

## HUMAN RESOURCES FOR PUBLIC HEALTH IN INDIA – ISSUES AND CHALLENGES

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### ABSTRACT

*Availability of adequate number of human resources with suitable skill mix and their appropriate deployment at different levels of health care set-up are essential for providing an effective health care services for the population. Since independence, concerted efforts have been made to address the need for human resources for health in India. However, shortage exists in all categories of human resources at different levels. Ensuring the availability of human resources for health in rural areas and building their capacity in public health are daunting tasks. Future challenges include planning for human resource for public health at State/national level, framing of State specific human resource development and training policy, creation of human resource management information system, reorientation of medical and para-medical education and ensuring proper utilization of the trained manpower and standardization of training. It is also important to link human resource development and training policy to the National Rural Health Mission in achieving its goals.*

**Key-words:** Human Resource, Public Health, Medical Education, Capacity Development

Since Independence, India has developed a vast public health infrastructure, which presently includes 144, 988 Sub-centres, 22, 669 Primary Health Centers (PHCs) and 3,910 Community Health Centres (CHCs), providing services to rural population.<sup>1</sup> Besides, over 7663 sub-divisional and district hospitals and other specialized hospitals are also functioning in the public sector.<sup>2</sup> The private sector plays a prominent role in the delivery of health care. According to NSSO–60<sup>th</sup> round, the proportion of population utilizing private health facilities for in-patient care is 58.3 per cent in rural areas and 61.8 per cent in urban areas and for out-patients the proportions are 78 per cent and 81 per cent in rural and urban areas respectively.<sup>3</sup> A large number of practitioners of AYUSH (ayurveda, yoga and naturopathy, unani, siddha and homoeopathy) are also working in the country. A huge training infrastructure is also available at national and state levels in both public and private sectors.

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Despite a well-developed and extensive network of public health infrastructure; including institutions for training and research, the health outcome is still behind the set goals. The influence of health care providers on health care provision and use of health care resources has been fully recognised. Availability of adequate number of health personnel with suitable skills and their appropriate deployment at different levels of health care set-up are essential for providing an effective health care services for the people. Globally, human resources absorb a large part of public expenditure in the health. In low and middle-income countries, cost of human resources for health usually amounts to 60 per cent and 80 per cent of the public expenditure, respectively.<sup>4</sup>

## **Global Scenario**

World-wide, out of 59.9 million health workers; 39.5 million (2/3<sup>rd</sup>) provide health services; and 19.8 million (1/3<sup>rd</sup>) are management and support workers.<sup>5</sup> In many countries, including India information on HR is fragmented and difficult to obtain. Information in the private sector is scarce and very difficult to collect. Human Resource for Health is unevenly distributed among the regions, countries, and within countries. WHO (2006) recommends a minimum of 100 nurses and 20 physicians per 100,000 population. Many Sub-Saharan African countries have lesser than 50 nurses and 5 physicians per 100,000 population as against 222 physicians per 100,000 population in OECD countries.<sup>5</sup> The ratio between nurses and doctors ranges from nearly 8:1 in the African Region to 1.5:1 in the Western Region.<sup>5</sup> Approximately, there are four nurses per doctor in Canada and the United States of America while it is lesser than one nurse per doctor in Chile, Peru and Mexico. Besides, acute shortage of public health specialists and health care managers have been existing in many countries. With reference to gender, it has been noted that more than 70 per cent of doctors are males and more than 70 per cent of nurses are females. About two-third of the workers are in the public sector and one third is in the private sector. 75 per cent of doctors, 60 per cent of nurses and 58 per cent of other workers live in urban areas while about 50 per cent of the population lives in urban areas. Skill mix and distributional imbalances; the skills of limited yet expensive professionals are not well matched to the local profile of health needs. Even density of human resources for health varies across countries and regions. Density of physicians and nurses in India (per 1000 population) is quite lower as compared to countries like China, Japan, U.K. and U.S.A (Table1).

