



Review Article

## Human Resources for Health in India: Challenges and Way Forward

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### ABSTRACT

India faces enormous challenge in human resources for health care delivery system. Geographical misdistribution and urban-rural health worker deficit impedes the progress towards achieving Millennium Development Goals. Many rural Indians receive health care from unqualified providers. Rational distribution and retention of qualified providers in rural and remote areas is a daunting task for the government. Little attention is paid in public medical institutions for the real health needs of the community. Additionally, rapid expansion of private nursing and medical colleges has infringed the provisions for quality education. Establishment of a rational human resource policy at central level needs to be undertaken towards realization of universal health coverage in India. Appropriate incentivization can promote retention of qualified health providers in rural and remote areas. Higher investment in health will be required to maintain the quality medical education throughout the country. Though, in recent years, substantial increase in human resources for health is noticed, still subnational inequalities in the distribution of human resources for health persist. As India begins to plan for achievement of universal health coverage by 2020, the realization of such dream will become true if the current problems and complexities among the composition, unavailability and imbalances in distribution can be addressed judiciously.

**Keywords:** Human resource, health, availability, distribution, medical education, India

### INTRODUCTION

After India gained independence, the provision of affordable and primary health care services to the poor was part of the key plan for the country.<sup>(1)</sup> Since then, significant work and resources have been dedicated to improve public health facilities (i.e. Sub Centres (SCs), Primary Health Centres (PHCs), Community Health Centres (CHCs), district hospitals and tertiary hospitals), where less expensive health care can be given by qualified health providers.

In addition, numerical strength of health workforce has been increasing over the years to bring better health care utilization and health outcomes in India.<sup>(2-4)</sup> Even after such progress, many Indians who live in rural and remote areas are unable to access primary health care from qualified medical providers because of substantial socio-economic, cultural and geographical disparities across the country. In addition, government's attempts to scale up affordable health services in remote and underserved

areas stand ineffective as a large mass of rural population are yet unreachable. <sup>(5,6)</sup>

In India, public sector plays crucial role in providing preventive health care services. Conversely, private hospitals continue to take around 80% of outpatient visits and 60% of hospital admissions every year. As a result, 71% of health care is from out-of-pocket which forces 4% of Indian population to enter into poverty every year. <sup>(7,8)</sup> The whole cause of concern in Indian health care system is the severe scarcity of trained qualified medical providers in both government and non-government sectors. In addition, there is a large subnational inequalities in health workforce distribution. To date, there is no reliable data source that exists on a national level to support the evidence of India's health workforce size.

In this paper, we reviewed the latest information on composition, production and distributional patterns of the Indian health work force and we propose potential ways out for future reform efforts.

### ***Composition of India's Health Workforce***

Indian health workforce is complex by its own nature with various types of personnel providing health care services. According to revised National Occupation Classification (2004), <sup>(9)</sup> Indian allopathic system of medicine include doctors (both general and specialists), nurses, midwives, pharmacists, technicians, dentists, optometrists, physiotherapists, nutritionists, sanitarians and a range of administrative and support staff. The physicians trained in Indian System of Medicine i.e. Ayurveda, Yoga, Unani, Sidha and Homeopathy – collectively known as AYUSH are also part of India's health care system in the provision of health care in government and non-government facilities. Additionally, other informal medical practitioners; commonly called RMPs (Registered Medical Practitioners) are often the first contact point

for rural population to receive health services. Even though RMPs do not possess any formal license, yet they usually practice allopathic medicine. One study estimated that 25% of the allopathic practitioners (i.e. 15% in urban areas and 42% in rural areas) were reported to be RMPs without having medical training. <sup>(10)</sup> Another study mentioned that about 41% practicing doctors in private clinics had no relevant medical degrees in the Udaipur district of Rajasthan in 2003. <sup>(5)</sup> Also, some states such as Chhattisgarh and Assam have recruited mid-level health professionals with three and half years of medical training into state specific health care (National Health System Resource Centre [NHSRC], 2012). <sup>(11)</sup> Furthermore, Community Health Workers (CHWs), traditional faith healers and Trained Birth Attendants (TBAs) have been a part of India's health workforce.

