

**REPORT OF THE  
WORKING GROUP ON  
TERTIARY CARE  
INSTITUTIONS FOR  
12TH FIVE YEAR  
PLAN(2012-2017)**

*WG-2 : Tertiary  
Care Institutions*

No. 2 (6)2010-H&FW  
Government of India  
Planning Commission

Yojana Bhavan, Sansad Marg  
New Delhi – 110001

Dated 9<sup>th</sup> May 2011

**OFFICE MEMORANDUM****Subject: Constitution of working group on Tertiary Care institutions for the Formulation of the Twelfth Five Year Plan (2012-2017)**

With a view to formulate the Twelfth Five Year Plan (2012-2017) for the Health Sector, it has been decided to constitute a Working Group on Tertiary Care institutions and other major tertiary care institutions under the Chairmanship of Prof J S Bajaj, Former Member, Planning Commission, Government of India

The composition and the terms of reference of the Working group would be as follows:

1.	Prof. J S Bajaj, Former Member, Planning Commission, Government of India	Chairperson
2.	Dr. R. K. Srivastava, DGHS (Directorate General of Health Services)	Member
3.	Director AIIMS, New Delhi	Member
4.	Director PGIMER (Post Graduate Institute of Medical Education and Research), Chandigarh	Member
5.	Director JIPMER (Jawaharlal Institute of Postgraduate Medical Education & Research) Puducherry	Member
6.	Director Sree Chitra Tirunal Institute for Medical Sciences & Technology, Thiruvanthapuram, Kerala	Member
7.	Director Tata Memorial Hospital, Mumbai	Member
8.	Director, Institute of Liver & Biliary Sciences, New Delhi	Member

9.	Medical Superintendent, Vardhman Mahavir Medical College & Safdarjung Hospital, New Delhi	Member
10.	Director, North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences (NEIGRIHMS), Shillong, Meghalaya	Member
11.	Director, School of Tropical Medicine, Kolkata, West Bengal	Member
12.	President, National Board of Examination, New Delhi	Member
13.	Director, Institute of Human Behaviour and Allied Sciences, Dilshad Garden, New Delhi	Member
14.	Vice Chancellor, The Tamil Nadu Dr. M.G.R. Medical University, Chennai, Tamil Nadu	Member
15.	Prof. S. K. Sama, Gastroenterologist, Sir Ganga Ram Hospital, New Delhi	Member
16.	Dr. Arun K. Agarwal, Dean, Maulana Azad Medical College, New Delhi	Member
17.	Prof. Sunil Maheshwari, Personnel and Industrial Relations Area and Strategic Management IIM, Ahmedabad	Member
18.	Prof. Ranjit Roy Choudhury, National Institute of Immunology, New Delhi	Member
19.	Dr. Mansoor Hassan, Cardiologist, Lucknow, Uttar Pradesh	Member
20.	Principal Secretary, H&FW, Government of Karnataka	Member
21.	Principal Secretary, H&FW, Government of Gujarat	Member
22.	Principal Secretary, H&FW, Government of Punjab	Member
23.	Prof. Jayati Ghosh, Economist, Jawaharlal Nehru University, New Delhi	Member
24.	Dr. Anand Zachariah, Professor, Department of Medicine, CMC (Christian Medical College) Vellore	Member
25.	Prof Snehlata Deshmukh, Pediatric Surgeon, Former Vice Chancellor, Mumbai University	Member

26.	Dr. Prema Ramachandran, Director, Nutrition Foundation of India	Member
27.	Joint Secretary (Ministry of Human Resource Development)	Member
28.	Mr. Ambrish Kumar, Adviser (Health) Planning Commission	Member
29.	<b>Joint Secretary, PMSSY, (Pradhan Mantri Swasthya Suraksha Yojana)</b>	<b>Member Secretary</b>

### Terms of References

1. To review the progress of PMSSY I & II.
2. To suggest a completion plan for ongoing projects under PMSSY.
3. To advise about midterm corrections in PMSSY and finance mechanism along with possible advice about resource mobilization.
4. To identify new locations for PMSSY, to be taken up for 12<sup>th</sup> Five Year Plan.
5. To assess regional imbalances in the availability of tertiary healthcare services and suggest appropriate measures to correct these imbalances.
6. To assess the infrastructure and human resource requirements for establishing/augmenting tertiary healthcare facilities, especially for the critical specialties.
7. To suggest appropriate cost effective models for efficient functioning of tertiary health-care institutions.
8. To suggest measures for optimal use of available human resources in the tertiary health sector.
9. To recommend measures for wider use of telemedicine and IT technology in providing tertiary healthcare facilities.
10. To study appropriate PPP model in tertiary healthcare sector and integrating the private sector facilities with Government Sector to provide cost effective services to the public.
11. To assess the gaps in governmental efforts for faculty development through various schemes of medical education & suggest remedial measures.

12. The Chairman may constitute various Specialist Groups / Sub-groups/task forces etc. as considered necessary and co-opt other members to the Working Group for specific inputs.
13. Working Group will keep in focus the Approach paper to the 12<sup>th</sup> Five Year Plan and monitorable goals, while making recommendations.
14. Efforts must be made to co-opt members from weaker section especially SCs, Scheduled Tribes and minorities working at the field level.
15. The expenditure towards TA/DA in connection with the meetings of the Working group in respect of the official members will be borne by their respective Ministry / Department. The expenditure towards TA/DA of the non-official Working group members would be met by the Planning Commission as admissible to the class 1 officers of the Government of India
16. The Working group would submit its draft report by 31<sup>st</sup> July, 2011 and final report by 31<sup>st</sup> August, 2011.

**(Shashi Kiran Baijal)**  
**Director (Health)**

**Copy to:**

1. Chairman, all Members, Member Secretary of the Working Group
2. PS to Deputy Chairman, Planning Commission
3. PS to Minister of State (Planning)
4. PS to all Members, Planning Commission
5. PS to Member Secretary, Planning Commission
6. All Principal Advisers / Sr. Advisers / Advisers / HODs, Planning Commission
7. Director (PC), Planning Commission
8. Administration (General I) and (General II), Planning Commission
10. Accounts I Branch, Planning Commission
11. Information Officer, Planning Commission
12. Library, Planning Commission

**(Shashi Kiran Baijal)**  
**Director (Health)**

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## Executive Summary

India has systematically improved health conditions. Life expectancy has doubled from 32 years in 1947 to 66.8 years at present; Infant Mortality Rate (IMR) has fallen to 50 per thousand live births. However levels of malnutrition and rates of infant and maternal deaths still remain high. Nearly one million Indians die every year due to inadequate healthcare facilities and 700 million people have no access to specialist care and 80% of specialists are working in urban areas. India faces a huge need gap in terms of availability of number of hospital beds per 1000 population. With a world average of 3.96 hospital beds per 1000 population India stands just a little over 0.7 hospital beds per 1000 population. The budgetary support for expansion of public health facility has been inadequate from governments. In most states salaries and wages account for as much as 70 per cent of the total health budget, leaving hardly any resources for expansion of services.

Further it is estimated that public funding accounts for only 22% of the expenses on healthcare in India. Most of remaining 78% of private expenditure is out-of-pocket expense. The share of the richest 20 per cent of the population in total public sector subsidies is nearly 31 per cent, almost three times the share of the poorest 20 per cent of the population.

The existing scenario suggests that public healthcare service should ensure three “Es- Expand – Equity - Excellence”. Access to adequate health care would need expansion of tertiary care facilities. Tertiary care should be equitably distributed to different segments of population. The setting up of new facilities will have to address imbalances at three levels- Regional, specialties, and ratio of medical doctors to nurses and other healthcare professionals. The Working Group members were unanimous in their opinion that the expansion in the next five year plan must be systematic whose contours must be based on infusing quality in the future medical education and care.

Effective delivery of health care services would depend largely on the nature of education, training and appropriate orientation of all categories of medical and health personnel. Equally urgent therefore is the need to assess appropriate manpower mix in terms of the required numbers and assigned functions of human resources for health in tertiary health care. Chapter 2 of the report examines the need to strengthen the manpower availability and skills.

PMSSY was first launched in March 2006 with the primary objective of correcting the imbalances in availability of affordable/reliable tertiary level healthcare in the country in general and to augment facilities for quality medical education in the under-served States. The scheme is reviewed and suggestions

are made in Chapter 3 of the report. Six AIIMS like institutions (ALIs) in the underserved and un-served regions of the country were planned to be setup. The group recommends creation of 4 (four) new AIIMS Like Institutions (ALIs) during the 12<sup>th</sup> Plan period.

The pattern of governance and management of ALIs was approved by the Union Cabinet in August 2010. It was decided that each of these institutions would be registered under a society. These societies will be functional till the ALIs are brought under an Act of Parliament. It is noteworthy that a High Powered Committee was set up recently to review the Governance and HR practices at the AIIMS. The experience of the review indicates that the existing Institutions would also need similar review to optimize their functioning.

PMSSY also envisaged up-gradation of several existing medical institutions in different states in the country. Initially the estimated outlay for up-gradation was revised to 150 crores per institution (from initial estimate of Rs. 120 crore), with Rs. 125 crore as the share of Central Government.

During the 11<sup>th</sup> Five Year Plan a Scheme for "Up-gradation & Strengthening of State Government Medical Colleges for starting new postgraduate disciplines and increasing postgraduate seats by central funding" has been launched. This report proposes grants to be released to selected State Government medical colleges / institutions directly as per their actual requirement under a funding patten of 75% by Central Government and 25% by State Government.

For creating a larger pool of doctors and other health workers that can be used at PHC and CHC and providing super specialty health care to the population in that region, 25 Medical institutions have already been approved under PMSSY. It is suggested that additional 30 medical colleges, established at least 20 years back and requiring immediate financial assistance for strengthening and upgrading its facilities, be identified for support through PMSSY.

Recently, mid-term appraisal of the 11<sup>th</sup> Five Year Plan indicates a major effort for the redevelopment of hospitals / institutions. Redevelopment of the AIIMS is to be expedited. Similar development support is recommended for Lady Hardinge Medical College & Smt. S.K. Hospital; Kalawati Saran Children (KSC) Hospital, New Delhi; RIMS, Imphal; Lokapriya Gopinath Bordoloi Regional Institute of Mental Health, Tezpur; Safdarjung Hospital & College, New Delhi; Postgraduate Institute of Medical Education and Research, Chandigarh; and Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry.

For optimizing the functions of presently established as well as upgraded institutions it is suggested that every medical college should undertake periodic



review through external peer level Institutes like IIMs for continuous strengthening of these parameters. It is equally imperative to strengthen Human Resource Management Policies. Medical profession demands much higher commitment, knowledge, skills, complexity and competence than any other stream. To attract, retain and nurture talent, HR practices need to be strengthened. It is recommended that a group of senior professionals / administrators from the Post-graduate Medical Institutions, IIMs and IITs may be constituted to undertake an in-depth review and make appropriate recommendations.

In view of the time over-runs and cost over-runs in the implementation of PMSSY, and the need to develop sound governance and management systems, the Working Group suggests that Ministry of Health & Family Welfare may consider creating an Apex Team that may facilitate these projects.

Medical colleges and other tertiary care centers should be connected through tele-networking to cater the demand of distance education in health education, training, faculty development, tele-consultation etc.

The members of the working group further recommended that the Ministry of Health and Family Welfare must open channels of interaction with Ministries of Defence, Railways and Labor (ESI), which are also running medical colleges and health care institutions. Ministry of Health and Family Welfare can explore the possibility of developing tertiary care centers at these institutions by providing financial and technical assistance on sharing basis and even transform health care institutions of these Ministries into medical colleges.

The working group recommends that the existing infrastructure at the District level needs to be strengthened to ensure access, quality of healthcare to all, and in strengthening the referral system. With the standardization of processes with the application of technology, many specialist conditions may be effectively managed at the district level. Chapter 4 of the report discusses the issues relating to district hospitals.

Medical College could be linked to 1-3 districts for tertiary referral services, on hub-spoke model. The upgraded medical colleges under PMSSY, in the first instance, must be made responsible for tertiary care services in the district hospitals. The District Hospitals linked to upgraded medical college should be provided necessary financial and technological support through a centrally sponsored scheme in the 12<sup>th</sup> Five Year Plan.

The medical college could use the district health system for training of undergraduate and postgraduate medical students and residents. Part of undergraduate and postgraduate training should be provided in the learning setting outside the medical college in the district health system.

It is recommended that all medical colleges should be encouraged to develop their own corpus to attain financial flexibility over a period of time. The colleges could decide the fee and charges for different facilities for patients in paying beds. Government can contribute matching grant to help them develop their own corpus.

Public-Private Partnership (PPP) is seen as one of the instruments to improve or reform the health status of the population. PPP related recommendations are made in Chapter 5 of this report.

The success of PPP is anchored on three principles. First, a relative sense of equality between the partners; second, there is mutual commitment to agreed objectives; and third, there is mutual benefit for the stakeholders involved in the partnership.