**TABLE 1****DENSITY OF HUMAN RESOURCES FOR HEALTH PER 1000 POPULATION**

<b>Country</b>	<b>Physicians</b>	<b>Nurses</b>	<b>Midwives</b>	<b>Dentists</b>	<b>Pharmacists</b>
China	1.06	1.05	0.03	0.11	0.28
India	0.6	0.8	0.47	0.06	0.56
Japan	1.98	7.79	0.19	0.71	1.21
Sri Lanka	0.55	1.58	0.16	0.06	0.06
Thailand	0.37	2.82	0.01	0.17	0.25
U.K.	2.3	12.12	0.63	1.01	0.51
U.S.A.	2.56	9.37	NA	1.63	0.88

Source: World Health Report, 2006

There has been an active international recruitment leading to cross-border mobility among doctors and nurses (Mode-4 of GATS agreement). According to WHO, 23 per cent of doctors trained in sub-Saharan Africa and 37 per cent of South African doctors are working in the rich countries. Asia supplies over half of all migrating physicians. About 100,000 doctors of Indian origin settled in the USA and UK alone.<sup>5</sup>

**Indian Scenario**

At the time of independence in India, there were about 50,000 medical graduates and 25,000 nurses in the modern system of medicine to provide health care to the population.<sup>6</sup> During the Plan periods, concerted efforts were made to address the shortages of human resources for health. However, it is a matter of concern that there are huge gaps in critical health manpower in government institutions that provide health care to the poorer segments of population living in urban slums, remote rural and tribal areas. In keeping with the growth of health infrastructure and expanding scope of the health care services, human resource needs have been increasing. In view of the shortage of medical personnel in less-developed and rural areas, the National Health Policy (2002) suggested to examine the possibility of entrusting some limited public health functions with nurses, paramedics and other personnel from the extended health sector by providing adequate training to them.<sup>7</sup> The changing scenario of health services and strategies, especially the National Rural Health Mission, has led to an urgent need to develop new competencies and skills among the public health personnel.

The norms for health care infrastructure and manpower were laid down for the first time by the Bhole Committee (1946) and subsequently modified by the Mudaliar

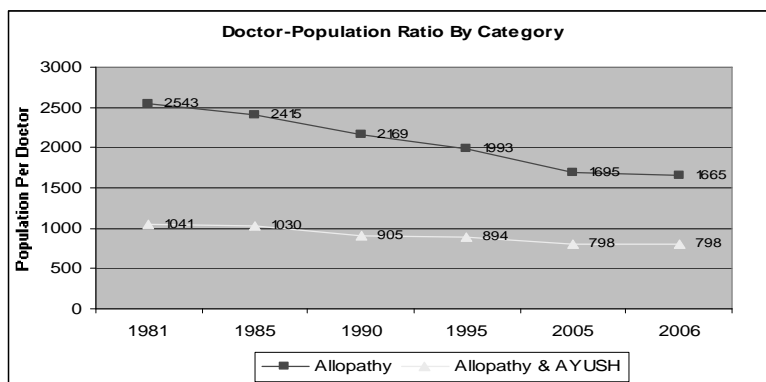
Committee (1961) followed by the Bajaj Committee (1987). The 9<sup>th</sup> Five-Year Plan had emphasized on health manpower planning taking into consideration, the district specific assessment of available manpower and health care facilities and the demand for health care services. Efforts were made by the Central Bureau of Health Intelligence, Ministry of Health and Family Welfare, to obtain reliable and accurate district-wise data on the number of medical, dental, ISM&H professionals and nursing and para-professionals. However, there has been a very little progress in this effort and in the 10<sup>th</sup> Plan it was again expected to create a data-base to decentralize district-based health manpower planning to meet the needs. The National Commission on Macro Economics and Health<sup>8</sup> has also highlighted the requirement of the public health system in terms of both medical and para-medical personnel.

