

# Rural Healthcare: Towards A Healthy India

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**Abstract:** As Healthcare is the right of every individual but the lack of quality infrastructure, acute shortage of qualified medical functionaries and non-access to basic medicines and medical facilities thwarts its reach to 60% of population of India. A majority of people lives in rural areas where the conditions of medical facilities is deplorable. Considering the picture of grim facts, consequently there is a dire need of new policies, practices and procedures to ensure that quality and timely healthcare reaches to the deprived corners of the Indian villages.

**Keywords:** Healthcare, Healthcare Infrastructure, Public Healthcare, Rural Healthcare System, Rural India.

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## I. INTRODUCTION

It is very widely acknowledged that health is an important component of human development. Empowerment of people comes from the freedom they enjoy, and this includes, among others, freedom from poverty, hunger, and malnutrition, and freedom to work and lead a healthy life [1]. Access to health care is critical to improving health status and good health is necessary for empowerment. Ensuring access to health care helps to minimize absenteeism, enhance labor productivity, and prevents misery. Government intervention in health is also argued for, due to the presence of high degree of asymmetric information in the health sector. Not surprisingly, throughout the world, governments have had a significant role in providing and regulating health services and their role is particularly important in developing countries with large concentration of the poor. Despite poor health indicators, government spending on health care in most countries is well below what is needed. Consequently, limited access to public health care facilities forces people to go to private providers, resulting in substantial out-of-pocket (OOP) spending, especially for the poor [2].

The Millennium Development Goals have helped to draw the attention to the need for ensuring universal coverage in many countries. The 58th session of the World Health Assembly in 2005 defined universal health care as providing —access to key primitive, preventive, curative, and rehabilitative health interventions for all at an affordable cost [3]. However, most of the countries find this a major challenge, as it would require substantial increases in public spending and productivity increases in an environment of severely strained resources. Of course, there has been considerable success in achieving universal health coverage in some countries, including Thailand and some Latin American countries, while other countries, such as China, Indonesia, and Vietnam, are focusing their attention on improving access. In Africa, Ghana and Rwanda have recorded remarkable success in expanding coverage, which has inspired other countries in that continent to embark on health sector reforms.

The health sector challenges in India, like those in other countries, are formidable. Public spending on medical, public health, and family welfare in India is much below what is required. Further, the gap between the actual spending and the required amount is larger in the relatively low-income states and this results in marked inter-state inequality. The low levels of spending have had an adverse impact on the creation of a preventative health infrastructure. With over 70 percent of the spending on health being OOP, the low level of public spending and its uneven distribution have been a major cause of the immiseration of the poor [4].

Of course, there have been some initiatives to augment public spending on health care, but these have met with only limited success. The National Rural Health Mission (NRHM),[5] established in 2005, and the introduction of *Rashtriya Swastya Bima Yojana* (RSBY) a national health insurance scheme for people below the poverty line are the two most important initiatives by the central government. Several state governments also have come up with their own insurance schemes. Despite these initiatives, the actual public spending on health has not shown much increase.

## II. THE PUBLIC HEALTHCARE SYSTEM IN INDIA

### *Physical Infrastructure:*

The healthcare in rural areas has been developed as a three tier structure based on predetermined population norms. The *sub-centre* is the most peripheral institution and the first contact point between the primary healthcare system and the community. Each sub-centre is manned by one Auxiliary Nurse Midwife (ANM) and one male Multi-purpose Worker [MPW(M)]. A Lady Health Worker (LHV) is in charge of six sub-centre's each of which are provided with basic drugs for minor ailments and are expected to provide services in relation to maternal and child health, family welfare, nutrition, immunization, diarrhea control, and control of communicable diseases. Sub-centre's are also expected to use various mediums of interpersonal communication in order to bring about behavioral change in reproductive and hygiene practices. The sub-centre's are needed for taking care of basic health, needs of men, women and children[6].

*Primary Health Centres* (PHCs) comprise the second tier in rural healthcare structure envisaged to provide integrated curative and preventive healthcare to the rural population with emphasis on preventive and primitive aspects. (Primitive activities include promotion of better health and hygiene practices, tetanus inoculation of pregnant women, intake of IFA tablets and institutional deliveries.) PHCs are established and maintained by State Governments under the Minimum Needs Programme (MNP)/Basic Minimum Services Programme (BMS). A medical officer is in charge of the PHC supported by fourteen paramedical and other staff. It acts as a referral unit for six sub-centres. It has four to six beds for inpatients. The activities of PHC involve curative, preventive, and Family Welfare Services[6].

