



Gaps in Health Infrastructure in Indian Scenario: A Review

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ABSTRACT: Health care management has really become a burning question of the day and the current health scenario of our rural India is a story of utter deprivation. On one side there are hi-tech medical facilities and use of state-of-art-medical technologies with five star deluxe facilities in a few urban centers' but in the rural counterpart the stories of helplessness and callousness have become too apparent. The health care market is becoming out of reach for the economically backward and distressed mass of the society. In every nation it is the rural environments that present unique challenges for health care access. The morbidity and mortality levels in the country are still remarkably high indicating the still-unsatisfactory health indices which in turn are an indication of the limited success of the public health system in meeting the preventive and curative requirements of the general population of India. Social health issues, natural calamities and disasters, nutritional aspects have a cumulative effect on the wide disparities in the existing health infrastructure. Despite Indian excellence in several spheres of health care delivery, lack of proper infrastructure has limited the ability of the facilities to drive the health care standards in the vast majority of the country. Central as well as State Government all plays a pivotal role in one way or the other. Attempts have been made in this review to highlight on the current health picture of India, especially rural areas, disparities in health care management, underlying causes behind it and the suggested remedies. © 2011 IGJPS. All rights reserved.

KEYWORDS: Health Scenario; State of Art Medical Technologies; Health Care Management; Rural Environment; State Government.

INTRODUCTION

The term Health care refers not merely to medical care but also all aspects of pro preventive care including the cares rendered or financed by the Government sector alone and also incentives and disincentives for self care and care paid for by

private citizens to get over ill health. The current health situation in India is a story of sad deprivation [1,2]. Health care at its essential core should widely be recognized for the good of the public. But in India, private out-of-pocket expenditure

is being to dominate the cost financing health care. On one side the few selected urban centers displays hi-tech medical care and use of state-of-the-art medical technologies, where buying and selling of health improvements as consumer goods is being carried by the well-off minority in the metros; whereas the other scenario is of utter helplessness and callous carelessness where the vast majority of the population along the length and breadth of the country is being deprived of basic health facilities [1,2]. Though the different achievements of "Indian Health" are trumpeted by the press and other agencies but the available statistics of Indian health system shows the nature and extent of negligence and deprivation of health benefits among the vast majority of populations, uneven levels of attainment of health not only along the rural-urban divide but also prominent geographical disparity exists between the better performing and poorly performing states. The high morbidity and mortality rates in the country are also the markers of unsatisfactory health progress in India. For the children growing up in rural areas the disparities naturally tends to worsen when compounded by the widely practiced discrimination between a male and a female child, starting with feticide of daughters. On considering the Infant Mortality Rates (IMR) for boys and girls separately; indeed, the gap between West Bengal and India is especially high for female IMR, indicating that West Bengal has a better record of ensuring the lives of girl infants than India as a whole [3].

According to the available population statistics, India's current booming population is 1.1 billion and increasing at a 2% annual rate and by 2030 is expected to surpass China, the world's most populous nation. The population is expected to reach 1.6 billion by 2050. India's healthcare infrastructure has not kept pace with the economic growth. The physical infrastructure is woefully inadequate to meet today's healthcare demands, much less tomorrows. Though the survey reports show an overall decrease in the mortality rate, rapid growth in population rate, increase in old age populations without adequate access to health care

facilities acts as a strong backwater force for national health programmes [4,5]. Inadequate and improper control over the infectious communicable diseases, failure of the existing drugs due to the emergence of the resistant strains of pathogens is really a cause of concern. While India has several centers of excellence in healthcare delivery, these facilities are limited in their ability to drive healthcare standards because of the poor condition of the infrastructure in the vast majority of the country. Rising income levels and a growing elderly population are important factors that are driving this growth. In addition, changing demographics, disease profiles and the shift from acute to chronic and lifestyle diseases in the country has led to increased spending on healthcare delivery [4,5].

In order to build an ideal health care system some important factors are to be given priority. Universal and adequate access of medical facilities to all corners, fair distribution of financial costs for access so as to remove excessive financial burden, to provide quality care by appointing competent Medical and Para-medical staff and lastly a constant search for improvement to a more justified system.

