    | 1.9     | 0.6     | 0.6     |
| Himachal Pradesh | 1.8       | 1.1     | 2.43    | 3       | 3.2     | 3.4     |
| Jammu & Kashmir  | 2.1       | 1       | 2.27    | 5.5     | 2.6     | 5.5     |
| Karnataka        | 2.8       | 2.3     | 3.06    | 3.3     | 2.9     | 6.2     |
| Kerala           | 1.6       | 1.7     | 2.12    | 2.6     | 1.5     | 1.9     |
| Madhya Pradesh   | 1.7       | 1.6     | 1.82    | 2.8     | 2.3     | 3.5     |
| Maharashtra      | 2.9       | 2.5     | 3.22    | 5.1     | 3.7     | 3.8     |
| Orissa           | 2         | 1.5     | 2.57    | 0.9     | 5.5     | 2.3     |
| Punjab           | 1.3       | 1.7     | 1.42    | 2.1     | 1.1     | 2.2     |
| Rajasthan        | 1.1       | 1.5     | 1.74    | 1.2     | 1.9     | 1.8     |
| Tamil Nadu       | 9         | 5.8     | 13.37   | 12.4    | 6.2     | 10.5    |
| Uttar Pradesh    | 1.4       | 1.1     | 1.24    | 1.5     | 1.3     | 2.4     |
| West Bengal      | 6         | 2.1     | 4.28    | 5.6     | 5.8     | 4.0     |
| All-India        | 1.6       | 2.1     | 1.03    | 2.4     | 2.4     | 1.0     |

**Table 8b: Ratio of Cost of Treatment Between Private and Public Provider, 1986-87 to 2004**

| States         | Outpatient |         |         |         |         |         |
|----------------|------------|---------|---------|---------|---------|---------|
|                | Rural      |         |         | Urban   |         |         |
|                | 1986-87    | 1995-96 | 2004-05 | 1986-87 | 1995-96 | 2004-05 |
| Andhra Pradesh | 1.8        | 4.1     | 1.78    | 4.2     | 2.3     | 2.6     |
| Assam          | 0.8        | 0.6     | 1.45    | 0.4     | 0.9     | 0.9     |
| Bihar          | 0.6        | 1.2     | 0.65    | 1.7     | 3       | 0.78    |
| Gujarat        | 1.6        | 2.3     | 1.63    | 1.5     | 1.7     | 2.7     |
| Haryana        | 1.6        | 0.8     | 1.35    | 1.9     | 0.5     | 1.1     |

|                  |     |     |      |     |     |      |
|------------------|-----|-----|------|-----|-----|------|
| Himachal Pradesh | 0.8 | NE  | 0.69 | 1.3 | NE  | 1.7  |
| Jammu & Kashmir  | 0.8 | NE  | 1.2  | 1   | NE  | 0.6  |
| Karnataka        | 1.8 | 2   | 2.1  | 1.4 | 1.4 | 1.8  |
| Kerala           | 1.5 | 1.6 | 1.31 | 1.6 | 1.6 | 1.2  |
| Madhya Pradesh   | 1.7 | 1.7 | 0.96 | 1.9 | 0.5 | 1.79 |
| Maharashtra      | 1.2 | 2   | 1.3  | 1.3 | 1.6 | 2.7  |
| Orissa           | 0.7 | 1.2 | 0.98 | 1.9 | 0.9 | 0.6  |
| Punjab           | 0.8 | 1.2 | 0.77 | 1   | 0.8 | 0.3  |
| Rajasthan        | 0.9 | 0.8 | 0.37 | 1   | 1.3 | 1.1  |
| Tamil Nadu       | 5.1 | 7.5 | 3.97 | 4.1 | 5   | 13.6 |
| Uttar Pradesh    | 0.7 | 0.6 | 2.13 | 0.7 | 0.9 | 1.54 |
| West Bengal      | 1.4 | 0.8 | 1.11 | 1.9 | 1.9 | 1.1  |
| All-India        | 0.7 | 1.4 | 1.34 | 0.9 | 1.2 | 1.44 |