*Community Health Centres* (CHC) forming the uppermost tier are established and maintained by the State Government under the MNP/BMS programme. Four medical specialists including Surgeon, Physician, Gynaecologist, and Paediatrician supported by twenty-one paramedical and other staff are supposed to staff each CHC. Norms require a typical CHC to have thirty in-door beds with OT, X-ray, Labor Room, and Laboratory facilities. A CHC is a referral centre for four PHCs within its jurisdiction, providing facilities for obstetric care and specialist expertise[6].

About 49.7 per cent of the sub-centres, 78.0 per cent of the PHCs and 91.5 per cent of CHCs are located in the government buildings. The rest are located either in rented buildings or rent free Panchayat/Voluntary Society buildings. Data on facilities within these centres are not available. Most reports and evaluation studies point to the lack of equipment, poor or absence of repairs, improper functioning, or lack of complementary facilities such as 24-hour running water, electricity back-ups, and so on. But conditions being what they are, unreliable electricity and water supplies also take their toll on the performance of these centers [7].

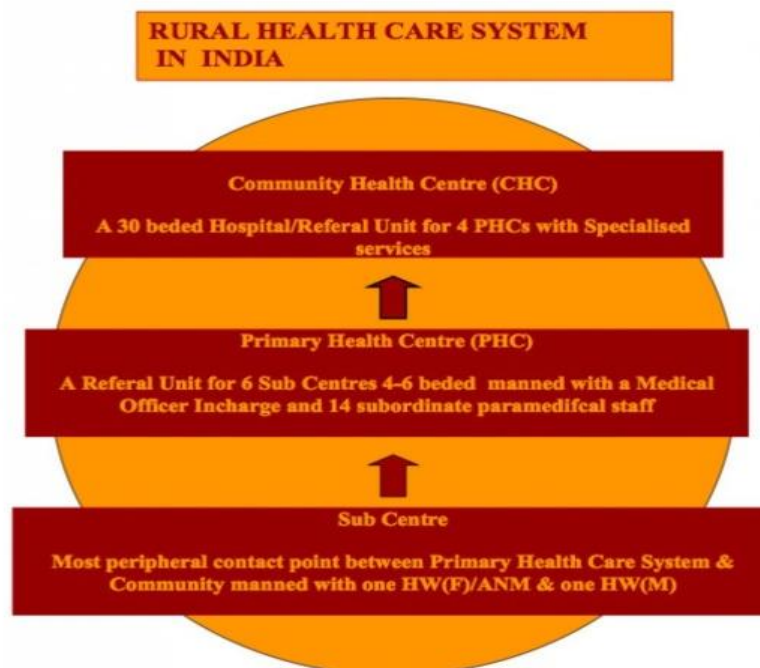


Fig. The three tier health care infrastructure in rural India

### III. HUMAN RESOURCE

#### ***Manpower Shortfall:***

Generally rural public health facilities across the country are having a difficult time attracting, retaining, and ensuring regular presence of highly trained medical professionals. The higher the level of training required for the position, the greater is this need gap. There is a shortfall (and perhaps a more serious one) in service providers [6].

There exists shortfall across all cadres in the posts of MPW(F)/ANM, MPW(M), Health Assistant (Female)/LHV, and that of Health Assistant (Male). The large shortfall in Male Health Workers, has resulted in poor male participation in Family Welfare and other health programmes and overburdening of the ANMs. This shortage is despite government efforts to train health workers through various training programmes throughout the country for more effective and systematic service delivery [6].

PHC is the first contact point between the village community and the Medical Officer. The dearth of trained doctors, lab technicians and pharmacists is acutely felt. What these data do not reveal is that even if the personnel are present, their level of participation in providing health services is lower than desired due to lack of supplies, inadequately functioning equipment, poor monitoring of the staff, and so on.