KEY GAPS IN HEALTH INFRASTRUCTURE

In a developing country like India rural environments present unique challenges for health care access. The health care in rural areas is developed on a three-tier system based on population norms [2,4,5]. The sub-centre which is the first contact point between primary health care and community; manned by one Auxiliary Nurse Midwife (ANM) and one male Multi-Purpose Worker (MPW). A Lady Health Worker (LHW) is in charge of six sub-centers which are provided with drugs for minor ailments and expected to provide services in child birth, in maternal health, family planning programs, immunizations, and in communicable diseases. As per the UMHFW report, the number of functioning sub-centers is

around 146,026 which though sounds high is a 12% shortfall as per Government norms. The second tier are the Primary health centers or PHC's maintained and established by the State Governments under minimum needs programme (MNP), are expected to provide integrated, curative and preventive health care along with promotive aspects like better health and hygiene, tetanus inoculation in pregnant ladies, intake of IFA tablets and institutional deliveries. A Medical Officer should be in charge of the PHC which is being supported with 14 paramedical and other staff. A PHC is a referral unit of six sub-centers. According to the Ministry of Health the number of PHC's increased from 23,109 to 23,236 this year; yet this increasing number is a shortfall of 16% when compared with the normal norms of PHC's. As regards the Community Health Centers (CHC) which forms the highest tier, established and maintained by State Government under MNP/BMS programme and manned by a Surgeon, Physician, Gynecologist, Pediatrician along with 21 paramedical and other staffs, should be provided with 30 in-door beds, OT, X-Ray unit, labor room and lab facilities and act as the referral unit of 4 PHC's. 3346 CHC's are operating in the country which is a straight shortfall of 50%. In addition to such shortages lack of equipments, poor or repairing infrastructure, interruptions in water and electric supply backups have really taken a toll on the performance of these centers. Shortage of availability of governmental buildings for establishment of PHC's and CHC's is another crucial point. Short falls in manpower in all cadres of posts like the MPW (M), ANW (F), LHV (F), dearth of well trained doctors, pharmacists, and lab technicians is acutely felt. Since the mid-twentieth century, physicians have favored urban and suburban practice locations over rural areas, there are obvious shortages of medical personnel in rural areas, transportation problems and distance barriers, economic distress added fuel to fire resulting in destabilization of rural health care services. Existing data's have shown that about 49.9 percent of the sanctioned posts of specialists at CHC's were vacant which accounts to a shortfall of 6110 specialists at the CHC's as compared to the

requirement for existing infrastructure on the basis of existing norms[5,6].

But what the data do not reveal is that even though personnel are present, their level of participation in providing health services is lower than desired due to lack of inadequate and poor functioning of equipments, improper supply of drugs and vaccines, poor co-operation and co-ordination with paramedical staff and so on. It's true that Physicians can demand for high salaries, seek opportunities for lucrative practices, and Modern medical school graduates who have been trained to use costly new technologies in diagnosis and treatment will be eager to apply their knowledge and skills but rural practice locations typically generate lower income for the physicians and have fewer and older technology resources than urban and suburban locations. So, well trained Physicians are rarely prepared to practice in rural environments. Consequently, rural communities suffer chronic physician shortages.

Research surveys of Chowdhuri et al.,2006 have shown that in addition to manpower shortages, the great degree of absenteeism among the health providers has been the focus of research in recent times [7].The survey data reveals that absenteeism among the health providers in India is highest (40%) among other surveyed countries. It has been found that doctors are absent more often than other lower ranking staffs [7]. The basic reason behind it is the poor infrastructure facility at their work place. A study by Bannerjee et al. (2004) in rural areas of Rajasthan have shown that 45% of doctors are absent from PHC's and 56% of sub-centers remains closed maximum of the times. This rate of absenteeism can be attributed to the fact that there is a serious lack of zealous administrative action towards effective service provisioning. The Government has failed to provide 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 jobs[8].

Now the private sector has become a dominant force in all segments of health care services. At the time of independence public-private participation was in the form that Government doctors were allowed for private practices, an arrangement that continues even today in majority of states.