PPP can be used beneficially to increase the efficiency in service delivery, operations and management owing to better capacity utilization; to make services equitable, accessible and of good quality; to ensure availability of additional resources (technical, infrastructure and financial) to meet the growing needs in the sector; and to ensure access to advanced but fast changing technology. However to take the advantage of PPP, Government will have to develop certain competencies, create structure and enabling environment to plan and execute PPP effectively during the 12<sup>th</sup> Five-year plan.

Initially bottom-up approach of costing should be undertaken to set the standards. Once the standards are in place, monitoring should be based on top-down approach, using relative value units (RVU), hospital days, or some other metric to assign total costs for a healthcare system to individual services. Government will have to create mechanisms for smooth system for payments.

To ensure positive behaviour of actors in PPP, appropriate HR and communication system would be developed. A detailed study for this may be given to institute like IIM for this purpose.

Chapter 6 highlights that Information and Communication Technology (ICT) in health can be effectively deployed in four areas viz. Education, Research, Referral, and Management of Data. National Knowledge Network (NKN) connects 1500 knowledge institutions in India.

It is common experience that work places in the health systems are not adequately governed especially in remote areas. The management of medical colleges and district hospitals can be strengthened significantly with the application of Hospital Management System.

Working Group recommends setting up a National Mission on ICT in Health with a clear mandate to conceive design, and deliver ICT based health education and health care and converge all existing programmes under this mission. Budgetary allocation of about Rs. 600 crores may be made in the 12<sup>th</sup> Plan for ICT in Health. Hospital Management System should be installed in all the institutions of tertiary care and district hospitals.

A separate IT cell should be created in the Ministry of Health & Family Welfare at the Centre. This centre will develop appropriate formats for appraisal of performance and collect real time data for reports and forward those reports to appropriate authorities for review and necessary action.

Lastly in Chapter 7 report discusses futuristic vision and additional strategies. These deserve serious consideration.

The advances in biomedical sciences suggest creation of Institutes and Centres, each with a specific research agenda, focusing on specific constellation of diseases or body systems. The following list includes the institutes that may be of relevance to national needs, and may be established during the 12<sup>th</sup> Five Year Plan:

- National Cancer Institute
- National Institute of Infectious Diseases
- National Institute of Arthritis and Musculoskeletal Diseases
- National Institute of Child Health
- National Institute of Diabetes
- National Institute of Mental Health and Behavioural Sciences
- National Centre of Life Sciences
- National Centre of Biomedical Imaging and Bioengineering
- National Centre for Hospital and Healthcare Administration
- National Centre for Nursing Education and Research
- National Centre for Information Technology (IT) and Telemedicine
- National Centre for Complementary Medicine

The working Group recommends the up-gradation of following centers in 12<sup>th</sup> Five-Year Plan.

- National Centre of Excellence for Cancer Treatment and Research
- National Centre of Excellence for Ophthalmic Sciences

- National Centre for Mental Health and Behavioural Sciences
- National Centre of Excellence in Neurosciences:
- National Centre of Excellence in Cardiology and Cardiac Surgery
- National Centre of Excellence in Liver and Biliary Sciences

The essential and critical prerequisite for optimal functioning of existing and proposed National Institutes and Centres of Excellence for tertiary care, is a strong foundation of primary care and a well organized and coordinated system of secondary health care. With increasing investments in health both by the public sector as well as by the private sector, a continuing appraisal and articulation of health policy is necessary. A Centre of Health Policy Research with core faculty of experts in public health, health planning, health economics, health management and social sciences, amongst others, may provide the necessary forum for ensuring equity and accountability in health care.

**Setting up Universities of Health Sciences:** To ensure appropriate manpower mix of different categories of health professionals involved in delivery of healthcare, the working group conceptualized the University of Health Sciences aimed at creating a physical and academic environment where all faculties of health sciences could interact and provide a model for education and training of healthcare teams, through multi-professional and inter-professional education. To achieve this it was recommended that one such university should be set up in each state, and in the initial stage one in each region. The universities will affiliate all Medical Colleges, Dental Colleges, Para-professional Colleges, besides possibly considering grant of affiliation to Colleges, imparting graduation level of education in health sciences in the State.

Study and research programmes through multi-disciplinary Study Centers need to be established in the following areas and networking between the universities and identified institutions established.

- Study Centres of Population and Environmental Sciences
- Study Centres for Health Systems and Health Services management
- Study Centres for Education Technology
- Study Centres for Planning and Development of Human Resources for Health
- Study Centres for Continuing Education in Health Sciences

Central support must be provided to Health/Medical Universities during the 12<sup>th</sup> Five Year Plan, with efforts to establish similar universities in other states. In addition to the role, relevance, and functions of Health/Medical Universities as envisaged earlier, they may also subserve a most significant bridging function between the proposed National Commission for Higher Education and Research

and the proposed National Council for Human Resources in Health, thereby strengthening medical education and research in the country.

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## Chapter 1: Introduction

**Introduction:** There is a continuing concern over the performance of the healthcare delivery system in India. With inadequate budgetary support both at the Central and State levels, most state governments are finding it increasingly difficult to expand their public health facilities to cater to the healthcare needs of their growing populations (Table 1.1). However, the growth of private sector has been impressive in the last two decades.

**Table 1.1**

Year	Center's expenditure (Rs. in Crore)	% of Union Budget	% of GDP	States' Expenditure (Rs. in Crore)	States' share in total	Total as a % of GDP
2004-05	8086	1.6	0.26	18771	69.9	0.85
2005-06	9649	1.9	0.27	22031	69.5	0.88
2006-07	10948	1.9	0.26	25375	69.9	0.90
2007-08	14410	2.0	0.29	28908	66.7	0.88
2008-09	17661	2.0	0.32	38579	68.6	1.02
2009-10	21680	2.1	0.35	43848	66.9	1.06
2010-11	25154	2.3	0.36	-	-	

In terms of resource allocation, the areas that have suffered most are secondary and tertiary care. This is because expansion of tertiary health care facilities needs considerable resources to adequately respond to the needs of state of art diagnostic procedures and treatment modalities. Most state government budgets show that a major component of budgetary allocations goes to meet the recurrent costs to maintain existing levels of public health care delivery system. In most states salaries and wages account for as much as 70 per cent of the total health budget, leaving hardly any resources for expansion of services.

Further it is estimated that public funding accounts for only 22% of the expenses on healthcare in India. Most of remaining 78% of private expenditure is out-of-pocket expense. The total public expenditure on health has been around 1% of GDP. This is leading high health cost burden on people, especially in lower economic stratum. It is estimated that 11.88 million households are falling below poverty line every year because of health related expenses due to spiraling cost of healthcare (India Health report 2008).

It is often argued that Public Health system supports the health care needs of poor population who cannot afford private healthcare facilities. However, the pattern of healthcare beneficiaries indicates a very different scenario. At the all-India level, the share of the richest 20 per cent of the population in total public sector subsidies is nearly 31 per cent, almost three times the share of the poorest 20 per cent of the population. In rural areas the share of the top 20 per cent in public subsidies was nearly four times that of the poorest 20 per cent. Tertiary care services are expectedly more expensive than primary care or secondary care services and viability of their establishment and maintenance is a big issue. With the result such services in public sector are few given the percentage of public expenditure on health out of GDP. Thus availability of tertiary care services is skewed towards private domain vis-à-vis public sector and the costs again drive the private sector to get concentrated in urban setup.

There are also geographical inequities. Tertiary care health services in India are concentrated in big cities and there is gross inequity between rural and urban setup. People in rural areas requiring such services have to invariably travel to the big capital cities and more often than not to the major metropolitan cities to get the required treatment. Lack of tertiary care infrastructure in the rural area is to a large extent because of the trained manpower in the field shying away

from settling in such areas apparently because of lack of other civic and social amenities in the rural setup and also due to apparent inadequate reimbursement of their technical skills as compared to their counterparts in cities or for that matter away from the home country, thus giving rise to regional and geographical imbalances in availability of services.

The current market model of private tertiary care is based on patients' ability to pay and focuses on diseases, specializations and treatments that enhance profitability. Lack of expansion of public hospitals in proportion to population growth and health needs, has facilitated the growth and development of private and corporate hospital sector in India (Share of hospital beds in private hospitals 78.3% and public hospitals 21.7%, India Health report 2010). The growth of private tertiary care hospitals has been concentrated in the Southern states and urban metropolises. The corporate sector has invested in the multi-specialty hospitals that focus on income earning procedures, interventions and checkups. In the public sector, government has developed tertiary hospitals in medical colleges to the extent possible. However, of the 330 medical colleges more than half are in the private sector.

India has substantial achievements to its credit. Longevity has doubled from 32 years in 1947 to 66.8 years at present; Infant Mortality Rate (IMR) has fallen to 50 per thousand live births (CBHI data); smallpox and Guinea worm disease have been completely eradicated and leprosy and polio are nearing elimination. Indian doctors are comparable to the best in the world. They are technically proficient, and capable of performing sophisticated procedures and that too at a fraction of the cost available in the West.

However these achievements should not mask India's failures. Levels of malnutrition and rates of infant and maternal deaths stagnated during the



1990s. Although India accounts for 16.5% of the global population, the country contributes to a fifth of the world's share of diseases: a third of the diarrhoeal diseases, TB, respiratory and other infections and parasitic infestations, and perinatal conditions; a quarter of maternal conditions and a fifth of nutritional deficiencies, diabetes & CVDs (NCMH sources). Apart from the unfinished agenda of communicable diseases, there is emergence of life style diseases in a big way. In addition, there is increase in microbial resistance and emergence of new pathogens. Injuries and road traffic accidents are also posing a tremendous challenge. Accidental trauma is one of the leading causes of mortality and morbidity in India. 80,000 persons die every year & 1.2 million are seriously injured. By the year 2020, Road traffic accidents in India would be a major killer accounting to 5,46,000 deaths and 1,53,14,000 disability adjusted life years lost (Projection – WHO- 2002).

India faces a huge need gap in terms of availability of number of hospital beds per 1000 population. With a world average of 3.96 hospital beds per 1000 population India stands just a little over 0.7 hospital beds per 1000 population (ehealthonline.org source). Nearly one million Indians die every year due to inadequate healthcare facilities and 700 million people have no access to specialist care and 80% of specialists are working in urban areas (TOI). The decline in public investment in health and the absence of any form of social insurance have heightened insecurities. The unpredictability of illness requiring substantial amounts of money at short notice is impoverishing an estimated 3.3% of India's population every year. The poorest 10% of the population rely on sales of their assets or on borrowings, entailing inter-generational consequences on the family's ability to access basic facilities and affecting their long-term economic prospects.

**Defining Tertiary Care:** Tertiary care is specialized consultative health care,

usually provided for inpatients following referral from primary or secondary health professionals, in an institution that has personnel and facilities for advanced laboratory and imaging investigations as well as for highly skilled clinical management.

In this paper we argue that some of the tertiary care provisions can be made at the level of District Hospitals by strengthening them. Health being a state subject, Central Government can announce a scheme that could encourage states to strengthen the District Hospitals.

**Expand-Equity-Excellence - Three Es of Tertiary Care:** The first requirement for any population is to have access to adequate health care. Tertiary care should be accessible to people who need it. In an integrated national health system patients receive care at the primary and secondary level for most conditions, and are referred for tertiary care when appropriate. However, such a system needs strong and effective primary and secondary system of health. In India the problems of PHCs and CHCs are well known. It is unlikely to change quickly in near future. Even super-specialty institutions like AIIMS are facing high burden of patients who could have been treated at secondary level. It is matter of concern that patients have to travel from far-flung areas for tertiary care at institutions such as AIIMS. Hence, the current functioning of three-tier system needs to be reviewed. Further the cost of setting up the tertiary care hospitals is increasing fast.

Also worth mentioning is the fact that there is a continuing improvement in general awareness, literacy rates and patient preferences in healthcare decisions because of which it has become imperative for healthcare institutions in India to guarantee quality healthcare to all. There is a revolution in technology & information management systems. With rise in income levels and

increasing adoption of health insurance, the demand for tertiary care is expected to grow. Hence, it is essential to expand the healthcare facilities across the country so that everyone could have access to healthcare services.

The health care infrastructure needs to support all those who need health services. Currently such services are not equitably distributed. As stated earlier, several tertiary care services can be delivered at the level of the district. To provide quality care to all, referral system needs to be strengthened and well coordinated with secondary level institutions, primarily the district hospitals. Super-specialty institutions of national recognition and regional importance, can support this system. They are centers of excellence.

Access and equity would not serve the purpose unless system ensures quality of care. One of the prime reasons of high burden of clinical services on nationally recognized institutions has been their repute for high quality care. Such high burden also seems to be impacting the balance of activities of the highly skilled professional staff in these institutions with a significant decrease in time devoted to biomedical research. To overcome this challenge, it is suggested that a system of accreditation could be developed. Health services accredited by nationally recognized institutions and similar institutions of high repute would strengthen quality of care, referral system and balance of activities at centers of excellence in the country.