The paucity of skilled health workers is corroborated by results of a household survey based data. The round two of Reproductive Child Health Survey (RCHS), conducted by IIPS for Ministry of Health and Family Welfare sampled 15,794 villages from all states of the country in the period 2002–4. The results were quite revealing and in fact reinforced the administrative data available. Around 95 per cent of the villages have a health provider of some type. The percentage of villages with trained birth attendants is alarmingly low (37 per cent) and almost 64 per cent of the villages do not have any doctor [8].

#### ***Absenteeism:***

In addition to the shortage of service providers, the system is plagued by poor involvement and participation of those who are employed. There is a great degree of absenteeism among education and health providers that has been the focus of research in recent times [9].

Choudhury et al. measured teacher and health workers' absence in nearly nationally representative samples in several countries using a common methodology based on direct observations during unannounced visits. The survey data reveals that absenteeism among the primary health providers, in India, is the highest (40 per cent) among the surveyed Countries (India, Bangladesh, Indonesia, Peru, Uganda). Their survey findings reveal that absence is fairly widespread, rather than being concentrated in some areas. High ranked and more powerful providers, such as doctors are absent more often than lower-ranking ones as are men more than women. The primary reason for absenteeism appears to be the quality of infrastructure at the facility. The findings did not unambiguously support the notion that 'government service providers' choose to absent themselves because they are unlikely to be fired for this but the clear conclusion was that their decision to go to work was strongly influenced by the working conditions they faced. It was also found that health workers (mostly the doctors) who were found to be absent from the public clinics during the survey were mostly engaged in private medical practice. The World Bank Development Policy Review also paints the same scenario [10].

This rate of absenteeism can be attributed to the fact that there is certainly a serious lack of zealous administrative action towards effective service provisioning. The government has failed to provide the basic infrastructure and incentive structure (not necessarily monetary but in terms of job environment and recognition) for doctors and other health workers to be motivated enough to do their job [11].

#### ***Access to Infrastructure:***

Even if a healthcare provider is not present in a village, he/she can be reached easily, some basic access issues would be taken care of. However, we find many limitations especially in the context of road connectivity and adequate transport services. Many of the healthcare facilities, public or private, are not accessible throughout the year to about a third of the villages. [8] Private and government hospitals are relatively more accessible as they are typically located in areas well connected by metalled roads.

The three most important features of the Indian health care system: *Low levels of public spending, poor quality of preventative care and poor health status of the Population, the inadequate level of public health provision* has forced the population to seek private health providers resulting in *high OOP spending*. OOP spending in India is over four times higher than the public spending on health care.

Thus, reforms in the health sector will have to address the issue of increasing the allocation to health care, focusing on preventative care, ensuring greater access to health care by the poor and significantly improving the productivity of public spending [6],[12],[13],[14].

#### IV. HEALTH STATUS OF THE POPULATION

India's health achievements are low in comparison to the country's income level. According to UNDP's Human Development Report 2010, in a set of 193 countries, while India ranked 119th on the human development index, it ranked 143rd in infant mortality rate, 124th in maternal mortality rate, 132nd in life expectancy at birth, and 145th in under-five mortality rate. The Scatter plots between Gross National Income across countries and each of the four indicators along

with their associated trend lines, indicate that India's health indicators are worse than what is expected at India's level of income for three of the four indicators. The health indicators summarized in various developing regions of the world show that India's performance is only better than that of sub-Saharan Africa. In fact, among the South Asian countries, the infant mortality rate in India in 2008 was only better (lower) than that of Pakistan and Bhutan [15].

Furthermore, the rate of improvement in the infant mortality rate over the 1990-2008 period in India was lower than in most other South Asian countries, including Bangladesh, Nepal, and Bhutan [15]. An important factor contributing to the slow progress in population health in India is the poor access to primary and preventive health care services. This is evidenced by the fact that India's immunization rates and percentage of births attended by skilled health personnel rank among the worst in the world. Inadequate preventive health care services results in high incidence of deaths from communicable diseases. According to the *Global Burden of Diseases* data published by WHO in 2008,[16] of the total number of deaths in a sample of 192 countries across the world, India accounted for nearly one fourth of the deaths due to diarrhea, more than a third of the deaths due to childhood cluster diseases (many of which are preventable by basic immunization), more than a third of the deaths due to Leprosy, more than half the deaths due to Japanese Encephalitis and about 30 percent of the deaths due to prenatal conditions[17]