## **Current Status**

Currently, there has been a shortage of all key cadre including doctors, nurses and paramedics, particularly in rural areas. Irregular attendance/absenteeism in rural/remote areas, inadequate system of incentives for postings in difficult areas, lack of opportunities for continuing medical education (CME), skill upgradation, lack of orientation to needs of rural areas, lack of supportive system for career development, non-transparent transfer and posting policy and lack of transparency in career progression are the major issues need policy attention.

The number of registered doctors and population coverage per doctor varies across States. The current rate of production and severe shortfall in the production of specialists are major issues for achieving the health goals in the country. At present, the country has got 6,60,801 allopathic doctors, registered with State Medical Councils (till December, 2005), 7,24,823 AYUSH practitioners (till January, 2006), registered with their respective councils and 78,096 dental surgeons, registered with Dental Council of India (till May, 2006)<sup>2</sup>. It is very clear that there is an acute shortage of dental surgeons in the country as compared to other disciplines. As per the norms of 1 dentist for 4000 population as recommended by the Bhore Committee, the total number of dental surgeons actually required is about 2.82 lakh in 2007, which is four times of the current production. The ratio between allopathic doctor and population was 1 for 1665 persons in the country (60 doctors for 100, 000 population) while in Australia, Canada, the United Kingdom and the United States of America, it was 249.1, 209.5, 166.5 and 548.9 respectively<sup>8</sup>. The combined strength of doctors in allopathic and AYUSH systems make a doctor population ratio of 1:798 in 2006 (Fig.1). The total number of registered doctors (allopathic, AYUSH and dentists) varies considerably across different states.

**FIGURE 1**



Source: Health Information of India, Various Years and National Health Profile, 2006, MOHFW (GOI).

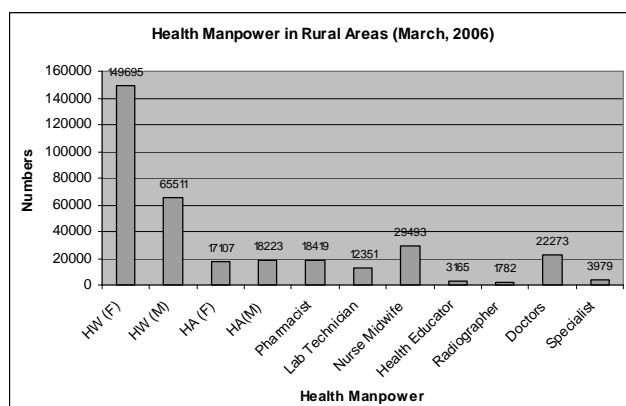
Nurses and Midwives are the key health care providers. As on December 2005, 9,08,962 nurses had registered with Indian Nursing Council in the country (GOI, 2006). The ratio between nurse and population in India was 1:1205 as against 1:100-150 in Europe<sup>8</sup>. Overall, a huge shortage of nurses and midwives exist in India. Also, a vast difference in the availability of nurses in various States has been found. As on 31 December 2006, 5,78,179 pharmacists were registered with the Pharmacy Council of India. The ratio of one pharmacist per 1923 population in India (2006) is quite comparable with developed countries; however, variations across the States are observed.

## Health Manpower in Rural Areas

Improvement in health outcomes in rural areas is mainly depends on the availability of trained human resources. The current position of health manpower in rural areas is shown in fig:2. As on today, a significant proportion of positions are lying vacant at various levels; including shortfalls. The major shortfall at sub-centre level is of health worker (male) resulting in overburdening of ANMs. According to a Bulletin on Rural Health Statistics<sup>1</sup> (GOI), 7.5 per cent of PHCs were functioning without a doctor, 38.9 per cent without a lab technician and 17.7 per cent without a pharmacist while in CHCs, 54.5 per cent of the sanctioned posts of specialists were lying vacant as on March, 2006. Shortages of 9413 specialists at CHC level and 18,318 MPW(F)/ANM,