**Emerging Scenario:** The tertiary healthcare infrastructure in the country has expanded significantly in the post-economic liberalization period, mainly through private sector. The corporate hospitals came into existence after the government allowed private participation and investment in hospitals. The entry of corporate sector into the Indian healthcare industry has improved high-tech infrastructure and raised the quality of services. Simultaneously it has also

attracted many high performing doctors from public health system to private sector owing to high remuneration, state of art technology and general working environment. Healthcare services seem to be moving away from the reach of the poor. Other issues and challenges in public health system include ethical issues, political interference in administration, low awareness of diseases, skewed infrastructure facilities, low penetration of health insurance, increasing competition.

Currently the Indian healthcare industry is growing at an annual rate of 13%. Indian middle class is driving the demand for quality healthcare services higher. The consequent expansion of private hospitals and increased public spending on health could lift the growth rate further. Other factors that could drive the overall growth include ageing population, growing urbanisation, improving physical infrastructure, higher awareness, skilled professionals, low-cost treatments, health insurance, bank funding, telemedicine, business process outsourcing and health tourism.

Major private hospitals are planning to come up with health cities in several metros by offering facilities such as hotels, residential facilities, recreational facilities etc. By 2025, the population of India will reach ~1.4 billion, 45% of which will be urban adults (>15 years). To cater to this demographic change, the healthcare sector has to improve its contribution to GDP to 8-10%. By then, the ten leading corporate hospitals will capture as much as 30% of the market (Cygnus Business Consulting Report 2009).

Already the rate of technology changes is high. The speed of technological advances would be increasingly higher in years to come.

Given the role of the private sector in health, various state governments are exploring the options of involving the private sector in meeting growing health care needs. Public-Private Partnerships have emerged as one of the options to direct the growth of private sector towards public goals. Developing incentives system to influence the desired geographic distribution of health facilities, and in specified areas, involving qualified providers through contract mechanisms in rural areas to improve the health delivery care system are some of the options being explored.

Public health system has also been strengthened in the 11<sup>th</sup> Five-Year plan through Pradhan Mantri Swasthya Suraksha Yojana (PMSSY) and other centrally sponsored/supported schemes, with a view to correcting the imbalances in availability of affordable/reliable tertiary level healthcare as well as to augment the capacity of production of specialists / super-specialists in adequate numbers and of requisite quality and competence to provide such services. These issues are inter-linked and are reviewed in Chapters 2 & 3.

## Chapter 2: Human Resources for Tertiary Health Care

The success for achieving the national health objectives will depend upon the effective delivery of health care services, which in turn, would depend largely on the nature of education, training and appropriate orientation of *all* categories of medical and health personnel. Equally urgent therefore is the need to assess appropriate manpower mix in terms of the required numbers and assigned functions of human resources for health in tertiary health care.

**Projected Need for specialists – An Assessment:** For a proper assessment of needs, one requires reliable morbidity data, as also information on available numbers of outgoing graduates and specialists of various types working in the community across the country. Data of this nature is limited and one may have to rely on sub-optimal information. For proper future projection, the Government may consider commissioning an external agency for providing reliable information.

A group constituted by MCI studied these issues in depth and relied on data available from MCI and NBE regarding number of outgoing graduates and the data on morbidity provided by Ms. Shyama Nagarajan of the World Bank. The principles on which the numbers of postgraduate seats in various specialties were worked out included consideration of: (i) The need for overcoming the approximately 30% present deficiency of teachers in medical colleges; (ii) The numbers required, fulfilling the increasing needs of all medical colleges over the next 20 years including new colleges; and (iii) The numbers required, providing for specialists required outside of medical colleges.

The suggested numbers of doctors with postgraduate qualifications are shown in the following tables (Table 2.1, Table 2.2, & Table 2.3).

**Table 2.1**  
**\*Projected need for Specialists and Teachers**  
**Need assessment – Clinical Specialties**

		2010						2021		2031	
Total # of Specialists		842,598						1,380,214		2,319,237	
		Per Year Seats 2010						Per Year 2020		Per Year 2030	
	Norms	Total	MCI	DNBE	Actual	Need	Gap	Total Specialist	Need of seats	Total Specialist	Need of seats
Gen Surgery	8%	60590	1800	200	2000	2020	20	110,417	4039	185,539	8079
General Medicine	16%	121180	1900	250	2150	4039	1889	220,834	8079	371,078	16157
Gynecology	9%	68164	1500	350	1850	2272	422	124,219	4544	208,731	9089
Orthopedics	5%	37869	1000	250	1250	1262	12	69,011	2525	115,962	5049
Pediatrics	8%	60590	1200	300	1500	2020	520	110,417	4039	185,539	8079
ENT	5%	37869	700	100	800	1262	462	69,011	2525	115,962	5049
Ophthalmology	4%	30295	900	280	1180	1010	-170	55,209	2020	92,769	4039
Chest Medicine	4%	30295	300	50	350	1010	660	55,209	2020	92,769	4039
Psychiatry	2%	15148	450	50	500	505	5	27,604	1010	46,385	2020
Dermatology	4%	30295	450	50	500	1010	510	55,209	2020	92,769	4039
Anesthesia		DNA	1600	350	1950	4000	2050		8000		16000
Radiology		DNA	700	200	900	2000	1100		1800		3600
Radiotherapy		DNA	200	15	215	400	185		430		860
Transfusion Medicine		DNA	24	0	24	50	26		48		96
Family Medicine		DNA		182		5000	5000		10000		15000
Nuclear med		DNA	1	10		20	20		40		80
Others		DNA		15		30	30		60		100
Based on OPD Patients Data, MOH website, MCI website, NBE website/WHO disease burden											
Approximately Double by 2020, Four times by 2030 (medical colleges - 2020- 400, 2030 - 500)											

\* Source : Medical Council of India : Under-graduate and Post-graduate Working Group (2010-2011)

**Table 2.2**

**Need Analysis – Super-specialty**

		2010				2021		2031	
Total # of Specialists		842,598				1,380,214		2,319,237	
		Per Year Seats 2010				Per Year 2020		Per Year 2030	
	Norms	Total	MCI	DNBE	Actual	Total Specialists	Need of seats	Total Specialists	Need of seats
Neurosurgery		DNA	152	17	169		300		600
CTVS	4%	30295	136	24	160	55,209	300	92,769	600
Cardiology	6%	45443	202	58	260	82,813	400	139,154	800
Urology	4%	30295	134	8	142	55,209	300	92,769	600
Neurology	5%	37869	123	23	146	69,011	250	115,962	500
Gastroenterology	4%	30295	73	16	89	55,209	200	92,769	400
GIS	1%	7574	20	11	31	13,802	100	23,192	300
Plastic Surgery	1%	7574	137	11	148	13,802	250	23,192	500
Endo	1%	7574	38	6	44	13,802	100	23,192	200
Nephrology	3%	22721	66	27	93	41,406	200	69,577	400
Hematology	1%	7574	11	0	11	13,802	50	23,192	100
Pediatric surgery		DNA	104	8	112		200		400
Oncology	3%	22721	36	15	51	41,406	100	69,577	200
Geriatrics	1%	7574		0	0	13,802		23,192	
Immunology		DNA	10	2	12		25		50
Surgical Oncology		DNA	33	10	43		80		160
Clin. Pharm.		DNA	13		13		25		50
Neonatology		DNA	13	8	21		50		100
Cardiac anesthesia		DNA	8		8		25		50
		DNA - Data Not available							



**Table 2.3**  
**Need Analysis – Basic Sciences and other Specialties**

	2010			2020		2030
	Approx Number of Seats		Need of teachers	Gap	Need	Need
	Available	Pass per Year				
Pathology	1000	700	6000	1500	8000	10000
Anatomy	450	150	3600	1500	4800	6000
Biochemistry	360	150	3600	1500	4800	6000
Microbiology	500	300	4200	3500	5600	7200
Forensic	200	70	2400	1200	3200	4000
Physiology	440	150	3600	1500	4800	6000
Pharmacology	450	300	3600	600	4800	6000
Community Medicine	500	400	6000	4500	8000	10000
BASIC specialty data projected on need for teachers						

## **Explanatory notes to needs data:**

1. Calculation required for various specialists is based on projections drawn from the following data:
  - a. Ministry of Health
  - b. Medical Council of India
  - c. National Board of Examinations
  - d. OPD patient data. This, however, does not include those specialties that are non-OPD based such as Pathology, Anesthesia, Radiology etc. The calculation for these latter specialties is based on perceived needs taking into consideration the health care needs of community outside the teaching institutes also.
  
2. The basic principle followed took cognizance of the following:
  - a. The available number taken for calculation includes those qualifying from institutes recognized by MCI and the National Board.
  - b. The projected number also makes allowance for 30% deficiency that exists now.
  - c. The numbers proposed for immediate increase reflects doubling of seats in some specialties that are critically short and a marginal increase in others.
  
3. The proposal visualizes doubling of seats by 2020 and a further doubling by 2030.
  
4. Basic specialties like Anatomy have enough seats per year but many seats are vacant and hence shortage of teachers persists. There is, therefore, a need for more incentives- like differential pay scales, special pay or accelerated promotions for teachers in these subjects. In some areas such

as Anatomy/ Physiology/ Pharmacology, one may also have a cadre of non-medical teachers. To attract medical graduates to subjects like Anatomy they may also be given the opportunity to work as part time in clinical departments.

5. For Basic sciences and Para clinical sciences, need assessment has been made based on number of teachers required in medical college. Numbers have been doubled to take care of other health care facilities and dental/ nursing colleges.
6. The problem of shortage is not only due to lack of seats but also due to the lack of popularity of courses amongst potential candidates. Hence private institutions are hesitant to start courses in basic specialties. Special incentives may need to be given to these institutions for this purpose.
7. The projected increase in number of specialists is notional. Passing rates are up to 70% in MCI courses and 50% in National Board courses. Hence the number of doctors available will be about 70-80% of the projected numbers every year. (Approximately 20% are lost due to failures in examinations, migrations etc.)

With the suggested increase in numbers of outgoing postgraduates, the concern for faculty development becomes much more critical. The quality of output will be far from desirable unless measures in this direction are immediately initiated.

**Imbalances:** Disequilibrium results from a discrepancy between the numbers, categories, functions, distribution and quality of health

professionals and allied health workers, and the national needs for their services to achieve its defined health objectives and also its ability to employ, maintain and support them. The setting up of new facilities will have to address imbalances at three levels:

- a) Regional: It will remain an important task for the Government to choose locations for setting up new medical colleges/institutes/centers at places that have relatively inadequate facilities.
- b) Specialties: As discussed in above tables, centers and institutions will aim to overcome the imbalances in specialties.
- c) Ratio of medical doctors to nurses and other healthcare professionals will have to be maintained. Historically capacity enhancing issues for nursing and other healthcare professional have been ignored.

In the ultimate analysis, functioning of tertiary health care delivery team must be optimized.

### **Chapter 3: Expanding Capacity and Enhancing Quality**

#### ***Pradhan Mantri Swasthya Suraksha Yojana***

The tertiary care is generally associated with the health care provided at specialty and super specialty levels. These institutions also act as training centers for doctors and other allied health workers. These institutions are often equipped with the most modern technical equipments the knowledge of whose working provides the trainee with the advanced and updated hands on experience with latest technologies. During last few years, there has been sudden upsurge in the occurrence of diseases both communicable and non-communicable. The central government was implementing various health programs across the country besides providing financial assistance to the States. However, the need for a more systematic and inclusive health program was felt which primarily catered to the need for more tertiary care centers in the country. It was in this backdrop that PMSSY was first launched in March 2006 with the primary objective of correcting the imbalances in availability of affordable/reliable tertiary level healthcare in the country in general and to augment facilities for quality medical education in the under-served States. Scheme set up six AIIMS like institutions (ALIs) in the underserved and un-served regions of the country. Cabinet Committee on Economic Affairs (CCEA) approved the scheme in March 2006 for Rs 332 crores per institution. The cost, however, escalated to Rs 820 crores per institution in March 2010.

The places selected for setting up of six AIIMS Like Institutions (ALIs) are Patna (Bihar), Raipur (Chattisgarh), Bhopal (MP), Jodhpur (Rajasthan), Bhubneshwar (Orissa) and Rishikesh (Uttarakhand). The criteria for selection of these places were various socio-economic indicators like human development index, literacy rate, population below poverty line and per

capita income and health indicators like population to bed ratio, prevalence rate of serious communicable diseases, infant mortality rate etc.

Each one of these six ALIs would have a 960 beds hospital with 300 beds dedicated to super specialty care in 42 disciplines. Initially the institution would have an intake of 100 students for MBBS course. Apart from this, facilities for imparting PG and doctoral courses are also proposed at these centers. These ALIs would also have a nursing college as a Centre of Excellence to run B.Sc. (Nursing) with 100 seats and M.Sc. (Nursing) with 25 seats.

However, initial years of implementation of PMSSY faced certain problems that largely owed them to lack of experience, absence of credible inputs etc. Apart from this, there were other factors like delayed preparation of Detailed Project Report (DPR) and non-fulfillment of normative requirements. These factors collectively resulted in delay in tendering process that escalated the cost of the project with the passage of time.

Nevertheless the proper governance structure for smooth and effective implementation scheme was established within the Ministry. A separate Division was constituted exclusively dedicated to the PMSSY scheme.