The overall level of health status masks the large intra-country variations across states. In 2008, the difference in infant mortality rate (IMR) between the best state in India (Kerala) and the worst state (Madhya Pradesh) was nearly six fold (12 in Kerala and 70 in Madhya Pradesh). In general, the IMR in the four states with the highest rates (Madhya Pradesh,

Orissa, Uttar Pradesh, and Rajasthan) was about double the IMR in the best four states in the country (Kerala, Tamil Nadu, West Bengal, and Maharashtra [18]. Moreover, the rate of decline in IMR in the four worst states (highest IMR) has been much lower than in the four best states (lowest IMR). The average improvement index [19] indicate that in the 20-year period from 1988 to 2008, the average improvement index in the top four states was markedly higher than the average improvement index in the bottom four states.

It is believed that an important factor contributing to India's poor health status is its low level of public spending on health, which is one of the lowest in the world. In 2007, according to WHO's *World Health Statistics*, India ranked 184 among 191 countries in terms of public expenditure on health as a percent of GDP. In per capita terms, India ranked 164 in the same sample of 191 countries, spending just about \$29 (PPP). This level of per capita public expenditure on health was around a third of Sri Lanka's, less than 30 percent of China's, and 14 percent of Thailand's [20]. While public spending on health care is low, the OOP expenditure by households has been large. In 2007, total expenditure on health in India (public and private) was about 4.1 percent of GDP, which was higher than the level in Thailand and around the levels of Sri Lanka and China. In 2007, private spending in India constituted nearly 74 percent of the total spending on health (in contrast to 18 percent in the United Kingdom. Nearly 90 percent of this private expenditure in India was in the form of OOP expenditure on health by households [20], a share that is one of the highest in Asia. The high OOP expenditure has put an increasing financial burden on the poorer sections of the population. Data from the National Sample Survey Organization (NSSO) in India indicate that, the share of ailments not treated due to financial reasons has increased from around 15 percent to 28 percent in the rural areas. Part of this increased financial burden arises from the fact that the share of visits to private health facilities has increased in recent years. According to the NSSO data, the share

of outpatient visits to public facilities has dropped from 25 to 20 percent and for inpatient visits from 60 to 40 percent [21][22]. Notably, outpatient treatments account for nearly three-fourths of OOP expenditure by households; a large part of this could be reduced through adequate provision of primary and secondary care [23].

The nature of public spending has resulted in a grossly inadequate health infrastructure. The number of allopathic doctors, nurses, and midwives in India (when adjusted for their qualification) is less than a fourth of the WHO benchmark [24]. This has led to recourse to unqualified medical practitioners in the rural areas [25]. Besides, the ratio of nurses to doctors in India is extremely unfavorable in comparison to some of the better performing countries. When adjusted for qualification, the ratio of nurses to doctors is about 0.6:1, that is, it is less than one nurse per doctor [24]. In many developed countries this ratio is about 3:1, three nurses to one doctor. The low share of non-salary expenditure has also resulted in inadequate essential drugs at sub-centers (SCs), primary health centers (PHCs) and community health centers (CHCs) – the first three tiers of primary and secondary health care facilities in the rural areas. According to the facility survey conducted by the International Institute of Population Sciences (IIPS) in 2007-08, about 35 percent of the SCs and 30 percent of PHCs had less than 60 percent of the essential drugs required for primary care. Similarly, about a third of the PHCs had less than 60 percent of the basic refrigeration facilities required for primary care [8].

The level of public expenditure and health infrastructure as a whole is dragged down by some of the states. In 2008–09, the level of public spending on health in Bihar (the state with the lowest per capita health spending) was less than half the level in Kerala and Tamil Nadu – the top two states in terms of health spending. Moreover, in recent years, the interstate inequalities in health spending have increased. Thus, the difference between the per capita public spending in the top three states (Kerala, Tamil Nadu, and Punjab) and the bottom three states (Bihar, Madhya Pradesh, and Orissa) has increased, leading to a divergence between the two categories of states [26].