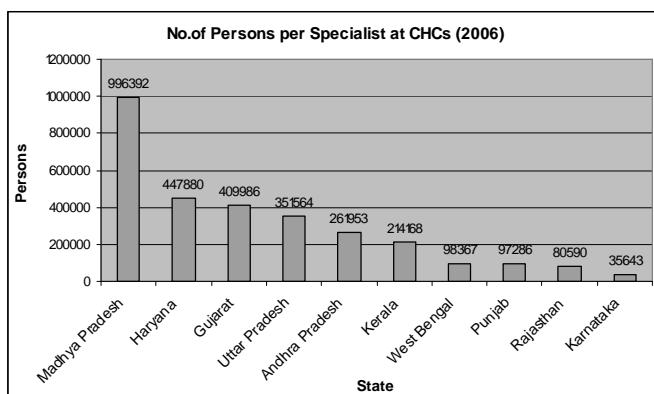
74,721 MPW (M), 5941 Health Assistant (female)/LHV and 7169 Health Assistant (Male) at PHC/Sub-centre levels have been observed. There is a wide variation among states in number of persons served by a specialist in rural areas (Fig.3).

**FIGURE 2**



Source: Bulletin of Rural Health Statistics (GOI), 2006

**FIGURE 3**



Source: Bulletin of Rural Health Statistics (GOI), 2006

## HRH Strategies under NRHM

Under the NRHM, the government aims to increase the availability and accessibility to health care by providing over four lakh Female Accredited Social Health Activists (ASHAs) in 18 high focus states with poor health indicators and weak public health infrastructure<sup>9</sup>. The formulation of transparent policies for deployment and career development of human resources for health, strengthening capacity for data collection, assessment and review of evidence based planning, monitoring and supervision and technical support to national, state and district health missions for public health management are part of the core strategy of the mission. In order to develop a coordinated approach to the issue of greater public health focus in the country, a task force on public health under the chairmanship of Director General of Health Services, has been constituted by the government under NRHM.

### Medical, Nursing and Para-Medical Education

As far as medical education is concerned, at present the country has got 271 medical colleges, of which, 138 are government owned (MCI). The admission capacity in undergraduate colleges is about 31,172 students per year. State-wise distribution of medical colleges in the country clearly reveals the shortages of medical colleges in States like Uttar Pradesh, Rajasthan, Madhya Pradesh, Orissa and Chhattisgarh. Nearly 60 per cent of medical colleges in India are located in six States namely; Andhra Pradesh, Karnataka, Tamil Nadu, Kerala, Maharashtra and Puducherry (Table 2). Acute shortage of teachers in medical colleges has an adverse impact on the quality of education and it is more acute in pre-and para-clinical specialties such as Anatomy, Pharmacology, Forensic Medicine and Community Medicine.

**TABLE 2**  
**STATE-WISE NUMBER OF REQUIRED AND EXISTING MEDICAL COLLEGES**  
**(March, 2008)**

Sl. No	States/UTs	Population March 2008 (in '000')*	Medical Colleges Required @ 1 per 50 lakh Population	Existing No. of Medical Colleges (Govt./ Pvt.)	Difference between Existing and Required number	Current population per medical college (in '000')	Total No. of MBBS seats
1	Andhra Pradesh	82180	16	32	+16	2568	4225
2	Karnataka	57399	11	39	+25	1472	4755
3	Tamil Nadu	66396	13	25	+12	2656	2865
4	Kerala	34232	7	18	+11	1902	2100

Sl. No	States/UTs	Population March 2008 (in '000')*	Medical Colleges Required @ 1 per 50 lakh Population	Existing No. of Medical Colleges (Govt./ Pvt.)	Difference between Existing and Required number	Current population per medical college (in '000')	Total No. of MBBS seats
5	Maharashtra	106894	21	40	+19	2672	4560
6	Puducherry	1074	0 (1)	8	+7	134	975
7	Bihar	93823	18	8	-10	11728	510
8	Madhya Pradesh	69279	13	9	-4	7698	1120
9	Rajasthan	64641	13	8	-5	8080	850
10	Uttar Pradesh	190891	37	16	-21	11931	1712
11	West Bengal	87869	17	9	-8	9763	1105

Note: \*Projected population by Registrar General of India. Number of existing medical colleges and number of MBBS seats are taken from MCI website.