The construction work at these six sites commenced during 2007-2008 and work of housing complexes, at Jodhpur and Raipur has already been completed. However, the construction work of Medical College and Hospital Complex has only been completed to the extent of 23-36% and 10-21%, respectively at various sites. It is expected that all civil works (housing; medical college; and hospital) will be completed by September 2012. The construction at other four sites would also be completed by May 2012.

The passing years have not only witnessed steady growth of PMSSY but there has also been a substantial experiential learning for the Central Government. The Ministry of Health and Family Welfare is now capable enough to take up such other projects as deemed necessary by the Planning Commission. Indeed, two additional ALIs have already been sanctioned for states of Uttar Pradesh and West Bengal.

Current status of Six ALIs is as per Table 3.1.

**Table 3.1**

**Current Status of Six AIIMS Like Institutions**

Institution	Housing Complex		Medical College		Hospital Complex	
	% Complete	Contractual date of completion	% Complete	Contractual date of completion	% Complete	Contractual date of completion
Bhopal	71.50	Dec 2011	34.18	Nov 2011	9.78	Sep 2012
Bhubaneshwar	18.00	Mar 2012	31.61	Aug 2011	14.85	Sep 2012
Jodhpur	100.00	Completed	36.00	Dec 2011	18.00	Sep 2012
Patna	75.20	Dec 2011	41.32	Nov 2011	19.17	Sep 2012
Raipur	100.00	Completed	23.46	Aug 2011	16.15	Sep 2012
Rishikesh	87.00	Dec 2011	32.25	Dec 2011	21.06	Sep 2012

Financial allocations and utilization under PMSSY during 11<sup>th</sup> Plan is shown in Table 3.2.

**Table 3.2**

**Expenditure Statement of PMSSY Project  
(Total budget: Rs. 3955 Crore)**

Year	Utilization (Rs. Crore)	% of total allotted budget
2007-08	87.49	2.21
2008-09	484.01	12.23
2009-10	474.48	12.00
2010-11	652.01	16.49
2011-12	1616.57 (expected)	40.87
Total	3314.56	83.80

Pattern of governance and management of ALIs was approved by the Union Cabinet in August, 2010. It was decided that each of these institutions will be registered under a society and will have two tier organizations and management infrastructure. The governing council under the chairmanship of Health Minister will be the apex body to decide on policy matters. There will be a board of governors with Secretary (Health) as the chairperson and persons with knowledge in the field of science and medicine will be nominated by the governing council. It was considered that creating legal entities in the form of societies for these institutions will facilitate greater autonomy and faster execution of projects and will expedite the release of government funds. These societies will be functional till the ALIs are brought under an Act of Parliament.

It is noteworthy that a High Powered Committee was set up recently to review the Governance and HR practices at the AIIMS. The experience of the review indicates that the existing Institutions would also need similar review to optimize their functioning. It may be appropriate to consider the report of AIIMS Review Committee while formulating governance and management policies with respect of ALIs.

B. PMSSY also envisaged up-gradation of several existing medical institutions in different states in the country. The following 13 existing medical institutions were identified in the first phase for such upgradation :

1. Government Medical College, Jammu (J&K)
2. Government Medical College, Srinagar (J&K)
3. Kolkata Medical College, Kolkata (W.B.)
4. Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow (UP)



5. Institute of Medical Sciences, BHU, Varanasi (UP)
6. Nizam Institute of Medical Sciences, Hyderabad (AP)
7. Sri Venkateshwara Institute of Medical Sciences, Tirupati (AP)  
(50% cost of upgradation will be borne by the TTD Trust)
8. Government Medical College, Salem (TN)
9. Rajendra Institute of Medical Sciences (RIMS), Ranchi (Jharkhand)
10. BJ Medical College, Ahmedabad (Gujarat)
11. Bangalore Medical College, Bangalore (Karnataka)
12. Grant Medical College & Sir JJ Group of Hospitals, Mumbai  
(Maharashtra)
13. Medical College, Thiruvananthapuram (Kerala)

Initially the estimated outlay for upgradation was 120 crores per institution, of which 100 crore was to be borne by the Central Government and the remaining by respective State Government. In view of the cost escalation, the outlay now has been revised to 150 crores per institution, with Rs. 125 crore as the share of Central Government.

The current status of the upgradation of medical institutions under PMSSY is shown in Table 3.3.

**Table 3.3**

**Up-gradation of Medical Institutions under PMSSY  
(Current Status)**

<b>Name of the Institution</b>	<b>% Complete</b>	<b>Likely date of completion</b>
Tiruvananthapuram Medical College, Kerala	100.00	Completed
Salem Medical College, Tamil Nadu	100.00	Completed
Bangalore Medical College, Karnataka	100.00	Completed
SGPGI of Medical Sciences, Lucknow, UP	100.00	Completed
NIMS, Hyderabad, Andhra Pradesh	100.00	Completed
Kolkata Medical College, West Bengal OPD Block	100.00	Completed

Academic Block Super Specialty Block	85.00 Work Started in April 2011	Aug 2011 April 2013
Jammu Medical College, Jammu and Kashmir	99.00	Aug 2011
Srinagar Medical College, Jammu and Kashmir	47.00	Apr 2012
Institute of Medical Sciences, BHU Varanasi, UP	73.00	Nov 2011
Ranchi Institute of Medical Sciences, Ranchi, Jharkhand	65.00	Dec 2011
BJ Medical College, Ahmedabad, Gujarat	88.00	Oct 2011
SVIMS, Tirupati, Andhra Pradesh	85.00	Oct 2011
Grants Medical College, Mumbai, Maharashtra	79.00	Oct 2011

In addition, the following institutions have also been included for upgradation under PMSSY :

#### Phase II

1. Government Medical College, Amritsar (Punjab)
2. Government Medical College, Tanda (Himachal Pradesh)
3. Government Medical College, Madurai (Tamil Nadu)
4. Government Medical College, Nagpur (Maharashtra)
5. Jawaharlal Nehru Medical College of Aligarh Muslim University, Aligarh (UP)
6. Pandit BD Sharma Postgraduate Institute of Medical Sciences, Rohtak (Haryana)

#### Phase III

1. Government Medical College, Jhansi (UP)
2. Government Medical College, Rewa (MP)
3. Government Medical College, Gorakhpur (UP)
4. Government Medical College, Dharbanga, Bihar
5. Government Medical College, Kozhikode (Kerala)
6. Vijaynagar Institute of Medical Sciences, Bellary (Karnataka)

**Expanding Capacity:** It is a fact that there is an acute shortage of medical doctors besides imbalanced growth of medical colleges in the country. The shortage of medical teachers, PG specialists and super-specialists is particularly acute in pre and paraclinical disciplines, which entail adverse impact on the quality of education and patient care. To increase capacity, a Centrally Sponsored Scheme "Up-gradation & Strengthening of State Government Medical Colleges for starting new postgraduate disciplines and increasing postgraduate seats by central funding" has been launched during the 11<sup>th</sup> Five Year Plan. The objective of the scheme is to meet the shortage of faculty in pre and para clinical disciplines which is bottleneck for starting new medical colleges and to ensure that specialists with requisite clinical disciplines are available in required numbers. The scheme aims to provide central funding to assist State Governments to upgrade the existing infrastructure in Government Medical Colleges to start postgraduate courses and increase seats in existing postgraduate courses over a period of time. The medical colleges will be chosen for assistance under the scheme on the basis of following criteria:

- i) The State Government medical college / institution must be permitted / recognized by Central Government for running MBBS and or PG degree / higher specialty courses.
- ii) The State Government Post Graduate medical institutions without MBBS must be recognized by Central Government.
- iii) Needy States where PG courses are very few in comparison to other States will be given preference for starting / increasing particular specialty.
- iv) More PG courses will be started in the Government Medical colleges in northern part of India to reduce the imbalance in geographical and specialist distribution.

Grants are proposed to be released to selected State Government medical colleges / institutions directly as per their actual requirement under a funding pattern of 75% by Central Government and 25% by State Government.

During 2009-2011, the Central Government provided financial assistance of Rs. 241 crores to 46 State Government owned medical colleges for strengthening and up-gradation to start new post-graduate Departments, which has resulted in the creation of an additional 2384 seats for post-graduate courses.

With projected enhanced capacity of post-graduate education at all levels, and to maintain optimal ratio between specialists / super-specialists and general medical practitioners, it will be imperative to increase the admission capacity for undergraduate medical education. This can be done by increasing the number of seats in existing medical colleges as well as by establishing new medical colleges, especially in underserved districts / states.

Recently, mid-term appraisal of the 11<sup>th</sup> Five Year Plan\* indicates a major effort for the redevelopment of hospitals / institutions. The process of redevelopment of hospitals / institutions under the central sector is at different stages of completion. Redevelopment of the All-India Institute of Medical Sciences is being taken up in a comprehensive manner.

Lady Hardinge Medical College & Smt. S.K. Hospital and Kalawati Saran Children (KSC) Hospital, New Delhi: Comprehensive Redevelopment Projects comprise of 3-4 phases. Phase I during the Plan, involves increasing existing bed strength of Smt. S.K. Hospital from 877 to 1,397 (an additional 520

\* *Mid-term appraisal of the 11<sup>th</sup> Five Year Plan, Health, P. 158*

beds) and increasing bed strength of KSC Hospital from 370 to 420 (an additional bed strength of 50).

Regional Institute of Medical Sciences (RIMS), Imphal, Manipur: Upgradation involves repair / renovation of hospital building, construction of academic complex, new OPD building, nursing and dental wings, and hostel accommodation.

Lokapriya Gopinath Bordoloi Regional Institute of Mental Health, Tezpur, Assam: Upgradation involves construction for the main hospital building, residential quarters, hostels, mortuary, incinerator building, sewerage treatment plant, renovation of the existing building, procurement of equipments and machinery, and additional human resources.

Safdarjung Hospital & College, New Delhi: The redevelopment plan includes upgradation of specialties and super-specialty departments and increasing the bed strength from 1,531 to 3,000.

Postgraduate Institute of Medical Education and Research, Chandigarh: Upgradation involves modernization of Nehru Hospital, modernization of the research block, advanced cardiac centre, advanced trauma centre, advanced eye centre, advanced mother centre, Institute of Paramedical Sciences, renovation of hostels for doctors and nurses, and augmentation of equipment.

Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry : Comprehensive Redevelopment project comprises of the construction of a teaching block, a 400-bedded women and children

hospital, upgradation of existing departments, construction of a new hostel complex, and procurement of equipment.

**Governance and Management of Health/Medical Institutions:** For optimizing the functions of presently established as well as upgraded institutions, and ensure similar outcomes of the institution to be established during the 12<sup>th</sup> Five Year Plan, the major concern is regarding the governance and management of these institutions while ensuring their professional autonomy. Key factors that adversely affect the functioning of the public health system relate to structure, governance mechanisms, administrative capabilities and weak Human Resource Management policies. In addition to the expansion of capacity, it would remain essential to strengthen the management and governance of the existing medical colleges/hospitals. It is suggested that every medical college should undertake periodic review through external peer level Institutes like IIMs for continuous strengthening of these parameters.

It is equally imperative to strengthen Human Resource Management Policies. Medical profession demands much higher commitment, knowledge, skills, complexity and competence than any other stream. To attract, retain and nurture talent, remuneration should be so fixed as to provide compensation to medical fraternity commensurate to their years of study and experience. Research Grants should allow the faculty / researcher(s) additional salary support. It is recommended that a group of senior professionals / administrators from the Post-graduate Medical Institutions, IIMs and IITs may be constituted to undertake an in-depth review and make appropriate recommendations.

**Recommendations/Suggestions:** The working group is of the firm opinion that the expansion of tertiary care institutions is an essential requirement in the country. The group has however sounded a note of caution on compromising the quality for sake of increasing the numbers. The members were unanimous in their opinion that the expansion in the next five year plan must be systematic whose contours must be based on infusing quality in the future medical education.

The growing demand for super specialty care has drastically increased load of patients at existing centers which is making it difficult for health service providers and is causing hardships to the patients. The Working Group commends the intensive and concerted efforts during the 11<sup>th</sup> Five Year Plan, especially since 2009, through PMSSY as well as centrally sponsored and centrally supported initiatives. The following suggestions/recommendations are given for inclusion in the 12<sup>th</sup> five year plan (2012-17).

- 1)** The group recommends creation of 4 (four) new AIIMS Like Institutions (ALIs) during the 12<sup>th</sup> Plan period in addition to 8 (eight) already established under PMSSY (phase I & II), on the pattern followed earlier. The selection of regions for developing these facilities would be the geographical location, physical infrastructure, ease of connectivity with medical colleges, as well as health indicators and local disease burden.
  
- 2)** The possible modes for developing 4 new AIIMS like institutions can be as follows
  - a. **Option 1** - These institutions can be set up as stand - alone facilities.

- b. **Option 2** – These institutions can be developed in the existing centers of medical education and health care.

In view of the time over-runs and cost over-runs in the implementation of PMSSY, and the need to develop sound governance and management systems, the Working Group suggests that Ministry of Health & Family Welfare may consider creating an Apex Team that may facilitate these projects.