### ***Availability, Distribution and reasons For Shortages of Health Workers***

In 2009, India had around 2.5 million health workers (761 806 doctors, 104 603 dentists and 1650 180 nurses and midwives) at the state and national level. <sup>(12)</sup> The collective national density of doctors, nurses and midwives was 2.08 per 1000 population which was lower than WHO critical threshold value of 2.28 workers per 1000 population <sup>(13)</sup> to achieve the most basic health services such as 80% of institutional deliveries and 80% of immunization coverage. <sup>(14)</sup> There was also unequal distribution of these health workers across the country. For example, the rich states such as Kerala, Karnataka and Tamilnadu, the aggregate density of doctors, nurses and midwives was more than 4 per 1000 population, while the poor states like Bihar, Chhattisgarh, Jharkhand, Uttar Pradesh and Uttarakhand were less than 1 per 1000 population in 2009. Further, the ratio of nurses to doctors was 1.5:1 and

nurses/midwives to doctor was 2.2:1 per 1000 population in 2009 (See table 1). Also, there was high interstate variation as well as lower nurses to doctor ratio in most of the poor health outcome states<sup>a</sup> than the national average. <sup>(12)</sup>

The Indian government estimated the existing vacancies to be 21% for doctors at PHCs and 46% for specialists (surgeons, physicians, obstetricians and pediatricians) at CHCs. <sup>(14)</sup> Further, lack of qualified medical providers as well as highly populated unqualified providers housed in rural and urban slums indicate for unsafe and suboptimal health care especially to poor people.

There are also various reasons for scarce human resources; mainly unwillingness of the qualified health providers to work in rural areas and the inability of the government to attract them. A large number of health workers wish to work in city areas than remote locations due to better financial avenues, superior working conditions and ease of access to facilities and infrastructure. They can also receive a good living environment and better opportunity for sending their children for higher education. <sup>(15)</sup> In addition, large number of medical students pursue post-graduation specialization after they graduate. <sup>(15)</sup> Also, higher salaries in the private sector play an important role not to join in public job.

International migration poses biggest threat to the country's shortage of health workers. <sup>(16)</sup> Many doctors and nurses were found to be emigrated. For example, the UK (10.9% of Indian doctors) and the USA (4.9% of Indian doctors) establish a major pool for migration followed by Australia

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<sup>a</sup> National Rural Health Mission (NRHM) of India has identified eight (high focused) states are having poor health outcomes. These are Bihar, Chhattisgarh, Uttar Pradesh, Madhya Pradesh, Orissa, Jharkhand, Uttarakhand and Rajasthan.

(4%) and Canada (2.1%). <sup>(17-19)</sup> The Planning Commission of India (2006) has estimated around 100000 Indian physicians reside in the UK and the USA alone. Between 1989 to 2000, 54% of medical graduates from premier medical institution of India went mostly to the USA for higher studies. <sup>(17)</sup> Further, India produces around 60 000 nurses every year, in which approximately 20 - 40 per cent of them go abroad. <sup>(20)</sup> One study estimated, in the UK, the proportion of Indian nurse registrants significantly grew from 30 to 3551 between 1998 to 2005. <sup>(21)</sup>

Further, nursing education of India has been continuously neglected after Independence. Significant efforts have been made after independence to standardise and regulate nursing education and to improve capacities of nursing professionals. However, this sector still remains ignored <sup>(22)</sup> as a result of higher political priority towards medical education and inadequate resource allocation for nursing education. One study reported that nearly 61% of nursing institution of India had severe shortage of human resources and infrastructure, <sup>(23)</sup> while another study conducted in five states of India (Assam, Gujarat, Uttaranchal, Bihar and West Bengal) mentioned that nearly 20% of nursing administrator and 28% of senior academician positions were vacant in nursing institutions of these states. <sup>(22)</sup>

### ***Production of Health Workforce***

In last seven years there has been a significant rise in the production of human resources for health mainly in three areas (1) notable increase in the training capacity of health workers (2) rapid expansion of private sector involvement in medical education and (3) refill the post in public health facilities. In 1947, when India got independence, there were 19 medical colleges where 1200 doctors graduated

every year. <sup>(24)</sup> By 2013, Medical Council of India have 371 <sup>(12)</sup> approved medical colleges with an annual production of more than 40000 doctors. <sup>(25)</sup> The number of medical seats have become more than double from

1991 (22 438) to 2013(49 508). During the same period, the dental seats also vastly expanded from 3100 to 23 800 i.e by 668%. <sup>(12)</sup> Similar increase was also witnessed in nursing education.