A majority of Government and private sector hospitals and beds are located in urban areas. Qualified and registered private sector doctors or private sector institutions are not readily available in remote rural and tribal areas because people do not have ability to pay and there is a lack of social infrastructure. Thus, the populations in these areas where health care needs are the greatest have very poor access to functioning Government health services or private facilities [9]. Advances in medical technology, increasing costs, and market forces contribute to the economic destabilization of many rural health care systems. Small rural health care providers, especially hospitals, cannot afford the equipment and personnel necessary to treat the entire array of modern disease and injury. In spite of the abundant supply of registered physicians in modern system of medicine, shortages are most visible in primary prevention, diagnosis, and treatment. Then the quacks become rampant to fill in the gaps and provide health care especially to the poorer segments of the population living in urban slums, remote rural and tribal areas. Even in this twentieth century witchcrafts or magical spells take the advantage of the worsening situations [10,11].

Though primary care may be provided by nurse practitioners, physician assistants, or home-health nurses and prenatal care, family planning, immunization programmes be carried in charitably subsidized comprehensive primary-care centers, treatments on psychiatry, dermatology, epidemics like typhoid, cholera, malaria may also be available through intermittent clinics in local facilities, such as health departments but in case of typical health crisis like Coronary bypass surgery, artery repair, advanced trauma care, and other complex procedures require specialized medical teams, equipment, and facilities. Such resources are economically viable only in hospitals and surgical centers with high volumes

of patients. Consequently, rural residents must often travel great distances to access more costly and complex levels of care. Accessing complex care in urban medical centers often generates a patient perception that all rural hospital care is of lower quality. This attitude leads people with financial resources to use distant urban centers even for less complex needs. The majority of patients admitted to rural hospitals is below the poverty line to withstand travel to distant hospitals or cannot afford either the travel or the cost of care in urban areas. Such populations are of course incapable to reimburse the costs of health care services provided to them. Thus rural hospitals often suffer from fund shortages, lack of efficient physicians, modern equipments, and hardly get opportunity to earn charitable funds. In such a disabled case closure of the hospital is the only alternative. People in that area then become deprived of the minimal health care as well as suffers from the significant loss of employment. Thus public health care systems are being dismantled and the health care systems are being privatized to a large extent [4,11,12]. For the majority of the working people and the lower economic classes it would be a nightmare that the health market is being out of their reach and public sector health services having been emasculated. The role of the public health centers are already in a state of advanced decline will continue to being marginalized further. With rampant environmental degradation and thoughtless decapitation of public health, globalization (e.g. telemedicine) and promotion of health insurance in the health services managed healthcare promises to be the feature of the future. The model of globalization of health that is being pursued here in India is the American one, in consonance with all other aspects of the economy. The expenditure that American health model spends on public health is beyond the imagination that an Indian policy-planner can dream of in his worst nightmare. One can thus imagine the level of suffering and deprivation that is awaiting millions of people here as the process of globalizing health gains momentum in the years to come [13,14].

ROLE OF PRIVATE & HEALTH INSURANCE

Currently private sector health services range from those provided by large corporate hospitals, smaller hospitals or nursing homes to clinics and dispensaries run by qualified practitioners and services provided by unqualified persons. A majority of the private sector hospitals are small establishments, to be more specific single doctor dispensaries with very little infrastructure or paramedical support. With this they provide symptomatic treatment for common ailments and because they are conveniently located and easily accessible, patients from even below the poverty line utilize them and pay for their services. These private practitioners do not have access to updated standard protocols for the management of common ailments; hence the quality of care they provide is often sub-optimal. 78% rural and 81% urban patients are availing private non-institutional facilities and 58% rural and 62% urban patients are going to private hospitals as reported by the NSSO in 2004. Doctors practicing in the private sector are sometimes accused of prescribing excessive, expensive and risky medicines and with rampant using of expensive technology for diagnosis and treatment. Some method of accreditation of hospitals and facilities and better licensure systems of doctors is likely within a decade. Private health care institutions providing specialty and super-specialty care account for only 1 to 2 per cent of the total number of institutions while corporate hospitals constitute less than 1 per cent. Some private hospitals have also been found to be using inappropriate, unnecessary and expensive diagnostic tests and therapeutic procedures as well as inappropriate and unethical treatment practices. Other problems reported in private sector include use of unqualified service providers, overuse of diagnostic and therapeutic measures leading to exorbitant costs. There is no attempt to screen patients for complications and refer them to the appropriate level of care, rationalize drug use or contain the costs of treatment. There are wide inter-state differences as regards the distribution and maintenance of private sector hospitals and beds [6,11,14].