- 3) The government medical colleges should be strengthened for the dual purpose of creating a larger pool of doctors and other health workers that can be used at PHC and CHC and providing super specialty health care to the population in that region. As 25 Medical institutions have already been approved under PMSSY, it is suggested that additional 30 medical colleges, established at least 20 years back and requiring immediate financial assistance for strengthening and upgrading its facilities, be identified for support through PMSSY.
- 4) Other medical colleges can also be considered under centrally sponsored scheme for the purpose of upgradation & strengthening of State Government Medical Colleges for starting new postgraduate disciplines and increasing postgraduate seats by central funding. The scheme should include 80 medical colleges during 12<sup>th</sup> Five Year Plan. Thus with 55 medical colleges supported under PMSSY Phase II & III and 80 medical colleges strengthened through centrally supported scheme, nearly 90% of all Government Medical Institutions would be upgraded during 12<sup>th</sup> Five Year Plan.
- 5) The major effort launched during the 11<sup>th</sup> Five Year Plan for redevelopment of hospitals / institutions under the central sector is



commendable. However, all projects planned / launched need to be completed without undue delay. In addition, during the 12<sup>th</sup> Five Year Plan, other hospitals / institutions may be identified for redevelopment. These may include CIP Ranchi, LRS Inst. Of TB & Respiratory diseases, New Delhi, NTI, Bangalore, and ND TB Centre, New Delhi.

- 6) Medical colleges and other tertiary care centers should be connected through tele-networking. The National Knowledge Network is being actively implemented throughout the country. Still these efforts need to be reinforced with more such steps. Even private institutions can also be made a part of this network on payment basis. The proposed tele-network would cater to the demand of distance education in health education, training, faculty development, tele-consultation etc. The flow of knowledge and consultancy would be from tertiary to lower centers of health care.
- 7) The members of the working group further recommended that the Ministry of Health and Family Welfare must open channels of interaction with Ministries of Defence, Railways and Labor (ESI), which are also running medical colleges and health care institutions. Ministry of Health and Family Welfare can explore the possibility of developing tertiary care centers at these institutions by providing financial and technical assistance on sharing basis and even transform health care institutions of these Ministries into medical colleges.
- 8) Medical profession demands much higher commitment, knowledge, skills, complexity and competence than any other stream. To attract, retain and nurture talent, remuneration should be so fixed as to provide compensation to medical fraternity commensurate to their years of study and experience. Research Grants should allow the

faculty / researcher(s) additional salary support. It is recommended that a group of senior professionals / administrators from the Post-graduate Medical Institutions, IIMs and IITs may be constituted to undertake an indepth review and make appropriate recommendations.

## **Chapter 4: Strengthening of District Hospitals and Linkages with Medical Colleges**

As discussed in Chapter 1, Expand-Equity-Excellence - Three Es of Tertiary Care would be essential to improve the quality of health care delivery system in the country. The mandate of the Working Group is to focus on tertiary health care during the 12<sup>th</sup> Five Year Plan. Nevertheless, it needs to be reiterated that the essential prerequisite for building tertiary health care is a strong foundation of primary health care and a well organized secondary health care. A blend and balance between different levels of health care is critical for a holistic approach to health delivery system.

The existing infrastructure at the District level needs to be strengthened to ensure access, quality of healthcare to all, and in strengthening the referral system. With the standardization of processes with the application of technology, many specialist conditions may be effectively managed at the district level. Further, good tertiary care requires accurate decisions regarding referral from the district hospital, proper communication, information transfer, and transportation between district hospital and medical college. Medical Colleges can support district hospitals through telephone and telemedicine and also provide training of district and sub-district staff thereby improving the quality of secondary care. Patients who complete tertiary care need to be referred back to secondary level for chronic disease and step down care. Conditions that require rehabilitation and palliative care are better managed at the primary and secondary level with referral support. Therefore it is important to think of tertiary care as a continuum with secondary care and the rest of the health system.

## **District Hospitals**

During the Eleventh Plan, upgradation of district hospitals was envisaged as a key intermediate strategy, till the vision of healthcare through PHCs and CHCs is fully realized.

The scheme has two components – strengthening of maternal health and child health wing / hospital and other wings in district hospitals (this component has since been subsumed under NRHM) and upgradation of district hospitals into teaching hospitals in underserved areas. The latter component has since been bifurcated into two: (i) upgradation of state medical colleges for meeting the shortage of specialists; and (ii) upgradation of district hospitals into teaching hospital in underserved areas through PPP.

Strengthening of Linkages between Medical Colleges and District Hospitals:

- Medical College be linked to one district/ or 2-3 districts for tertiary referral services. The number of district hospitals to be linked with a Medical College should be based on population, geographical area and availability of hospital based health services in the particular district.
- The upgraded medical colleges under PMSSY, in the first instance, must be made responsible for tertiary care services in the district and provide referral support through telephone, telemedicine and through training of district level specialists.
- The District Hospitals linked to upgraded medical college should be provided necessary financial and technological support through a centrally sponsored scheme in the 12<sup>th</sup> Five Year Plan. This would enable requisite upgradation in terms of specialized manpower,

equipment and treatment facilities for ailments such as cardiovascular diseases, diabetes and its complications, neuropsychiatric illnesses and cancer, along with provision of quality rehabilitation facilities. This would substantially help the community to avail facilities at district level, thereby also reducing the load on tertiary care institutions. Financial outlay for upgradation of 100 district hospitals needs to be provided during the 12<sup>th</sup> Five Year Plan. The ongoing and continued support shall be the responsibility of the respective State departments.

- The upgradation of the district hospitals in the 12<sup>th</sup> Five Year Plan should be based on: (i) epidemiological assessment of diseases burden in the area. Care of common diseases prevalent in the region which require specialist services that can be provided at the District Hospital level; (ii) technologies and treatments that are cost-effective need to be provided at the District Hospital level and personnel for the same, if not available, can be trained at the medical college.
- The medical college should use the district health system for training of undergraduate and postgraduate medical students and residents. Part of undergraduate and postgraduate training should be provided in the learning setting outside the medical college in the district health system.
- It is recommended that all medical colleges should be encouraged to develop their own corpus to attain financial flexibility over a period of time. The colleges could decide the fee and charges for different facilities for patients in paying beds. Government can contribute matching grant to help them develop their own corpus.

## Chapter 5: Strengthening Partnership between different Service Providers (PPP option)

As discussed earlier, private sector plays a dominant role in Healthcare Sector in India. However, tertiary care is not an easy business for private sector and they constantly look towards Government for support. With potential 25-30% EBITDA margins in steady state, along with 25-30% ROCE, tertiary care is a highly attractive business, if executed well. However, operators need deep pockets and patience to succeed owing to long gestation periods. Land and building account for nearly one third of the total cost of setting up a hospital bed. Given the shortage of skilled professionals, hiring and retaining personnel is a challenge.

Public-Private Partnership (PPP) is seen as one of the instruments to improve or reform the health status of the population. In addition to resolving the problem of decreasing budget support, such partnerships are also able to overcome the inadequacies on the part of the public sector to provide public service on their own in an efficient and effective manner owing to lack of financial or other resources, and management issues.

The success of PPP is anchored on three principles. First, a *relative sense of equality* between the partners; second, there is *mutual commitment to agreed objectives*; and third, there is *mutual benefit* for the stakeholders involved in the partnership.

**Approaches to Partnerships:** PPPs are modeled on different partnership mechanisms. Among the types and models of partnership the most common are contracting (contracting-out and contracting-in); franchising; social marketing; joint ventures; subsidies and tax incentives; vouchers or service

purchase coupons; autonomous institutions; build, operate, and transfer (BOT); philanthropic contributions; health co-operatives; grants-in-aid; capacity-building; leasing; and social health insurance.

**Advantages and Disadvantages of PPPs in healthcare:** Governments worldwide have increasingly turned to the private sector to provide healthcare services that were once delivered by the public sector. The prime advantages in this are:

- Increased efficiency in service delivery, operations and management owing to better capacity utilization.
- Making services equitable, accessible and of good quality
- Availability of additional resources (technical, infrastructure and financial) to meet the growing needs in the sector; and
- Access to advanced but fast changing technology

There are some advantages and disadvantages linked to partnerships with different private sub-sectors. Informal sector has the advantage of accessibility, client orientation and lower cost. It carries a limitation of quality of care, mainstreaming and adequately educated. Not-for-profit organizations are characterized by high quality of care, targeting to poor, lower cost and community orientation. However there is an inherent limitation of small coverage, lack of resources, difficult scaling up and ad hoc intervention. For-profit organizations are characterized by high quality, high reach, innovation and efficiency. However, they are generally clustered in cities and are expensive. Hence the choice with any sub-sector would be driven by the purpose of partnership. Partnerships appear to be most justified where traditional ways of working independently have a limited impact on a problem; the specific desired goals can be agreed by potential collaborators; there is relevant complementary expertise in both sectors; the

long-term interests of each sector are fulfilled and the contributions of expertise and resources are reasonably balanced.

**Competency Requirements of the Government in Implementing Partnerships:** Capacity constraints that the government may have in implementing PPPs have to be overcome through appropriate capacity strengthening exercises. Some competencies that the government needs to develop in order to overcome the constraints include:

**1) Capacity to design and prepare reforms**

- a. Development of a clear framework
- b. Ability to seek consensus for the policy/programme
- c. Ownership and political commitment
- d. Bringing in involvement of civil society organizations

**2) Capacity to implement new delivery structure**

- a. Adequate number of personnel
- b. Good administrative, management and planning skills and competencies
- c. Motivation of personnel available for the programme.
- d. Proper financial and information systems
- e. Ability to coordinate and communicate with partners
- f. Ability to overcome bureaucratic and rigid systems

**3) Capacity to contract services**

- a. Ability to make judgments on contracting arrangements to be made
- b. Skills for contract design and negotiation
- c. Skills of monitoring



#### **4) Capacity to regulate and enable**

- a. Appropriate government legislation
- b. Legal expertise
- c. Adequate information systems
- d. Credibility and trust of government

**Enabling Conditions for Partnership:** Partnerships are no substitute for good governance and that partnership requires governmental leadership. Factors that contribute significantly to providing an enabling environment for partnerships are the financing, payment mechanisms, management structure, behavior of the partners as well as the regulatory norms.

**Financing:** Financing plays one of the most important roles in the performance of the health system since it determines how the money is made available, which partner makes the finances available, who controls it and how it is used optimally.

**Costing Approaches:** For financial purposes of schemes, costing will have to be worked out. Accurate estimation of the costs of specific healthcare services and the cost of care for individual patients is critical to the efficient administration of healthcare systems, to prevent inappropriate payment incentives, and to the conduct of health services research. Approaches to estimating costs could be top-down and bottom-up.

- a) Top Down Approach: It uses relative value units (RVU), hospital days, or some other metric to assign total costs for a healthcare system to individual services.
- b) Bottom Up Approach (such as activity-based costing): It assesses the amount of each resource that is used to produce an individual healthcare

service and assigns costs accordingly to generate aggregate costs for a healthcare system.

Bottom up approach is more detailed and accurate of the two. However, it is more complex and therefore more difficult and costly to implement. In the context of PPP, top down approach is likely to be more efficient.

**Payment or Incentives:** Making finances available for a partnership programme is the first step towards reform, but the next and equally important step is to determine which organizations and individuals have to be roped in as partners in the reform process. It is also important to decide how much they have to be paid and for what.

**Management Structure:** Undoubtedly, adequate financing and proper incentive strategies are important to make the public-private partnerships work. However, in order to ensure that the funds are being allocated effectively and efficiently and targets being achieved, it is imperative to have a sound management structure in place. The roles of all the partners have to be clearly outlined. In this respect, governments can resort to signing of a "contract" between the partners.

**Regulatory Mechanism :** Before a public-private programme takes off, there has to be a regulatory mechanism in place to see that the health care targets are being achieved, the target population is benefiting out of the partnership and that the concerned partners are functioning honestly and efficiently. The regulatory mechanism should be able to settle issues like disagreement on price, terms and condition of the contract at that particular time, and any shortfall in honoring the contract from both the parties.

**Institutional Mechanisms:** Effective guidelines and institutions should be in place in order to regulate various stakeholders in the partnership. Institutions for managing PPP should be established at a cross-sectoral level in order to share experiences from different sectors and adapt it for the health sector.

**Suggestions:**

- 1) Immediate requirement would be to enhance capacity to manage PPP, as discussed earlier in this chapter, in the areas of designing and preparing reforms, implementing new delivery structure, contracting services, regulating and enabling PPP.
  
- 2) Creating Enabling Conditions for Partnership
  
- 3) Initially bottom-up approach of costing should be undertaken to set the standards. Once the standards are in place, monitoring should be based on top-down approach, using relative value units (RVU), hospital days, or some other metric to assign total costs for a healthcare system to individual services.
  
- 4) Government will have to create mechanisms for smooth system for payments.
  
- 5) For ensuring that funds are being allocated effectively and efficiently and targets being achieved, it is imperative to have a sound management structure in place. The roles of all the partners have to be clearly outlined. In this respect, governments can resort to signing of a “contract” between the partners.