In general, the variation in per capita expenditure across states has increased over the years. Between 1993–94 and 2008–09, the coefficient of variation in per capita public spending across states has increased from 0.19 to 0.26 [26]. It is important to note that public expenditure on health is positively correlated with income levels by states. The correlation coefficient between per capita public spending on health and per capita GSDP were 0.7 and 0.8 respectively for 1995-96 period and 2004–05 period [27].

The low-expenditure states are also the states with relatively low per capita GSDP and have some of the poorest health indicators and infrastructure in the country. Madhya Pradesh and Orissa, the two states with the worst IMR in the country, have significantly worse access to health infrastructure and professionals than Kerala and Tamil Nadu, the two best states in the country in terms of IMR. [8] Apart from this low level of access to health facilities, there are large vacancies for doctors and paramedical staff in these states. Part of the reason for the large vacancies is the low availability of health workers. The number of health workers per 1,000 people in these states is, on average, half of that in the relatively better performing states. An important reason is that medical colleges are concentrated in the better performing and higher income states [28].

## **V. RURAL HEALTHCARE—ISSUES AND CHALLENGES**

The key challenges in healthcare sectors are: low quality of care, poor accountability, lack of awareness and limited access to facilities [29].

It is well known that rural communities do not have access to the same range of healthcare services as urban communities and that health status is poorer in rural areas. As models of health service delivery are changing from treatment and illness prevention to wellness models, health providers are under increasing pressure to re-engineer healthcare services to rural and remote areas in a climate of shrinking resources and community scepticism [30].

Access to high quality health care services plays an important part in the health of rural communities and individuals. This fact is reflected in efforts by governments to improve the quality of such services through better targeting of funds and more efficient management of services [31].

Government experience difficulties in attracting and retaining doctors in rural area and it has long been recognized as a contributing factor to the relatively higher levels of morbidity and mortality in rural areas. Studies suggest that resolving the health problems of rural communities will require more than simply increasing the quality and accessibility of health services. [31] Health and well-being in such communities relates as much to the sense of community cohesion as it does to the direct provision of medical services.

Well networked health care system access to healthcare in rural areas is far from satisfactory [32]. In the current scenario, 75% of the qualified consulting doctor's practice in urban, 23% in semi-urban (towns) and only 2% in rural areas where as the vast majority of population live in the rural areas. Hospital beds/1000 people are 0.10 in rural as compared to 2.2 in urban areas. Further, a vast proportion of north and north-eastern region of country lie in hilly terrain and some territory in remote islands making healthcare reach impossible to such far flung areas.

Underutilization of existing rural hospitals and health care facilities is also a common phenomenon. Many a time rural patients bypass local rural hospitals despite the availability of comparable medical services. The general conditional logic analysis of data on patients and hospitals suggests that hospital characteristics (size, ownership, and distance) and patient characteristics (payment source, medical condition, age, and race) influence rural patients' decisions to bypass local rural hospitals. A market-centered approach, and more effective government intervention for horizontal and vertical hospital integration may lead to better utilize rural health care institutions [33]

## VI. RECENT REFORMS FOR INCREASING ALLOCATION TO HEALTHCARE

### *National Rural Health Mission (NRHM):*

The National Rural Health Mission (NRHM) was launched by the Government of India (GOI) in April 2005. It seeks to provide effective healthcare to the rural population throughout the country with special focus on eighteen states, which have weak public health indicators and/or weak infrastructure. These states are Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand, Jammu and Kashmir, Manipur, Mizoram, Meghalaya, Madhya Pradesh, Nagaland, Orissa, Rajasthan, Sikkim, Tripura, Uttaranchal, and Uttar Pradesh. The GOI will provide funding for key components in these eighteen high focus states [6].

The NRHM will cover all the villages in these eighteen states through approximately 2.5 lakh village-based 'Accredited Social Health Activists' (ASHA) who will act as a link between the health centres and the villagers. One ASHA will be raised from every village, or cluster of villages, across these eighteen states. The ASHA will be trained to advise village populations about sanitation, hygiene, contraception, and immunization to provide primary medical care for diarrhea, minor injuries, and fevers; and to escort patients to medical centers. They would also be expected to deliver direct observed short course therapy for tuberculosis and oral rehydration, to give folic acid tablets and chloroquine to patients, and to alert authorities of unusual outbreaks of disease.