**Table 9a: Cost of treatment for inpatient care, 1986-87 to 2004 (1993-94 prices)**

| States           |                 |         |      |                 |         |      | Per cent of annual change |              |                 |              |
|------------------|-----------------|---------|------|-----------------|---------|------|---------------------------|--------------|-----------------|--------------|
|                  | Rural inpatient |         |      | Urban Inpatient |         |      | Rural inpatient           |              | Urban inpatient |              |
|                  | 1986-87         | 1995-96 | 2004 | 1986-87         | 1995-96 | 2004 | 1986-2004                 | 1995-96-2004 | 1986-2004       | 1995-96-2004 |
| Andhra Pradesh   | 1291            | 5273    | 3442 | 1470            | 4008    | 5427 | 9.7                       | -4.2         | 15.6            | 4.3          |
| Assam            | 900             | 1595    | 2225 | 1655            | 3109    | 6087 | 8.5                       | 4.8          | 15.5            | 11.6         |
| Bihar            | 2089            | 3166    | 3776 | 1984            | 3055    | 5953 | 4.7                       | 2.3          | 11.6            | 11.5         |
| Gujarat          | 1481            | 2184    | 3236 | 2084            | 2729    | 4718 | 6.9                       | 5.8          | 7.3             | 8.8          |
| Haryana          | 2438            | 2645    | 5097 | 1391            | 5362    | 7967 | 6.3                       | 11.2         | 27.4            | 5.9          |
| Himachal Pradesh | 1719            | 2075    | 4705 | 1862            | 2168    | 5223 | 10.1                      | 15.4         | 10.5            | 17.1         |
| Jammu & Kashmir  | 1163            | 2090    | 3015 | 1148            | 2963    | 4195 | 9.2                       | 5.4          | 15.4            | 5.0          |
| Karnataka        | 1626            | 2458    | 3470 | 2150            | 2947    | 4459 | 6.6                       | 5.0          | 6.2             | 6.2          |
| Kerala           | 796             | 1881    | 2249 | 843             | 1581    | 3048 | 10.6                      | 2.4          | 15.2            | 11.3         |
| Madhya Pradesh   | 1205            | 1797    | 2706 | 1041            | 2276    | 3760 | 7.2                       | 6.1          | 15.1            | 7.9          |
| Maharashtra      | 1628            | 2534    | 3436 | 2682            | 3279    | 5365 | 6.4                       | 4.3          | 5.8             | 7.7          |
| Orissa           | 1353            | 1346    | 2460 | 1282            | 3173    | 3545 | 4.7                       | 10.0         | 10.2            | 1.4          |

|               |      |      |      |      |      |       |      |     |      |      |
|---------------|------|------|------|------|------|-------|------|-----|------|------|
| Punjab        | 2524 | 4092 | 7158 | 2795 | 4686 | 11354 | 10.6 | 9.1 | 17.7 | 17.3 |
| Rajasthan     | 1856 | 2492 | 4465 | 1329 | 2583 | 4517  | 8.1  | 9.6 | 13.9 | 9.1  |
| Tamil Nadu    | 845  | 2330 | 3129 | 1246 | 3227 | 6379  | 15.7 | 4.2 | 23.9 | 11.8 |
| Uttar Pradesh | 2266 | 3567 | 5211 | 3266 | 4836 | 5285  | 7.5  | 5.6 | 3.6  | 1.1  |
| West Bengal   | 757  | 1605 | 2474 | 1914 | 2639 | 4876  | 13.2 | 6.6 | 9.0  | 10.3 |
| All-India     | 1605 | 2627 | 3408 | 2227 | 3216 | 5272  | 6.5  | 3.6 | 7.9  | 7.7  |