Problems like procedural delays in appointment of faculty, low pay scale structure and lack of uniform standards of medical education, at both graduate and post-graduate levels, hamper the quality of education. The content of teaching/training also varies from state to state; and between government and private institutions. National and state level guidelines are not available for teachers and as a result they are not exposed to recent changes in policies and programmes. The quality of research in medical colleges is poor and research findings do not feed training. The problem in the government owned institutions has become more severe as the private institutions pay more for the medical doctors. Of course, the candidates opting for public health and para-clinical subjects are gradually declining as compared to potentially lucrative clinical and diagnostic specialties.

At present, the country has got 461 AYUSH colleges with admission capacity of 25,555 students<sup>2</sup> with disparity in the availability of AYUSH colleges in different States, for example, Maharashtra has got as high as 107 AYUSH colleges while Himachal Pradesh has got only two. The country has in all 240 BDS colleges with admission capacity of 18,180 (2006-07), with regional imbalance in the establishment of dental colleges, among major states, maximum in Karnataka (43) and minimum in West Bengal<sup>2</sup>.

As on March 2006 there were 1,312 institutions available for training of General Nursing Midwives in India, with an admission capacity of 50,628<sup>2</sup>. The quality of Nurses training is affected by a number of constraints such as lack of teachers, infrastructure and non-adherence to the Indian Nursing Council teacher student norm,



budget, etc. With globalization and growth of private health sector, the county needs more nurses.

The Pharmacy Council of India regulates the education and training of pharmacists under the provision of Pharmacy Act. The training of these categories has been unregulated and many centres for training these personnel have opened up all over India, with permission of State Governments. As on March 2006, a total number of 336 ANM/MPW (female) schools with an admission capacity of 13,000 and 42 promotional training schools for LHV/Health assistant (female) with an admission capacity of 2,600 and 56 training centers for training of health worker (male) were established.<sup>2</sup>

### **Capacity Building – Major Issues**

Lack of need based training to different categories of staff, absence of a well defined HRD policy, apathetic attitude towards training, inadequate training infrastructure and training skills, absence of pre-service and induction training and duplication of efforts by different agencies without much integration are some of the major challenges for capacity building. Other problems like unwillingness of doctors to serve in rural areas, charisma of post-graduation and private practice, incorrect/incomplete/inconsistent data and lack of appropriate system for validation of data also pose a challenge for capacity building. Apart from these, many non-training issues like lack of mechanism for follow-up after training, mismatch between training and job profile and lack of system for monitoring performance related to training are also to be given adequate attention for capacity building.

### **Proposed Solutions**

A shortage of all categories of health personnel in the public health system has been well recognized in the country and this needs to be tackled on priority basis. In order to ensure the availability of health professionals in rural areas on a regular basis, the country still has to train a large number of health professionals to meet the health care needs of the growing population and increasing disease burden. Posting of doctors with adequate incentives, both monetary as well as non-monetary benefits, such as improved infrastructure facilities of health care institutions, suitable accommodation, preferential school admissions for their children, increase in the age of retirement from 60 to 65 years, permission for private practice/pay clinics/evening clinics, posting spouses at same place etc. are certain important issues to be considered.<sup>10</sup> Besides, decentralisation of recruitment to the district level, contractual

appointments/engaging honorary consultants, posting of junior/senior residents at PHCs/CHCs may complement the HRH. Certificate Courses for MBBS graduates in the areas of Pediatrics, O & G, Anesthesia and Radiology should be introduced. B.Sc (Health Sciences) courses may be initiated for addressing the requirements of rural areas and urban slums. Efforts should be made to establish new medical and dental colleges in the underserved areas. Public-private partnership could go a long way strategically to bridge this gap.