- 6) Before a public-private programme takes off, there has to be a regulatory mechanism in place to see that the health care targets are being achieved, the target population is benefiting out of the partnership and that the concerned partners are functioning honestly and efficiently.
- 7) To ensure positive behaviour of actors in PPP, appropriate HR and communication system would be developed. A detailed study for this may be given to institute like IIM for this purpose.
- 8) Lessons drawn from PPP successful models such as "Chiranjeevi" for obstetrical care of BPL women in Gujrat need to be carefully analyzed and if applicable, adapted/adopted.
- 9) Institutions for managing PPP should be established at a cross-sectoral level in order to share experiences from different sectors and adapt it for the health sector.

## **Chapter 6: Information and Communication Technology in Health Care**

The country already has the advantage of a strong IT fibre backbone and indigenous satellite communication technology with trained human resources. With enhanced efforts, telemedicine could help bring specialized healthcare to the remotest corners of the country. Telemedicine is likely to provide the advantages of tele-diagnosis, especially in the areas of cardiology, pathology, dermatology, and radiology besides effectively operationalizing Continuing Medical Education (CME) programmes. Although e-Health (Telemedicine) was included in the 11<sup>th</sup> Five Year Plan, no significant progress has been made till date\*. In addition to strengthening National Medical Library and networking of Institutional Libraries, the Working Group sharply focused on the use of Information and Communication Technology (ICT) in health care and medical education and took stock of utilization of existing facilities for wider use of telemedicine, tele-education and IT in enhancing the quality and reach of tertiary health care and in promoting continuing professional development of human resource in health.

**Telemedicine:** Telemedicine can be defined as the use of electronic communication technology to exchange patient information and provision of health care services at remote locations. World Health Organization defines telemedicine as “the delivery of health care services, where distance is critical factor by all health care professionals using information and communication technology for the exchange of valid information for diagnose, treatment and prevention of disease and injury, research and evaluation and for continuing education of health care providers, all in the interest of advancing the health of individuals and their communities.”

\* *Mid-term appraisal of the 11<sup>th</sup> Five Year Plan, Health, P. 161*

Global Telemedicine has gone far beyond providing health care services alone. It is now being extensively used also for education, research and management of data. It is, however, paradoxical that despite India's strength in information technology, the use of telemedicine is still at a fairly nascent stage especially in the public health sector.

Although, initially introduced by the private sector, sporadic projects have been subsequently developed both through Government and private initiatives. Ministry of Health and Family Welfare, apart from setting up a Task Force on Telemedicine, has also designed tele-ophthalmology under the Blindness Control Programme and ONCONET under the National Cancer Control Board. Both these projects are yet to be commissioned on nationwide scale. The Clinical Establishment Act of 2010 mandates a nation-wide network for registration of clinical establishments. Similarly, the Transplantation of Human Organs Amendment Bill, 2011 seeks to create a nation-wide network of all organ retrieval and transplant centres. Some work has also been done on Electronic Health Records. The Central Government Health Scheme has successfully networked all its dispensaries across 24 cities. AIIMS is also implementing a tele-education project in partnership with Ministry of External Affairs for five African countries.

Despite its strengths and potential, telemedicine has not become an extensively used tool for the dissemination of information and knowledge in the health care and medical education sector. There are both technical as well as logistical issues that are responsible for this. Foremost among these issues is the problem of "last mile" connectivity. Further in the Government sector, non-availability of dedicated human resource that could be deployed for achieving the telemedicine objectives has been a major bottleneck. Most

secondary and tertiary health care institutions of the Government are so over-crowded and over burdened that the Doctors are unable to spare time to attend to the telemedicine calls. Erratic power supply, especially in our rural areas, is another obstacle in the expansion of telemedicine. In many parts of the country, power supply is not available to charge the UPSs attached to computer system. Therefore, in an effort to popularize telemedicine, the first and foremost challenge is to address these three core issues, if any tangible success is to be achieved. Further, there is also need for converging all Government initiatives on telemedicine and IT initiatives in health under one umbrella. Currently, Ministry of Health and Family Welfare, Department of IT, Department of Space, and Knowledge Commission amongst others are all working in this field but without any cohesion and coordination. Synergies are yet to be developed. Despite these constraints, telemedicine and information technology have the potential of exponentially upscaling capacities for delivering quality health care to remote places and also multiplying human resources in health.

Use of Information and Communication Technology (ICT) in health can be broadly in four areas viz. Education, Research, Referral, and Management of Data. National Knowledge Network (NKN) connects 1500 knowledge institutions in India. NKN was launched in march, 2010 and is expected to complete all connections by March, 2012. As a network, NKN will continue for 10 years. NKN supports 1 Gbps (Giga Bits Per Second) connection today. NKN encompasses all engineering, science, medicine and agriculture institutions that are engaged in education and research. Using the principle of coherent synergy, NKN expects to provide an ambience in which researchers learn from each other and work on problems that are transdisciplinary in nature.

**Health and Education:** When ICT is applied to medical education, it is possible to make high quality education available pan India seamlessly. NKN does just that. In fact, unified effort by practicing medical doctors, clinical and para-clinical researchers, medical research institutions, academies such as National Academy of Medical Sciences and a host of other such institutions from engineering and sciences (especially biosciences) can significantly enhance the effectiveness and reach of medical education.

**Hospital Management System:** It is common experience that work places in the health systems are not adequately governed especially in remote areas. The management of medical colleges and district hospitals can be strengthened significantly with the application of Hospital Management System. It is surprising that even the apex institutions like AIIMS have not been able to take full advantage of ICT.

*Pilot Project – Experiences and implications:* Under the National Knowledge Network, a pilot project has been sanctioned at AIIMS to create virtual teaching module to deliver quality medical education to various network institutions. The collaborating colleges in this project are – AIIMS, Delhi; PGIMER, Chandigarh; PGIMER, Calcutta; NEGRIHMS, Shillong; JIPMER, Pondicherry; Bhopal; UCMS, Delhi; LHMC, Delhi; and CNBC, Delhi. The Pilot project is expected to achieve the following:

- 1) The utility of NKN connectivity in Medical Teaching.
- 2) The acceptability of virtual teaching in medical education.
- 3) The equivalence of virtual teaching with at least a significant proportion of traditional medical teaching.



In addition, this project will also establish a template for creation and utilization of virtual teaching modules. Eventually the virtual teaching programme can be used for:

- 1) Mentoring of the 6 (and eventually 12) AIIMS like institutions.**
- 2) Developing a virtual curriculum in all medical colleges.**
- 3) Virtual teaching in post graduate courses.**

Under the pilot project, the cost for equipment has been kept at Rs. 10 lakhs per institution. Given the facts that there are 335 MCI recognized medical colleges, of which 154 are in public (Government) sector, setting up virtual classrooms in all of them would cost approximately Rs. 15 crores. Private medical colleges / institutions, if they wish to avail of the facilities, shall bear the necessary cost. This of course is only the cost of equipment. Operational costs will be known only after the pilot project becomes operational. Medical fraternity could create lessons and make them available electronically for all on a 24 x 7 basis. Concepts that are hard to explain can be shown through video or animated graphics. Surgical practices can be shown live or recorded and shared electronically. Leading medical institutions can be encouraged to build video walls for electronic interaction with peers and peer groups. Lectures can be shared; an organized mission oriented program needs to be launched to create an asset of educational material for the whole country. Once in place, a process would be established that updates the material so generated, on an ongoing basis. To expose young students to these emerging opportunities, first level course in Imaging Technology, including IR imaging may be designed to show the potential to replace the existing imaging methods.

**Health Research:** ICT can potentially transform the medical scene in India, by bringing about a sea-change in medical research. From traditional clinical research to the modern synthetic biology-based research, the opportunity is immense. Work on problems such as Cancer prevention, screening, diagnosis, and therapy can benefit from inter disciplinary cooperation. Medical fraternity has availed such benefits when MRI and Nuclear Imaging was integrated into medicine a few decades ago.

**Health and the Referral Chain:** India has many top quality tertiary hospitals spread across the country. Due to under developed secondary and primary care systems and over-applied referral system, all these fine institutions are bursting at their seams, having to care for the number of patients several times more than they are designed for. Perhaps, India could redesign the “referral chain” by developing ICT in abundant measure. What ICT can do is to annihilate distance and time. In the case of patient care and emergencies, these are very useful to provide secondary to primary, tertiary to secondary, and tertiary to primary support as needed as if all the medical specialists concerned are in the same room with the patients. Perhaps, institution such as AIIMS can start right away experimenting with this idea using the National Knowledge Network.

**Health and Management of Data:** Electronic Medical Records (EMR), is a fundamental pre-requisite in using ICT seamlessly in healthcare. While EMR is available in several forms, size, shape, and format, Indian medical community with a specific mandate should standardize EMR, create and establish ICT platforms for using EMR based systems, for universal benefits. Such an action plan will mesh well with NKN, NFON, and UID – the three major initiatives in ICT deployment. Of course, medical applications will require the finest possible display as well as rendering technologies.

The use of IT as outlined above seems to be most promising and cost-effective. Nevertheless, a word of caution may be in order. A recent editorial in the Lancet (Issue 9791, p. 542, 13 August, 2011) described the fate of a similar project planned in the UK in 2002 that aimed at creating a fully integrated centralized electronic care records system to improve services and patient care. The budget for the undertaking was a substantial £ 11.4 billion. 9 years on, the Department of Health has spent £ 6.4 billion on the project so far, failed to meet its initial deadline, and has had to abandon the central goal of the project because it is unable to deliver a universal system.

**Recommendations:**

1. Set up a **National Mission on ICT in Health** with a clear mandate to conceive design, and deliver ICT based health education and health care and converge all existing programmes under this mission.
2. Budgetary allocation of ~ Rs. 600 crores may be made in the 12<sup>th</sup> Plan for ICT in Health.
3. Encourage trans disciplinary research in medicine by associating with scientists, engineers, and technologists.
4. Introduce a didactic cum practical course at MBBS and MD (all specialties) highlighting the prospects of using ICT in Medicine.
5. Define the use of EMR in an integrated manner to seamlessly bring together primary, secondary, and tertiary healthcare.

6. Once the pilot projects are successful, design the health referral chain with ICT integrated. Redefine the medical protocols as necessary and create sufficient hardware and software to automate the process. Emphasize on use of local languages and dialects, as it relates to common man.
7. Hospital Management System should be installed in all the institutions of tertiary care and district hospitals.
8. A separate IT cell should be created in the Ministry of Health & Family Welfare at the Centre. This centre will develop appropriate formats for appraisal of performance and collect real time data for reports and forward those reports to appropriate authorities for review and necessary action.
9. Reform and transform health education across the country using ICT and NKN to maximally utilize the services of content experts in medicine, science, engineering and technology for undergraduate and post graduate education.

## **Chapter 7: Futuristic Vision for Education & Research in Tertiary Care**

Capacity building includes physical infrastructure, state-of-art technology, management information system, and more importantly, optimal number and quality of human resources for specialist services. Most of these issues have been reviewed in Chapters 2-6. Long-term planning requires futuristic vision and additional strategies. These deserve serious consideration.

Bhore Committee (1943-46) recommended a blue print of health service delivery as well as of Human Resource Development for Health. All-India Institute of Medical Sciences (AIIMS) was proposed as a model for setting patterns of under-graduate and post-graduate medical education in the country as well as for the development of specialties for clinical care and for advanced education and training.

Replicating AIIMS like institutions as a part of PMSSY is a most welcome initiative. However, it would adopt the same pattern that was considered by Bhore Committee nearly 75 years ago. Subsequent advances in biomedical sciences may necessitate consideration of additional models of biomedical research and post-graduate training and education in highly specialized areas.

One of the models is National Institutes of Health in the US. Presently it comprises of 27 Institutes and Centres, each with a specific research agenda, focusing on specific constellation of diseases or body systems. On the suggestion of Chairman of Working Group on Tertiary Health Care, the proposal was unanimously endorsed by the Working Group and is being included in the Final Report. The following list includes the institutes that

may be of relevance to national needs, and may be established during the 12<sup>th</sup> Five Year Plan:

**1. National Cancer Institute:** There is a major increase in the prevalence of malignant diseases, with significant morbidity and high mortality. National Cancer Control Programme, launched more than 25 years back, is intensifying efforts at screening, early diagnosis, and management through a network of centres located in district hospitals and medical colleges. Apical centres located in Delhi, Mumbai, Chennai, and Kolkata are providing highly skilled professional services to a large number of patients. However, the need of a National Cancer Institute primarily focused on basic and clinical biomedical research, and providing advanced professional skills development through education and training, with the aim of cancer prevention, early diagnosis, and innovative treatment interventions, is acutely felt.

**2. National Institute of Infectious Diseases:** A concerted effort needs to be mounted to undertake high quality collaborative research that strives to investigate epidemiologic pattern(s) and pathogenesis of infectious diseases prevalent in India. The Institute will intensify efforts to effectively deal with emerging and reemerging infectious diseases, mechanism(s) of drug resistance in diseases such as Cholera and Malaria, immune mechanisms underlying pathogenesis, and nutrition-immunity interactions. Such studies shall facilitate development of treatment protocols for common infectious diseases.