**Table 9b: Cost of Treatment for Outpatient Care, 1986-87 to 2004 (1993-94 prices)**

| States           | Rural outpatient |            |            | Urban outpatient |            |            | Per cent of annual change |              |                  |              |
|------------------|------------------|------------|------------|------------------|------------|------------|---------------------------|--------------|------------------|--------------|
|                  | 1986-87          | 1995-96    | 2004       | 1986-87          | 1995-96    | 2004       | Rural outpatient          |              | Urban outpatient |              |
|                  |                  |            |            |                  |            |            | 1986-2004                 | 1995-96-2004 | 1986-2004        | 1995-96-2004 |
| Andhra Pradesh   | 126              | 135        | 156        | 119              | 141        | 184        | 1.39                      | 1.88         | 3.18             | 3.66         |
| Assam            | 158              | 124        | 184        | 23               | 148        | 239        | 0.94                      | 5.85         | 55.51            | 7.49         |
| <b>Bihar</b>     | <b>297</b>       | <b>175</b> | <b>239</b> | 175              | 174        | 181        | -1.14                     | 4.45         | 0.20             | 0.50         |
| Gujarat          | 154              | 129        | 181        | 175              | 179        | 240        | 1.00                      | 4.92         | 2.14             | 4.12         |
| Haryana          | 136              | 155        | 240        | 134              | 340        | 140        | 4.45                      | 6.61         | 0.28             | -7.12        |
| Himachal Pradesh | <b>247</b>       | <b>71</b>  | <b>140</b> | <b>222</b>       | <b>109</b> | <b>179</b> | -2.50                     | 11.68        | -1.13            | 7.74         |
| Jammu & Kashmir  | <b>192</b>       | <b>154</b> | <b>179</b> | 154              | 122        | 245        | -0.40                     | 1.93         | 3.42             | 12.22        |
| Karnataka        | 88               | 100        | 245        | 124              | 141        | 195        | 10.28                     | 17.60        | 3.29             | 4.61         |
| Kerala           | 115              | 112        | 195        | 96               | 98         | 110        | 4.04                      | 9.04         | 0.82             | 1.38         |
| Madhya Pradesh   | <b>141</b>       | <b>127</b> | <b>110</b> | <b>220</b>       | <b>308</b> | <b>190</b> | -1.30                     | -1.67        | -0.79            | -4.65        |
| Maharashtra      | 190              | 135        | 190        | <b>192</b>       | <b>152</b> | <b>183</b> | 0.00                      | 4.91         | -0.28            | 2.48         |
| Orissa           | 117              | 121        | 183        | 111              | 112        | 156        | 3.28                      | 6.26         | 2.33             | 4.80         |
| Punjab           | 154              | 144        | 156        | 151              | 133        | 199        | 0.05                      | 1.03         | 1.87             | 6.05         |
| Rajasthan        | 188              | 157        | 199        | <b>207</b>       | <b>162</b> | <b>172</b> | 0.34                      | 3.22         | -0.99            | 0.70         |
| Tamil Nadu       | 77               | 84         | 172        | 87               | 106        | 156        | 7.11                      | 12.77        | 4.67             | 5.78         |
| Uttar Pradesh    | 169              | 184        | 156        | <b>235</b>       | <b>186</b> | <b>195</b> | -0.45                     | -1.81        | -1.00            | 0.57         |
| West Bengal      | 98               | 107        | 195        | 164              | 112        | 182        | 5.75                      | 9.86         | 0.66             | 7.54         |
| All-India        | 141              | 144        | 182        | 152              | 159        | 180        | 1.69                      | 3.19         | 1.04             | 1.58         |

## References

Balarajan Y, Selvaraj S, Subramanian S V (2011), "Health Care and Equity in India", *Lancet*, 377, pp 505-515.

Baru Rama and Nundy Madhurima (2008), "Blurring of Boundaries: Public Private Partnerships in Health services in India", *Economic and Political Weekly*, Vol. 43 No 4, pp 62-71.

Berman Peter, Ahuja Rajeev and Bhandari Laveesh, (2010), "The Impoverishing effect of health care payments in India: New methodologies and findings", *Economic and Political Weekly*, 45(16), pp 65-71.

Bhat Ramesh (2000), "Issues in Health: Public Private Partnership", *Economic and Political Weekly*, Vol.35 (52-53), pp 4706-4716.

Bhat Ramesh and Jain Nishant (2006), "Analysis of Public Private Healthcare Expenditures", *Economic and Political Weekly*, 41 (1), pp 57-68.

Deolalikar Anil, Jamison Dean, Jha Prabhat and Laxminarayan Ramanan (2008), *Financing Health Improvements in India*, *Health Affairs*, 27 (4) pp 978-990, July-August.

Dev Mahendra (2007) *Inclusive growth in India: Agriculture, Poverty, and Human Development*, Oxford University Press, New Delhi.

Directorate General of Health Services (DGHS), Ministry of Health and Family Welfare (MOHFW) in collaboration with WHO India Country Office (2005). *National Health Profile 2005*. New Delhi: Central Bureau of Health Intelligence, DGHS, MOHFW, Govt. of India.

Gajalakshmi, V. and R. Peto (2004). "Verbal Autopsy of 80,000 Adult Deaths in Tamil Nadu, South India". *BMC Public Health*, 4: 47.

Government of India (2007). *Select Health Parameters: A Comparative Analysis across the National Sample Survey Organization (NSSO) 42, 52 and 60 Rounds*. New Delhi: Ministry of Health and Family Welfare.