In order to equip medical graduates with the skill, training should be in a decentralized setting for them outside a tertiary hospital, in close proximity with public health and social environment for providing broad-based community health care. There is also a need to introduce training technology in the curriculum. Research component of the post-graduate training programmes needs due representation of the rural areas. Community medicine teaching should also focus on topics like equity and gender, behaviour change communication, counselling, biomedical waste and infection prevention, hospital management information systems, research methodology with collection/compilation/analysis and utilization of data and integrated teaching of National Programmes. In view of the high rate of attrition of academicians, there is a need to make teaching in professional colleges more attractive. It is time to deliberate on the need to enhance the salary structure of doctors as well as their incentives. Another way could be to use the honorary consultant system so that the selected leading private practitioners and retired teachers can be inducted to maintain academic workforce. Implementation of CME Programmes, computer networking of medical colleges, promotion of IT-based e-health, tele-consultancy, tele-radiology and tele-pathology are necessary.

In order to meet the increasing demand for nursing personnel, there is an immediate need for opening new B.Sc. and MSc. Nursing colleges as per the policy of Government of India. There is a need for training more M.Sc. (Nursing) personnel to solve the problems of shortage of nursing tutors. Additional skills to nurses should be provided in the form of certificate course of short duration. Continuing professional development through e-training should also be encouraged. In-service nursing personnel should be encouraged to undertake higher studies like M.Sc./Ph.D.

Capacity development of programme managers should be taken up in the areas of micro-planning, communication, interaction with the environment and community monitoring, financial management and leadership skills. Policy makers also need capacity building in the areas of strategic management, policy analysis and research, policy formulation and implementation, resources mobilization and

monitoring of programmes. It is also important to develop practical skills of in-service personnel in communication, motivation, provision of quality care and ability to transfer skills to others, data analysis and report writing.

Every effort should be made to promote the inherent strength of AYUSH systems for addressing the contemporary health needs of the population. Integration of AYUSH systems with primary health care, public health, preventive and promotive health care is required. Reputed AYUSH institutions in the country should be supported to design and offer new courses on socially relevant subjects like AYUSH and public health, preventive cardiology, etc.

The public health challenges for communicable diseases, emerging infectious diseases and the growing burden of chronic diseases need a strong national policies to support public health. Capacity development for health research, policy development and analysis, programme development and evaluation, health care financing, etc. are equally important. Disciplines like health administration, health information technology, health marketing, health economics, community health management, hospital management, etc. need to be encouraged. Training and orientation of all medical and para-medical personnel on the public health issues will also go a long way in the management of diseases and epidemics. New courses of three years duration may be introduced for addressing the increasing need of human resources for public health. Diploma in public health management for in-service personnel should also be introduced.

Development of standard policies regarding recruitment, training, career development plan, transfers, performance appraisal and supportive supervision are the need of the day. Qualifications and eligibility criteria for different cadres of health personnel need to be reviewed in relation to their job requirements. Thus, a comprehensive center/state specific human resource development policy for health system needs to be developed in the 11<sup>th</sup> plan. An effective human resource management information system is also essential for projecting the future manpower requirements for India.

## **CONCLUSION**

The task of ensuring the availability of human resources for health in rural areas and building their capacity for public health is a real challenge. The overall shortage of human resources are aggravated by skewed distribution within the country, even within the states, movement of personnel from rural to urban areas and

from public sectors to private sectors. The solution for meeting the challenges in human resources for health include strategic planning for human resource for public health at state/national level. State specific human resource development and training policy, reorientation of medical and paramedical education, ensuring proper utilization of the trained manpower and standardization of trainings, effective human resource management information systems are also important. It is also essential to link HRH to the NRHM in addressing human resource issues.

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