The goals of the NRHM include [34]:

- Reduction in Infant Mortality Rate (IMR) and Maternal Mortality Ratio (MMR);
- Universal access to integrated comprehensive public health services;
- Child health, Water, Sanitation and Hygiene;
- Prevention and control of communicable and non-communicable diseases, including locally endemic diseases;
- Population stabilization, gender, and demographic balance;
- Revitalization of local health traditions and main-stream Ayurvedic, Yoga, Unani, Siddha, and Homeopathy Systems of Health (AYUSH);
- Promotion of healthy lifestyles.

### *Rashtriya Swasthya Bima Yojana (RSBY):*

Another important reform initiative was the introduction of an insurance scheme, not by the Health Ministry, but by the Union Labor Ministry. In an attempt to provide financial protection against high OOP expenditure, in 2007 the Government of India introduced *Rashtriya Swasthya Bima Yojana* (RSBY), a health insurance scheme. The scheme provides insurance coverage for selected hospitalization expenses and day-care procedures to people below the poverty line. Under this scheme every poor (below the poverty line) family can access free hospitalization care and day-care procedures up to Rs 30,000 per annum in selected private and public health facilities. A maximum of five members of a family can be covered under the scheme on a floater basis. A transportation allowance of Rs 1,000 (with a maximum of Rs 100 per visit) is also extended to these families under the scheme [4].

***Sarva Siksha Abhayan (EDUCATION):***

Elementary education has received a major push through the Sarva Siksha Abhayan. In order to consolidate the gains achieved, a mission for secondary education is essential. “Right of children to Free and Compulsory education Bill 2009” seeks to provide education to children aged between 6 and 14 years, and is a right step forward in improving the literacy of the Indian population [35].

***Nutrition and early Child Development:***

Recent innovations like universalization of Integrated Child Development Services (ICDS) and setting up of mini-Anganwadi centers in deprived areas are examples of inclusive growth under eleventh 5-year plan [17].

***Mahatma Gandhi Rural Employment Guarantee Scheme (MGREGS):***

The social and economic spinoff of the Mahatma Gandhi Rural Employment Guarantee Scheme (MGREGS) has the potential to change the complexion of rural India. It differs from other poverty-alleviation projects in the concept of citizenship and entitlement.[36] This scheme has the necessary manpower to implement intersectoral projects, e.g., laying roads, water pipelines, social forestry, horticulture, anti-erosion projects and rain water harvesting.

## **VII. THE EXPANDING ROLE OF PRIVATE HEALTHCARE SERVICES**

Rural populations have been observed to typically report *fewer* ailments than those in urban areas. This could be due to many reasons including those related to perception, age, lack of appreciation of health care requirements and so on. It is important to note however, that the awareness level about ailments or health problems has increased both in rural and urban areas as revealed by the NSS 60th round 2004. When compared with urban areas, it was clearly found that the accessibility issue is a serious one [37].

If an ailment is treated it could be institutional (hospitalization) or non-institutional (out-patient). These services could be availed of in public or private facilities. We find that the private sector has become the dominant source of health care services, both institutional or non-institutional for patients in rural and urban areas. Of those seeking treatment, 78 per cent rural and 81 per cent urban patients are availing private non-institutional facilities and 58 per cent rural and 62 per cent urban patients are going to private hospitals [37].

We also find that the dependence on the private sector is significant across all income ranges from the poorest to the richest, and utilization for public facilities is only very marginally higher among the poorest segments [38]. The role of the government health services has diminished despite higher costs of private sector services. This is so because: One reason is lack of adequate infrastructure and personnel at public health care facilities. The second has to do with an orientation towards delivery of quality services—this is integral to health care provision. The third has to do with accessibility, timing, and availability of services at the place and time required. There is another issue related to quality. It is not clear whether private sector providers necessarily provide better quality health care or is this merely the perception of the user group. Another key aspect is the focus of public facilities towards reproductive and child health. This includes but is of course not limited to, ante-natal care, delivery, and immunization.

However, it cannot be denied that even within the reproductive health segment, the private sector has become significantly larger than the public sector in both urban and rural areas [37].

In other words, whichever way we see it, the private sector has become a dominant force in all segments of the health care services. It is servicing the poorest segments in both rural and urban areas despite charging significantly higher prices for its services. Finally, the private sector is also becoming the dominant force in the preventive care segment.