Government of India, (2010), *Forty Fifth Report on Issues Relating to Availability of Generic, Generic-Branded and Branded Medicines, Their Formulation and Therapeutic Efficacy and Effectiveness*, Parliament of India, Rajya Sabha, August, available at <http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%20on%20Health%20and%20Family%20Welfare/45th%20report.pdf>, accessed on October 10, 2010.

Gumber A (1997). "Burden of Disease and Cost of Ill Health in India: Setting Priorities for Health Interventions during the Ninth Plan", *Margin*, Vol. 29(2), pp 133-172.

Gumber A (2000). "Health Care Burden on Households in the Informal Sector: Implications for Social Security Assistance", Indian Journal of Labour Economics, Vol. 43(2), April-June, pp 277-291.

Gumber A (2002). "Economic Reforms and the Health Sector: Towards Health Equity in India". In Reform and Employment, Institute of Applied Manpower Research. Concept Publishing House, New Delhi, pp 235-284.

Joshi R., M. Cardona., S. Iyengar., A. Sukumar., C.R. Raju., K. R. Raju., K. Raju., K. S. Reddy., A. Lopez and B. Neal (2006). "Chronic Diseases Now a Leading Causes of Death in Rural India- Mortality Data From the Andhra Pradesh Rural Health Initiative". *International Journal of Epidemiology*, 35(6), pp 1522-29.

Lalitha N. (2009), "Access to Medicines in Public Health Care: Lessons from Tamil Nadu", in Kumar Girish (ed) *Health Sector Reforms in India*, New Delhi: Manohar Publishers and Distributors and Centre De Sciences Humaines, pp 87-113.

Ministry of Health and Family Welfare (MOHFW). (2005). *Report of the National Commission on Macroeconomics and Health, 2005*, New Delhi: MOHFW.

Mukherjee Subrata, Levesque Jean Frederic (2010). "Changing Inequalities in Utilisation of Inpatient Care in Rural India: Evidence from the NSS", *Economic and Political Weekly*, Vol45(46) pp 84-91

National Health Accounts 2004-05, Ministry of Health and Family Welfare, Government of India and WHO, 2009.

Narang Ritu, (2011), "Determining quality of Public Health Care Services in Rural India", *Clinical Governance: An International Journal*, Vol.16, No.1, pp 36-49.

Office of the Registrar General (2006a). *Sample Registration System, Statistical report 2004*. New Delhi: Office of the Registrar General, India.

Office of the Registrar General (2006b). *SRS Bulletin*. 40(1). New Delhi: Office of the Registrar General, India.

Selvaraj Sakthivel and Karan Anup (2009), "Deepening Health Insecurity in India: Evidence from National Sample Surveys Since 1980s", *Economic and Political Weekly*, Vol44 (40), pp 55-60.

Sen Gita, Iyer Aditi Iyer, George Asha (2002), "Structural Reforms and Health Equity: A Comparison of NSS Surveys 1986-87 and 1995-96", *Economic and Political Weekly*, Vol37, No.14, pp1342-1352.

Sen Gita (2003), "Inequalities and Health in India", *Development*, Vol.46.No.2, pp18-20.

Sen Gupta, S.K. and P. N. Kapoor (1970). *Principal Causes of Death in India*. DGHS, New Delhi, Ministry of Health and Family Planning.

Shariff A and Mondal Subrata K (2009) "User Fee in Public Health Care Institutions" in Kumar Girish (ed) *Health Sector Reforms in India*, New Delhi: Manohar Publishers and Distributors and Centre De Sciences Humaines, pp 147-168.

Shivakumar AK, Chen Lincoln, Choudhury Mita, Ganju shiban, Mahajan Vijay, Sinha Amarjeet, Sen Abhijit (2011), "Financing Health Care For All: Challenges and Opportunities", *Lancet*, 377, pp 668-679.

Registrar General of India (1998). *Survey of Causes of Death (Rural) India*. New Delhi: Vital Statistics Division. Ministry of Home Affairs.

van Doorslaer E, O'Donnell O, Rannan-Eliya RP, Somanathan A, Adhikari SR, Garg CC, Harbianto D, Herrin AN, Huq MN, Ibragimova S, Karan A, Ng CW, Pande BR, Racelis R, Tao S, Tin K, Tisayaticom K, Trisnantoro L, Vasavid C, Zhao Y (2006). "Effect of Payments for Health Care on Poverty Estimates in 11 Countries in Asia: An Analysis of Household Survey Data", *Lancet*, 368 (9544), pp 1357-64.

World Bank (2001), *India-Raising the Sights: Better Health Systems for India's Poor*, Washington D.C: World Bank