The average cost of hospital stay per day in Government hospitals is low in comparison to private hospitals and is one of the major reasons for poorer sections seeking inpatient care in Government institutions. The inter-state picture is almost the same in this respect. For inpatient care for all ailments 60 per cent of the below poverty line (BPL) families tend to use Government hospitals and while an equal proportion of above poverty line (APL) families prefer private hospitals. . However, when it came to obtaining immunization or antenatal care, most people, irrespective of their income status went to Government institutions. The scenario varies in different parts of India. In spite of good Government sector infrastructure, a majority of patients in economically advanced states like Punjab, Haryana, and Maharashtra prefers private hospitals. But in the north eastern states including West Bengal, a majority of the patients seek admission in Government hospitals in spite of inadequacies in infrastructure. In Bihar, poor Government infrastructure have forced for over 60 per cent of patients seeking admission in private hospitals. The functional status of Government infrastructure, the price differential between the public and private sector, the person's ability to pay and the preferences of the community contribute to the choice making between public and private health sector facilities [6,14,15].

Privatization has to be distinguished from private medical practice which has always been substantial within our mixed economy. Rapid commercialization of private medical practice resulted in uneven quality of care. Complex reasons are behind this trend. Firstly high scarcity cost of good medical education, and secondly the reward differential between public and corporate hospitals leading to the reluctance of the young professional to be lured away from the market to public service in rural areas and finally there is the compulsion of returns on investment whenever expensive equipment is installed as

part of practice. Increasingly, this has shifted the balance from individual practice to institutionalized practice, in hospitals, polyclinics etc. and this conjunction explodes into unbearable cost escalation when backed by a third party payer system- the health insurance companies which in turn induces increases in insurance premiums making such cover beyond the capacity to pay[13,14,15].

Once health insurance gets established or dominated it may impose more stringent criteria and restrictions on physician performance which may tempt them into defensive medicine and insurance companies' tries to gain an indirect ownership over the corporate hospitals. Many studies on the quality of care indicates that sometimes more services are performed to maximize revenue, and health services or quality of medicines and treatments becomes a side factor. Wide allegations are practiced between doctors and hospitals as regards commissions and cuts so as to promote needless referral of drugs or diagnostic procedures [15,16].

Still it is to confess that Insurance is a welcome necessary step to help in facilitating equitable health care to shift to sections for which Government is responsible. The insurable population in India has been assessed at 250 million and at an average of Rs 1000/- per person the premium amount per year would be Rs 25,000/- crores and is expected to treble in ten years. While the insurance product will reflect the demands of this health market and related technological developments in medicine, it should be required to extend beyond hospitalization and cover domiciliary treatment too in a big way; for instance, extending cover to ambulatory maternal and selected chronic conditions like Asthma more prevalent among the poor. Exclusions of co-payments, amount of deductibles remaining minimum and relevant to our social situation, some well judged Government merit subsidy can be incorporated into anti poverty family welfare or primary education or welfare pension schemes meant for old age[16,17].