## **VIII. FINDING QUALITY HEALTHCARE SOLUTIONS: PUBLIC, PRIVATE OR PARTNERSHIP**

Ideally the presence of public health care should take care of both the ability to pay and ability to process information on the quality of health care. But it so happens that especially for those residing in the smaller and far off villages, many public services are out of reach geographically and often such consumers are left with their needs unmet. The private sector cannot emerge in such areas because of lack of adequate scales. In other words, more important than the price is the issue of geographical accessibility for many rural residents. Lack of physical infrastructure and staff both contribute to this problem of access[11]. The call for public-private partnerships in the infra-structure sector is an urgent one and the

health care sector has not been left out.[35] Effective addressing of public health challenges necessitates new forms of cooperation with private sectors ( public-private partner-ships), civil societies, national health leaders, health workers, communities, and other relevant sectors and international health agencies (WHO, UNICEF, Bill and Melinda Gates foundation, World Bank).

In this changing world, with unique challenges that threaten the health and well being of the population, it is imperative that the government and community collectively rise to the occasion and face these challenges simultaneously, inclusively and sustainably. Social determinants of health and economic issues must be dealt with a consensus on ethical principles—universalism, justice, dignity, security and human rights. This approach will be of valuable service to humanity in releasing the dream of a Right to Health [35].

## **IX. IT FOR ACCESSIBLE HEALTHCARE PROVISIONING**

It is well known that many doctors are not willing to serve in the rural areas due to lack of facilities even if they are paid high salaries. However, as telecom network is spreading swiftly and the government is keen to provide broadband connectivity to all parts of the country, information technology can be effectively Harnessed to improve the delivery of health services [11].

Various organizations are coming together for improvements in healthcare and technology plays a crucial role to facilitate this. Information & communication technology provides hosts of solutions for successful implementation of these changes. The Government of India has proactively been promoting telemedicine [39],[40] and use of ICT [41],[42].

For residents of rural areas, the lengthy travel time and distance to larger, more developed urban and metropolitan health centre's present significant restrictions on access to essential healthcare services. Telemedicine has been suggested as a way of overcoming transportation barriers for patients and healthcare providers in rural and geographical isolated areas. According to Health Resources Services Administration, telemedicine is defined as the use of electronic information and telecommunication technologies to support long distance healthcare and clinical relationships[39],[43].

Telemedicine provides clinical, education and administrative benefits for rural areas [40],[44]. First, the telemedicine eases the burden of clinical services by utilization of electronic technology in the direct interaction between healthcare providers such as primary and specialist health providers, nurses & technologists and patients in diagnosis, treatment and management of diseases and illness[40]. Secondly, the advantage of telemedicine on educational services include the delivery of healthcare related lectures and workshops through radio, SMS, audio, video and teleconferencing, practical simulations and web casting. In rural communities, medical professionals may utilize pre-recorded lectures for medical or healthcare students at remote sites [44]. Also healthcare practitioners in urban and metropolitan areas may utilize teleconferences & diagnostic simulations to assist understaffed healthcare centre's in rural communities to diagnose & treat patients from a distance. Thirdly, telemedicine may pose significant administrative benefits to rural areas.

Not only does telemedicine aid in the collaboration among health providers with regard to utilization of electronic medical records, but it may pose benefits for interviewing medical professionals in remote areas for position vacancies and the transmission of necessary operation related information between rural health system & larger, more developed healthcare systems.

To address some of the challenges addressed above, a wide variety of applications based on mobile phone technology have been developed & implemented. The rapid growth in mobile industry has fuelled innovations in m-health, equally for developing world [45],[46]. India is one of the fastest growing markets where more than 100,000 new connections are being sold every day. Moreover, Govt. of India has made compulsory for connectivity providers to setup towers in rural areas.

## **X. CONCLUSION**

The future of healthy India lies in mainstreaming the public health agenda in the framework of sustainable development. The ultimate goal of great nation would be one where the rural and urban divide has reduced to a thin line, with adequate access to clean energy and safe water, where the best of health care is available to all, where the governance is responsive, transparent and corruption free, where poverty and illiteracy have been eradicated and crimes against women and children are removed—a healthy nation that is one of the best places to live in.



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