**3. National Institute of Arthritis and Musculoskeletal Diseases:** There is a felt-need of a centre that supports research into the causes, treatment, and prevention of arthritis and musculoskeletal disorders.

There is a lack of skilled clinical researchers and laboratory investigators who can initiate high quality research into the causes and consequences of such diseases, and develop protocols for new modalities of treatment for acute as well as chronic long-term management of subjects with these disorders.

**4. National Institute of Child Health:** Integrated and collaborative basic and applied research on fertility regulation, medial disorders associated with pregnancy, neonatal screening, postnatal growth and development, as well as medial rehabilitation, strives to ensure that every child is born healthy and wanted, and enjoys normal growth and development, free from disease and disability.

**5. National Institute of Diabetes:** Diabetes Mellitus, especially Type 2 Diabetes (T2D) is now taking mini-epidemic proportions, carrying not only immense disease burden but also entailing high social and economic costs due to its chronic macro- and microvascular complications. The proposed institute will provide opportunities for supporting and conducting basic and applied research, and would establish an environment conducive to the training of leadership for national programme in diabetes (including associated non-communicable disease), endocrinology, and metabolic disease.

**6. National Institute of Mental Health and Behavioural Sciences:** There is an imperative need to enhance the understanding of the sociobiological basis of mental illnesses, develop intervention strategies for their prevention, and undertake clinical research to improve the quality of management. There has been a palpable lack of epidemiological research focusing on mental health concerns of people who live in rural

areas, especially in the border areas. In addition to diverse pattern of mental illnesses, drug abuse including alcoholism are affecting large segments of population in these areas, requiring urgent action to develop new and better interventions that take into consideration the diverse needs and circumstances of such rural population.

**National Centres of Excellence:** The following list includes the Centres that may be of relevance to national needs, and may be established during the 12<sup>th</sup> Five Year Plan:

- 1. National Centre of Life Sciences:** Basic biomedical research that is not targeted to specific diseases provides the key to futuristic scientific breakthroughs in biomedical sciences. Studies on genes (genomics), proteins (proteomics), and cells (cellular and molecular biology) provide the fundamental base and bases of our understanding of essential life process(es), and lay the foundation for future scientific discoveries for diagnosis, prevention and management of diseases. Such research training programmes nurture national talent to produce the future generation of biomedical scientists.
- 2. National Centre of Biomedical Imaging and Bioengineering:** There is an acutely felt need of a national centre that improves health through enhanced quality and outcome of biomedical research by promoting fundamental discoveries, diagnosis and development of innovative technologies, and translation and assessment of technological capabilities in biomedical imaging and bioengineering enabled by relevant areas of bioinformatics, information technology, and computer sciences.



**3. National Centre for Hospital and Healthcare Administration:** Under the PMSSY, establishment of AIMMS-like Institutions, up-gradation of existing medical colleges with focus on development of specialties and super-specialties, and establishment of new medical colleges, is being undertaken on an unprecedented scale. The number of medical colleges in the country is projected as close to 500 by the end of the 12<sup>th</sup> Five Year Plan. While each AIIMS-like institution will have provision of 900+ inpatient beds, hospitals associated with upgraded medical colleges will also have increased bed strength so as to facilitate expansion of postgraduate training and education.

Most of our hospitals in public sector are not managed by trained medical administrators. One possible reason for this may be the lack of trained hospital administrators in the country. Currently postgraduate course in hospital administration (MD/MHA) recognized by Medical Council of India (MCI) is being offered at 7 institutions with combined annual intake capacity of about 20 students only. In this background of scarcity of trained hospital administrators and the need of the same for the efficient functioning of hospitals, it is recommended that a centre be established which can give skill upgradation training to those who are engaged or will be engaged in management of hospitals and healthcare institutions. The training will include modules such as : (i) management of Human Resource; (ii) management of Finance; (iii) management of Equipments and assessment of Medical Technology; (iv) management of roles and responsibilities of various cadre of healthcare professionals like administrative staff, clinical staff, engineering staff, nursing and paramedical staff. To reinforce these efforts, similar Centres for Management in Health Care may also be established in one or more IIMs.

One or more centres of excellence in Hospital and Healthcare Administration will function as Human Resource Development (HRD) Centre for AIIMS, 12 (8+4) AIIMS like institutions as well as for the healthcare workforce of the country. The centres will provide training facilities & capacity-building as per national health requirements.

**4. National Centre for Nursing Education and Research:** Major emphasis has been placed in the recent years on reorientation of medical education with emphasis on skill development. To make the health care team optimally efficient, a similar reorientation is required to develop competency-based nursing education with emphasis on communication skills and professionalism in nursing practice. Patterns of nursing education, appropriately validated, can serve as models to be adapted / adopted by the nursing institutions in the country.

**5. National Centre for Information Technology (IT) and Telemedicine:** There is an urgent need to incorporate the power of modern computational systems into the biomedical programmes so as to enlarge the scope and reach of telemedicine both for enhancing the quality of health care as also for enlarging the reach of continuing professional development. With the availability of National Knowledge Network (NKN), tertiary care institutions as well as National Academy of Medical Sciences must be connected with a large number of professional institutions. The advancing knowledge and new skills can thus be widely disseminated.

**6. National Centre for Complementary Medicine:** There is a felt but unmet need of continuing research and development in various systems of complementary medicine so as to disseminate authentic information

and evidence-based practices of such system of medicines i.e. AYUSH through a rigorous scientific research and validation.

### **Upgradation of Existing Centres into National Centres of Excellence:**

The following list includes the centres that are of relevance to national needs, and may be upgraded during the 12<sup>th</sup> Five Year Plan:

#### **1. National Centre of Excellence for Cancer Treatment and Research**

:The Tata Memorial Centre , Mumbai is already fulfilling its role as national comprehensive centre for the prevention, treatment, education and research in cancer. It is recognized as one of the leading cancer centres not only in India but also in the South East Asia Region. Presently supported by Department of Atomic Energy, Tata Memorial Centre can reinforce its role as a leader in innovative research not only in advanced areas of genomics, proteomics, metabolomics and stem cell, but also in development of new drugs and drug delivery systems including research in herbal medicines.

#### **2. National Centre of Excellence for Ophthalmic Sciences:** Dr. R.P.

Centre for Ophthalmic Sciences at the All-India Institute of Medical Sciences, New Delhi and Advance Eye Centre at Post-graduate Institute of Medical Education and Research, Chandigarh, are playing a pioneering role in providing quality ophthalmic care in several sub-specialties of ophthalmology eg. vitreoretinal surgery. With requisite additional financial support, the centres may be designated as National Centres of Excellence for Ophthalmic Science

#### **3. National Centre for Mental Health and Behavioural Sciences:** Till

such time that a National Institute for Mental Health and Behavioural

Sciences is established, the existing Institute of Human Behaviour and Allied Sciences may be upgraded into a National Centre of Excellence, subsequently developing into the National Institute of Mental Health and Behavioural Sciences. Likewise NIMHANS, Bangalore may also be upgraded into a National Centre of Excellence.

**4. National Centre of Excellence in Neurosciences:** The Neurosciences Centre at the All-India Institute of Medical Sciences, New Delhi is recognized for providing high quality medical and surgical tertiary care for neurological disorders. It also provides education and training in super-specialties in neurosciences. With additional financial support, it may be designated as National Centre of Excellence in Neurosciences.

**5. National Centre of Excellence in Cardiology and Cardiac Surgery:** The Cardiac Centre at the All-India Institute of Medical Sciences, New Delhi has played a pioneering role in providing high quality tertiary care for a large number of cardiac patients. As a part of All-India Institute of Medical Sciences, it has also been providing facilities for education and research in the super-specialty of cardiology, pediatric cardiology, cardiac surgery etc. With additional financial support, it may be designated as National Centre of Excellence in Cardiology and Cardiac Surgery.

**6. National Centre of Excellence in Liver and Biliary Sciences:** Presently, the Institute of Liver and Biliary Sciences in New Delhi is developing into a national resource facility for prevention, treatment, education and research in liver and biliary sciences. Its recognition as a Centre of Excellence would accelerate the pace of its growth and development.

The essential and critical prerequisite for optimal functioning of existing and proposed National Institutes and Centres of Excellence for tertiary care, is a strong foundation of primary care and a well organized and coordinated system of secondary health care. With increasing investments in health both by the public sector as well as by the private sector, a continuing appraisal and articulation of health policy is necessary. A Centre of Health Policy Research with core faculty of experts in public health, health planning, health economics, health management and social sciences, amongst others, may provide the necessary forum for ensuring equity and accountability in health care.

**Setting up Universities of Health Sciences:** The Bajaj Committee in 1987 recommended ways to ensure appropriate manpower mix of different categories of health professionals involved in delivery of healthcare. The committee conceptualized the University of Health Sciences aimed at creating a physical and academic environment where all faculties of health sciences could interact and provide a model for education and training of healthcare teams, through multi-professional and inter-professional education. To achieve this it was recommended that one such university should be set up in each state, and in the initial stage one in each region. The universities will affiliate all Medical Colleges, Dental Colleges, Para-professional Colleges, besides possibly considering grant of affiliation to Colleges, imparting graduation level of education in the State.

The university will help in continuous upgradation of curriculum, monitoring of educational process, and methods of assessment and evaluation to enhance the quality of education. Several universities have already been established in different states. However, these universities are almost entirely devoted to granting affiliation of professional and para-professional

institutions, recognizing courses of instruction and training programmes besides organizing, monitoring, and supervising various examinations including entrance examinations to such courses. As recommended in the report of Bajaj Committee\* : 'It is entirely likely that several new faculties will grow in the Universities of Health Sciences : faculties such as those of health management, health economics, social and behavioural sciences and nutrition are needed even today'. Likewise, the universities must ensure that graduating professionals are imbued with a spirit of service and a healthy respect for the patient's dignity, rights, religious faith and beliefs. Members of the faculty and other professional staff must serve as role models.

To provide an intellectually stimulating and academically rewarding environment, social issues of contemporary relevance need to be identified in relation to the growth and development of these Universities as originally envisaged. Study and research programmes through multi-disciplinary Study Centers need to be established in the following areas and networking between the universities and identified institutions established.

1. **Study Centres of Population and Environmental Sciences:** To focus on epidemiology, demography, sociological and behavioural aspects related to population and environment.
2. **Study Centres for Health Systems and Health Services management:** To focus on research and analysis to determine the cost-benefits and cost effectiveness of various health and family welfare programmes.
3. **Study Centres for Education Technology:** To focus on enhancing computer literacy among medical practitioners, informatics, telematics, tele-medicines, and distance learning.

4. **Study Centres for Planning and Development of Human Resources for Health:** To focus on research and analysis of manpower requirements in different specialization and categories.
5. **Study Centres for Continuing Education in Health Sciences:** To focus on continuous monitoring, review and upgradation of competence, knowledge and skills of health professionals.

Central support must be provided to Health/Medical Universities during the 12<sup>th</sup> Five Year Plan, with efforts to establish similar universities in other states. In addition to the role, relevance, and functions of Health/Medical Universities as envisaged earlier, they may also subserve a most significant bridging function between the proposed National Commission for Higher Education and Research and the proposed National Council for Human Resources in Health, thereby strengthening medical education and research in the country.

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Planning Commission  
(Health Division)**

**Subject: Summary Record of the discussions of Working Group on Tertiary Care institutions (WG 2) for the Formulation of the 12<sup>th</sup> Five Year Plan (2012-2017) : Reg.**

1. **The 1<sup>st</sup> meeting of Working Group on Tertiary Care institutions** for the Formulation of the 12th Five Year Plan (2012-2017) was held on **13th July, 2011** under the Chairmanship of Prof. J S Bajaj, Former Member, Planning Commission, in Room No 122 Yojana Bhawan, New Delhi.

List of participants is annexed.

2. On behalf of the Planning Commission and Member (Health), Shri Ambrish Kumar, **Adviser (Health) extended a warm welcome** to the Chairman and Members of the Working Group and requested for a round of self-introduction. After the introduction, **Prof. J S Bajaj** requested **Dr. Syeda Hameed, Member (Health), Planning Commission** to share her vision with the members of the Working Group.
3. **Member (Health)**, welcomed the Chairman and all the members and informed that they have been selected carefully so as to have the best resource for the formulation of the 12<sup>th</sup> Five Year Plan. Planning Commission is already in the process of finalizing the Approach Paper to the 12<sup>th</sup> Five Year Plan. For this the consultations took place across the country wherein 90-100 Civil Society Organizations participated and voices of people are being heard. Five regional consultations have been held and the views of the State Governments solicited. We are also consulting Industry Associations and PRIs.
4. Member (Health) further informed that Hon'ble Prime Minister has given directions that the Planning Commission should focus on performance and progress against the targets, achievement of monitorable goals, issues relating to cost and time overrun and road map to address challenges in the health sector. She further stated that the Working Group on tertiary care should look into the aspect that how preventive and public health



awareness be an integral part of the tertiary care system. Investment in preventive health care will give much higher return than investment in tertiary care. We need to address issues relating to clean drinking water, sanitation and other social determinants as they are going to affect the tertiary care. Member (Health) mentioned that all the programmes and schemes should have monitorable targets and all efforts should be made to achieve these goals. At present we do not have good quality monitorable indicators for many of the programme and this is a major deficiency in designing and implementation of major schemes in the tertiary care sector.