A significant number of other social health issues, environmental aspects, nutritional status, natural calamities and disasters contribute to the wide disparities in the existing health infrastructure. Some of the important issues are highlighted below:

- 1) The prevalence of malnutrition in some states of India is a cause of health problem. The nutritional status of women especially in rural Bengal is significantly worse than national level. Statistics show the high prevalence of acute anemia among the would be and lactating mothers and children of 1-5 yrs age. In spite of declining infant mortality rate(IMR), 1 in every 15 children still die within the first year of the life and 1 in every 11 die before reaching age five. 19% of total fertility is contributed by very young mothers (age 15-19). Continuing low levels of education among women contribute to the high IMR and MMR(maternal mortality rate). The IMR for illiterate mothers is more than 2.5 times the rate for mothers who have completed at least high school. Mothers giving 20% of births receive all of the various types of antenatal care. Less than half of all deliveries are attended by a health professional and only 1/3rd of births take place in a medical institution. More than 1/3rd of women aged 15-49 years are undernourished and almost half the children under the age of 3 years are underweight or stunted [9,10,11,12].
- 2) Food security, ill sanitation systems, undeveloped drainage systems affecting drinking water quality, excessive arsenic in drinking waters of some areas, poor transportation systems in rural regions, geographic barriers directly affect the health infrastructure not only in rural areas but also in urban and sub urban areas.

In spite of the immunization programmes being carried out all over India data shows that only 2/5 of children receives all childhood vaccinations. There are some diseases for which West Bengal appears to have much higher incidence than any other state. For example, even though the rate of

measles immunisation in West Bengal is higher than the all-India average, 40 per cent of the reported cases of measles in India in 2001 were from West Bengal. The state also has a higher than expected incidence of some diseases that can be prevented by timely vaccination, such as neonatal tetanus (21 per cent of all reported cases in India) and diphtheria (17 per cent of all reported cases). This suggests that the preventive health delivery systems need to be strengthened. However, rates of leprosy, Kala-azar and Japanese Encephalitis are less in West Bengal than the Indian average [9,12].

ROLE OF CENTRAL & STATE GOVERNMENT

Certain flaws in the national health policy act as a limiting factor to achieve the desired goals in health care system. Role of the Central Government for maintaining public health have been focused on the five-year plans, on coordinated planning's with the states, and on sponsoring major health programs. Government expenditures are jointly shared by the central and state Governments. Goals and strategies are set through central-state Government consultations of the Central Council of Health and Family Welfare. Central Government efforts are administered by the Ministry of Health and Family Welfare, which provides both administrative and technical services and manages medical education. State Governments also provide public services and health education.

Health care facilities and personnel increased substantially between the early 1950s and early 1980s, but because of fast population growth, the number of licensed medical practitioners per 10,000 individuals had fallen by the late 1980s to three per 10,000 from the 1981 level of four per 10,000. In 1991 there were approximately ten hospital beds per 10,000 individuals.

According to data provided in 1989 by the Ministry of Health and Family Welfare, the total number of civilian hospitals for all states and union territories were 10,157. In

1991 there were a total of 811,000 hospital and health care facilities beds. The geographical distribution of hospitals varied widely state to state depending upon the socio-economic conditions and political influences. In 1991, in India's most populous state, Uttar Pradesh, with a population of more than 139 million, there were 735 hospitals. In Kerala, with a population of 29 million occupying an area only one-seventh the size of Uttar Pradesh, there were 2,053 hospitals.

Although central Government has set a goal of health care for all by 2000, hospitals are distributed unevenly. Private studies of India's total number of hospitals in the early 1990s were more conservative than official data, estimating that in 1992 there were 7,300 hospitals. Of this total, nearly 4,000 were managed by central, state, or local Governments. Another 2,000 are managed by charitable trusts, received partial support from the Government, and the remaining 1,300 hospitals, many of which were having relatively small facilities, were managed by the private sector. The use of state-of-the-art medical equipment, often imported from Western countries, was primarily limited to urban centers in the early 1990s.

While information on the Government sector institutions is reliable, data on the private sector is incomplete and is based on information provided by the state medical councils and state Governments. There are massive differences between the data reported by various investigation sources and the actual census conducted by the state Government.

Available data from National Sample Survey Organization (NSSO) carried out by independent investigators and studies funded by the Department of Health suggest that a majority of the physicians in both the modern system of medicine and ISM&H work in the private sector. The growth and share of private sector hospitals and beds over the years widely varies in different states. While there has been a substantial increase in the number of hospitals under the private sector during the 1990s, the rise in the number of beds has been modest[2,5,9].