5. **Prof. Bajaj, the Chairperson of the Working Group** referred to the **Terms of Reference (ToR)**. He mentioned that planning, development, and management of Human Resources in Health is the most crucial issue. The present scenario of concentrating more only on a few categories of specialists without ensuring a balanced growth of all specialties is unlikely to improve efficiency of tertiary health care. With regard to another ToR relating to enhancement of quality of tertiary care he explained that enhancing quality of tertiary care means improvement in delivery, accessibility, accountability along with the technical feasibility. It also means how needs of tertiary care may be minimized by concentrating on preventive and promotive aspects at primary and secondary care levels.
6. **Prof. Bajaj requested** all the Members to indicate, in the context of ToR, their choice of preference as their area of interest in which they would like to contribute. He informed that sub-groups would be constituted consisting of 5-7 members who can focus on the issue(s) as per Terms of Reference of the Working Group in order to give suggestions and recommendations to achieve the goals, targets, vision and mission.
7. **The Chairperson noted the preferences of Members of the Working Group** for the area in which they would like to contribute as per ToR. In view of multiple preferences by several members, the Chairman was requested to constitute Sub-groups/Task Force.

The Chairperson mentioned that ToR 1-4 relates to PMSSY and requested Shri Debashish Panda, Joint Secretary, DoHFW to present the objectives, content, progress and performance of PMSSY.

8. **Shri Debashish Panda, Joint Secretary, Department of Health** gave a detailed presentation of the current status of the PMSSY. He mentioned that the programme was launched in March, 2006 with the objective of correcting regional imbalance in the availability of affordable/reliable tertiary healthcare services and also to augment facilities for quality medical education in the country. He further mentioned that the PMSSY was conceptualized by the Ministry without adequate experience. In the first few years, there were bottlenecks and Department of Health did not have any mechanism to handle the project of such magnitude and complexity. He stated that most of the cost estimates were not based on ground realities. The cost estimates were highly under estimated. There were no DPRs, estimation of bed strength was wrong; requirement of specialists, super specialists was not accounted, and tendering process took lot of time.
9. He further mentioned that by learning through experience most of the bottlenecks have been removed. DPR has been finalized and standardized. Based on the reliable figures for bed strength, faculty and specialists. Department has been able to arrive at much more realistic cost. The present average cost of an AIIMS like Institute is Rs. 900 crores.
10. **A Project Monitoring Cell** has been established in the Department which is monitoring the schemes much more rigorously and efficiently. HLL and HLCC have been engaged as project Consultants. It was observed that in the beginning there was cartel among tendering parties and the bids were on higher side and during the rebid process cost scaled down to Rs. 600.00 Cr. Good contractors like L&T, BL Kashyap etc have been hired. Revised schedule for completion of the projection is in place. A provision has been introduced in MoU under which Department can penalize the contractor for not

adhering to schedule of completion of the project. There is a clause to incentivize the contractor for completing the project before the schedule.

11. While informing about the physical progress of the AIIMS like institutions, Joint Secretary informed that the work on all the six sites is in full swing and it is expected that by Sept. 2012 hospital buildings would be ready in all the institutions. He further informed that Directors of the institutes have been selected and 3 institutes, namely, AIIMS, New Delhi, PGIMER, Chandigarh and JIPMER, Puducherry have been selected for mentoring new Institutes. Other faculty and staff for the Institutes would be selected once the Directors join. The Directors of the new Institutes have been selected. Pre-clinical and Para clinical faculty would be selected by the Director of the institute.
12. Prof. Bajaj asked about the status of 2 AIIMS like institutions in Uttar Pradesh and West Bengal. JS, M/o H&FW informed that for the two institutions the land has not been made available by the State Govt. Once the land is available the project can be started easily as DPR is ready and cost estimates would be relooked for slight variations and within 12 months the work on the institutes can be started and the period of completion of these projects would be 24-36 months. It is expected that land for these two Institutes may be made available by the State Government shortly.
13. Prof. Bajaj further enquired about the Governance of the AIIMS like institutions whether the governance would be on lines of AIIMS, PGIMER, JIPMER or Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram. Governance should blend the strengths and avoid the constraints, in the context of past experience. In response, it was stated that more autonomy in finances, research and academic would be provided to the new institutions. A High Powered Committee was constituted by the M/o H&FW to look into the structural changes required in the governance and administration of proposed AIIMS like institutions. The Committee has recommended inclusive approach in decision making. It was stated that the High Powered Committee has recommended collegium system i.e. rotational headship. Prof. Bajaj desired that the

recommendations of the Committee may be shared with the Working Group members, assuring that the confidentiality would be maintained.

14. **Joint Secretary, Department of Health** then gave the status of the up gradation of the Medical Colleges and Hospitals under PMSSY. He stated that MBBS Seats have been raised from 150 to 250 and the intake at PG level has been doubled. To meet the requirement of infrastructure for these seats, 13 Medical Colleges are being upgraded. In the 1<sup>st</sup> phase of PMSSY. Out of these 13 Medical Colleges, upgradation works in 6 Medical Colleges have been completed.
15. **Dr. MayilVahanan Natarajan, Vice Chancellor, Dr. MGR University**, Chennai stated that though Medical Council of India (MCI) has increased the seats at graduate and post graduate level but there are practical problems. There is no infrastructure available to make the increase effective. JS, M/o H&FW clarified that the college can rationalize their requirement with the help of MCI.
16. **Prof. Bajaj** asked whether MCI has tried for 2<sup>nd</sup> shift mechanism in Medical Colleges so that the shortage of human resources in health sector can be contained. Dr. Shiv Sarin, Former Chairperson, Board of Governors, MCI said that the Working Group was constituted in MCI to look into the issue. The report of the Working Group is yet to be finalized. Prof. Bajaj said with the functioning of Medical Colleges in two shifts, the cost and time constraints can be partially overcome. Dr. Natarajan, Vice Chancellor, Dr. MGR University, Chennai said that for the 2<sup>nd</sup> shift for Medical College, there is a problem of OPD. Prof. Bajaj said the OPD can be run in the evening which would be beneficial for the public also.
17. **Joint Secretary, Department of Health** presented the detailed plan and current status of 2<sup>nd</sup> Phase of PMSSY. He said that the 2<sup>nd</sup> Phase of PMSSY aims at increasing the training capacity from the current nearly 30,000 to 70,000 students per year. He said the new Medical Colleges are to be established in underserved areas. As per an earlier

committee recommendation one Medical College is required for the population of 50 lakh and accordingly Medical Colleges would be established in 10 States.

18. Regarding optimal utilization of all human resources and health, Prof. Bajaj stated that there are large number of AYUSH practitioners who are available and can be deployed. It is the need of the time that AYUSH practitioners be integrated with the mainstream health care delivery system during the 12<sup>th</sup> Plan. He further stated that the required doctor nurse ratio is 1:3. Hence, a major effort is required not only to expand nursing education but also to create opportunities for specialized courses in nursing to cater to the needs of tertiary health care.
19. **Dr. Nimesh G Desai, Director, IHBAS** stated that Joseph Bhole Committee (1943-1946) had recommended three broader areas to be looked into namely biomedicine, mental health, hygiene and public health. He said that Biomedicine is looked through AIIMS. Though for Mental Health, NIMHANS, Bangalore has been working now but still not much focus has been given to hygiene and public health and even mental health. JS, M/o H&FW clarified that the ministry thought of four regional institutes in addition to strengthening Medical Colleges for mental health and public health. He said the Ministry is seized of the matter that the disease burden is changing and delivery mechanism needs to be upscaled.
20. **Prof. Snehalata Deshmukh, Paediatric Surgeon**, Former Vice Chancellor, Mumbai University requested that the Working Group should also look into child health as it has been neglected for long. Prof. Bajaj emphasized that efficient delivery of health care requires consideration of epidemiological, demographic and public health needs. Ultimately it requires amalgamation of schemes and channelization of resources to build a system of comprehensive health care inclusive of tertiary care.
21. **Dr. Anand Zachariah, CMC, Vellore** said that the AIIMS like institutions have been envisaged with the perception that there would be impact on health of people of the area. Has there been any thought on the point that how the institution will improve the health care of the area. Prof. Bajaj clarified that there are models available which can be

chosen to give the good results. He said that 8<sup>th</sup> Plan had laid emphasis on regional Universities of Health Sciences. At present there are nearly 17 Universities of Health Sciences as well as Medical Universities in different states. There is a need to review their impact both on medical education and on community health including environment and occupational health.

22. **Dr. R.A. Badwe, Director Tata Memorial Hospital, Mumbai** requested that for the telemedicine and wider use of IT technology in tertiary care National Knowledge Network may be used. He also requested that Dr. Chidambaram may be inducted and be made member for IT group. He also said that it is important to retain the merit to cover whole spectrum of the society. Prof. Bajaj responded by stating that he has already co-opted Prof. S.V. Raghavan, Scientific Secretary in the office of the Principal Scientific Advisor as a member of the Working Group. Prof. Raghavan could not participate in today's meeting because of his prior commitments.
23. Prof. Sunil Maheshwari, IIM Ahmedabad said that IT group may also include Management Information System and may try for Institutional level collaboration like AIIMS with IIT, mentoring of institutions by other institution .
24. **Dr. Mansoor Hassan, Lucknow** suggested that a sub group may look into the compassion, ethics, morality and empathy aspects of the health care providers. He said that there is enormous increase in complaints/ litigations against doctors. Health friendly environment needs to be maintained and needs to be taught.
25. Dr. Anand Zachariah, CMC, Vellore said that appropriate tertiary care definition is important. The present tertiary care means to deal with large hospitals. District hospitals are neglected for tertiary care. It is also important to strengthen district hospitals. There is an urgent need to define role of tertiary care at District Hospital. Also, it is important to give priority to research in tertiary care.

The meeting ended with a Vote of Thanks to the Chair.

**First Meeting of Working Group on Tertiary Care Institutions for the Twelfth Five Year Plan (2012 – 2017) under the Chairpersonship Dr. J S Bajaj, Former Member, Planning Commission held on 13.07.2011.**

**Chairperson**

**Dr. J S Bajaj, Former Member, Planning Commission**

**Planning Commission**

1. Dr. (Ms.) Syeda Hameed, Member (Health)
2. Shri. Ambrish Kumar, Adviser (Health)
3. Shri. S. M Mahajan, Adviser (Health)
4. Dr. Rakesh Sarwar, Adviser (Health)
5. Mrs. Shashi Kiran Baijal, Director (Health)
6. Mrs. Arundhati Singh, Director (Health)
7. Ms. Surayya Shahab, Research Officer (Health)
8. Mrs. Jyoti Khattar, Economic Officer (Health)
9. Dr. Amandeep Singh, Young Professional (Health)

**Others**

1. Shri. Rajesh Kishore, Principal Secretary (Medical Education), Health & Family Welfare Deptt. Govt. of Gujarat
2. Shri. Debashish Panda, Joint Secretary, Deptt. of Health & FW, New Delhi
3. Dr. R K Srivastava, DGHS, Deptt. of Health & FW, New Delhi
4. Dr. T. S Sidhu, Medical Superintendent, Dr. R M L Hospital, New Delhi
5. Dr. N. K Mohanty, Addl. DG & Medical Superintendent, Safdarjung Hospital & Vardhman Mahavir Medical College, New Delhi
6. Dr. A K Agarwal, Dean, Maulana Azad Medical College, New Delhi
7. Dr. Amod Gupta, Dean, PGI (For Director PGI), Chandigarh
8. Dr. S. Jalal, Vice President, National Board of Examination, New Delhi
9. Dr. D P Pande, Executive Director Health Planning (Railways), Ministry of Railway, New Delhi
10. Dr. S K Sarin, Director, Institute of Liver & Biliary Sciences, New Delhi
11. Dr. R. C Deka, Director, AIIMS, New Delhi
12. Dr. Nimesh G Desai, Director, Institute of Human Behaviour and Allied Sciences, New Delhi
13. Prof. M E Yeolekar, Director, NIEGRAMS, Meghalaya
14. Dr. K S V K Subba Rao, Director, JIPMER, Puducherry
15. Dr. K Radhakrishnan, Director, SCTIMST, Kerala
16. Dr. Bipin Batra, Executive Director, National Board of Examination
17. Dr. Anand Zachariah, Medicine I, CMC, Vellore
18. Prof. Sunil Maheshwari, Professor, IIM, Ahmedabad

19. Dr. Mansoor Hasan, Lucknow
20. Dr. R.A Badwe, Director, Tata Memorial Hospital, Mumbai
21. Dr. Snehalata Deshmukh, Former Vice Chancellor, University of Mumbai
22. Dr. Mayil V Natarajan, Vice Chancellor, The Tamil Nadu Dr. MGR Medical University, Chennai
23. Dr. Ranjit Roy Chaudhary, Apollo Hospital, New Delhi