Primary health centers are the cornerstone of the rural health care system. In 1991 census, India had about 22,400 primary health centers, 11,200 hospitals, and 27,400 clinics. The main problems affecting the success of primary health centers are the predominance of clinical and curative concerns over-rates, the intended emphasis on preventive work and the reluctance of staff to work in the rural areas. In addition, the integration of health services with family planning programs often causes the local population to perceive the primary health centers as hostile to their traditional culture preferring large families. Therefore, primary health centers may play an adversarial role in local efforts to implement national health policies. Other problems which include the failure to integrate health services with wider economic and social development are the lack of nutritional support, proper sanitation, and the poor participatory involvement at the local level[1,4].

In 1983 health care expenditures varied greatly among the states and union territories, from Rs 13 per capita in Bihar to Rs 60 per capita in Himachal Pradesh, and Indian per capita expenditure was low when compared with other Asian countries. Although Government health care spending progressively grew throughout the 1980s, such spending as a percentage of the gross national product (GNP) remained fairly constant. In the meantime, health care spending as a share of total Government spending decreased. During the same period, private-sector spending on health care was about 1.5 times as much as Government spending [4,6].

In the mid-1990s, health spending amounted to 6% of GNP, one of the highest levels among developing nations. According to a World Bank study, 1995 the established per capita spending is around Rs 320 per year with the major input from private households (75%), State Governments contribute 15.2%, the Central Government 5.2%, third-party insurance and employers 3.3%, and municipal Government and foreign donors about 1.3. Of these proportions, 58.7% goes toward primary health care (curative, preventive, and promotive) and 38.8% is spent on secondary and tertiary inpatient care. The rest goes for non-service costs.

The fifth and sixth five-year plans included programs to assist delivery of preventive medicine and improve the health status of the rural population. Supplemental nutrition programs and increasing the supply of safe drinking water were high priorities. The sixth plan aimed at training more community health workers and increasing efforts to control communicable diseases. There were also efforts to improve regional imbalances in the distribution of health care resources.

The Seventh Five-Year Plan budgeted at Rs 33.9 billion for health, an amount roughly double the outlay of the sixth plan. The Eighth Five-Year Plan, however, health and family welfare was budgeted at Rs 20 billion, or 4.3% of the total plan spending for 1994, with an additional Rs 3.6 billion in the non-plan budget.

During the Ninth Plan period, the central as well as the states Governments initiated a wide variety of public-private collaborations. Some of the ongoing collaborations include:

To appoint General practitioner and specialists on a part time basis to visit and provide health care in PHC's of neglected rural areas. Contractual appointment of health care personal's, hiring of private practitioner will not only fill the gaps in health infrastructure but young medical professionals will get an opportunity to update their knowledge and skills though responses in this regard is ever unsatisfactory. Keeping in mind about the monetary benefits, State Government doctors should be allowed for private practices. Since private practitioners provide most of the curative care in the country, it is important that they are given ready access to updated protocols for the management of common illnesses and current regimens used in the national disease control programmes and family welfare programme. They must be allowed to have easily access to drugs, devices, and vaccines provided through the national programmes. If this is done, private practitioners can play an important role in increasing the coverage as well as containing the cost of care. To involve

the NGO's and different private sectors to generate public awareness against control and eradication of communicable diseases, child immunization programmes, for the control of HIV/ AIDS and family planning welfare, sterility operations of vasectomy and tubectomy. Public sectors like the Tata Steel Co. and other business magnets who have set an example of providing A-grade health services to its employees and public in defined areas should be boosted by Central and State Governments in terms of lands, equipments and other accessories at a concessional rate to establish private super specialty, tertiary/secondary care hospitals with a strong understanding that they should provide in-patient/out-patient services to poor patients free of charge [9,13,17].

IT- ENABLED MEDICAL CARE

Advances in information technology have revolutionized the healthcare scenario of the world. To provide quality health care to rural mass, IT-enabled health care purposes to establish e-health care units in rural areas with a controlling Central e-health care provided with all sorts of diagnostic and medical aids, will apply information and communication technologies so as to rule out distance barriers, development of central health database through acquisition, storage and retrieval, to solve patients needs, demands and crisis in a better expertised manner through an inter-institutional network. People can be connected through the network where their health records are maintained for diagnosis and treatment. This arrangement is unique to provide economical diagnostic service, community health service, emergency services and ambulatory services for surveillance [15].

As regards the infrastructure development e-health centers in rural and sub-urban areas must be provided with mini pathological and radiological units with all necessary diagnostic aids and equipments to mention a few are the ECG, USG, X-Ray, autoclaves, centrifuges, microscopes, ELISA kits, proper child delivery units, pediatric units, immunization and family planning provisions, proper doctor's chamber and operation theatre.

On the other hand the Central e-health unit which acts as the controller of other sub e-health units of a defined area should be equipped with more advanced pathological, radiological, diagnostic units, modern operation theatres, doctor's chambers, tele-pathology, tele-radiology, and tele-consultation facilities for serving distant people in a better manner. Central e-health unit should possess more advanced 300mA X-Ray, Color Doppler, CR system, EEG, EMG, Digital ECG, Spiro meter. The pathology should consist of advance pathological setups like Full Auto Biochemistry Analyzer, Full Auto Blood cell Counter, Urine Analyzer, Electrophoresis, Electrolyte Analyzer, etc. All such modernizations should be accessible for the treatments of poor rural mass and middle class people. Definite arrangements to be made to include specialists like the gastroenterologists, neurologist, nephrologists, hematologists, oncologists, pediatricians, dieticians, gynecologic obstetricians, psychiatrists and child psychiatrists in the health team so as to smoothly run these specialized departments. The central e-health unit should establish excellent network connectivity for the purpose of data transmission from villages to central unit and also with renowned diagnostic centers, research centers of the country [16, 17].

CONCLUSION

The impact of all five years plans in achieving the health care targets and the coverage under disease control programmes have not yet been evaluated. However, available information suggest that these schemes succeeded in places where there were well-defined committed groups and clear-cut memorandums of understanding (MOUs) and the MOUs were implemented properly. Keeping in view the health care needs of the population; the Tenth Plan of actions should take into account the strengths and weaknesses of area-specific public-private collaborations. Feasibility of GIS mapping to identify under-served areas and providing suitable incentives to

encourage private sector to set health facilities in such areas should be explored.

During the Tenth Plan appropriate policy initiatives should be taken to define the role of Government, private and voluntary sectors in meeting the growing health care needs of the population at an affordable cost. The public sector should develop institutional capability at the central, state and local levels to adopt strategies so as to render quality health care to neglected and vulnerable segments of populations, establish standard protocols and accreditation systems for individuals and institutions in order to provide cost effective quality service, encourage public-private collaborations, enforce ethics, regulations and contractual obligations among the medical professionals, promote speedy grievance re-dressal mechanism, and set examples of strong punishments against the violators of professional ethics and allotted responsibilities.

Another essential pre-requisite for improving the quality of care is the development of standard treatment protocols appropriate for each level. The medical colleges and research institutions should play a key role in this regard. The existing Government institutions at each level should take up the responsibility of testing these management protocols and suggest necessary modifications. These protocols should be made available to all practitioners through CME programme for skill up-gradation and training.

The Tenth Plan attempts should be made to enhance the quality and coverage of Family Welfare services through involvement and participation of organized and unorganized sectors of industry, agriculture, trade, agriculture workers and labor representatives. The increasing involvement of Industry should be encouraged during the Tenth Plan. The problem solving approach of corporate sector can be of use in improving operational efficiency of the health care infrastructure.

Available IT tools have to be fully utilized by CME programmes to ensure easy access to the protocols for updating skills and knowledge. Online consultation services between paraprofessionals and doctors, in between the doctors

may improve the quality of rendered services and reduce the patient transportation problems to hospitals. State Government institutions should be 'model institutions' in terms of cost and quality of care. The district health officials should monitor the performance of both public and the private sector institutions in the district and assist them in improving their service standards [18-22].

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