Table 1: State-wise availability of health workers in 2009						
Health - worker density per 1000 population						
	Population (Million)	Doctors	Dentists	Nurses and Midwives	Total <sup>b</sup>	Ratio of nurses and midwives per doctor
Andhra Pradesh	83.11	0.75	0.078	2.99	3.74	3.99
Bihar	100.94	0.36	0.028	0.16	0.52	0.45
Chhattisgarh	24.85	0.11	0.016	0.24	0.35	2.13
Delhi	15.83	0.57	0.397	1.81	2.38	3.19
Goa	1.37	1.99	0.503	N/A	N/A	N/A
Gujarat	58.76	0.77	0.046	2.12	2.89	2.77
Haryana	24.51	0.17	0.084	1.29	1.46	7.64
Himachal Pradesh	6.72	0.1	0.115	2.78	2.89	26.53
Jammu and Kashmir	12.22	0.89	0.089	N/A	N/A	N/A
Jharkhand	32.06	0.09	NA	0.17	0.26	1.84
Karnataka	59.86	1.39	0.428	3.09	4.48	2.22
Kerala	32.9	1.15	0.202	3.46	4.61	3.01
Madhya Pradesh	70.28	0.37	0.028	1.77	2.13	4.84
Maharashtra	109.27	1.23	0.166	1.15	2.39	0.94
Orissa	41.2	0.41	0.013	2.73	3.13	6.71
Punjab	27.07	1.42	0.271	2.36	3.78	1.66
Rajasthan	66.42	0.42	0.005	0.9	1.32	2.17
Tamil Nadu	71.2	1.19	0.163	3.39	4.57	2.85
Uttaranchal	9.82	0.31	0.046	0.08	0.39	0.26
Uttar Pradesh	192.62	0.29	0.029	0.25	0.54	0.87
West Bengal	89.65	0.65	0.023	1.17	1.82	1.8
North-east states <sup>a</sup>	49.84	0.39	0.019	0.88	1.26	2.26
India	1183.56	0.64	0.088	1.44	2.08	2.2

N/A = No data available, <sup>a</sup> North-east states includes Assam, Meghalaya, Manipur, Nagaland, Mizoram, Tripura and Sikkim; <sup>b</sup> Total includes doctors, nurses and midwives  
Source: Hazarika 2013

In 2006, India had about 951 General Nursing and Midwifery and 247 Auxiliary Nurse Midwifery institutions, where it increased to 2492 (162%) and 1297 (425%) institutes respectively by the end of 2012. <sup>(11)</sup> Likewise, the recognized nursing institute offering the Bachelor of Science in Nursing (B.Sc.) degree increased from 347 in 2006 to 1507 in 2012 and Master of Science in Nursing (M.Sc.) from 52 to 440 in the same period. <sup>(11)</sup>

There were imbalances found in the distribution of these nursing institutions among the states. For example, the high focus states under NRHM representing half of the country's population possess only about 20% of the medical colleges and 25%

dental and nursing institutes. <sup>(12)</sup> Similarly, there has been a disproportionate increase in the number of private medical colleges. In 1990, 33% of medical colleges were privately funded, whereas it grew to 57% in 2008 <sup>(26)</sup> and 67% in 2013. <sup>(12)</sup> Additionally, similar growth has also been observed in private dental colleges. Before 1991, there were only 49 dental colleges, of which 23 (47%) were public funded, whereas, as of 2013, there are total of 295 dental institutions approved by Dental Council of India out of which 229 are privately owned (See table 2). <sup>(12)</sup>

Further, between 2005 and 2012, nearly about one hundred thousand skilled health providers (specialists, medical

officers, staff nurses, midwife, paramedics, AYUSH doctors and AYUSH paramedics) have been added to the Indian public health services under NRHM. <sup>(11)</sup> Over the same period, more than eight hundred thousand community health workers in the name of Accredited Social Health Activist (ASHA) have also been recruited to join the rural health workforce. <sup>(11)</sup> Furthermore, another

one million community workers have also been employed for the Integrated Child Development Scheme. <sup>(13)</sup> All these numbers have not been included in this report in the estimation of health workforce of India. If we add these community workers, then Indian health work force will significantly increase and its growth size gives about 80% of total health workforce of India. <sup>(13)</sup>

**Table 2: State-wise annual production of doctors and dentists in 2013**

States	Number of Institutions <sup>a</sup>				Annual Production Capacity			
	Medical		Dental		Medical		Dental	
	Government	Private <sup>d</sup>	Government	Private <sup>d</sup>	Government	Private <sup>d</sup>	Government	Private <sup>d</sup>
Andhra Pradesh	15	27	3	17	2400	3800	180	1510
Bihar	9	3	1	5	940	260	40	280
Chhattisgarh	4	1	1	5	450	150	100	500
Delhi	6	2	3	0	850	200	140	0
Goa	1	0	1	0	150	0	40	0
Gujarat	9	10	2	12	1530	1400	140	1090
Haryana	3	3	1	9	400	350	60	840
Himachal Pradesh	2	1	1	3	200	150	60	220
Jammu and Kashmir	3	1	2	1	400	100	100	100
Jharkhand	3	0	0	3	350	0	0	250
Karnataka	12	34	2	43	1500	5255	110	2990
Kerala	7	18	3	20	1100	2000	120	1150
Madhya Pradesh	6	6	1	14	800	900	40	1320
Maharashtra	20	25	4	31	2740	3245	240	2760
Orissa	3	5	1	4	550	500	20	360
Punjab	3	7	2	14	400	695	80	1210
Rajasthan	7	3	1	13	1300	350	40	1210
Tamil Nadu	21	20	1	28	2665	2900	100	2570
Uttaranchal	2	2	0	2	200	250	0	200
Uttar Pradesh	14	16	3	27	1827	1500	130	2650
West Bengal	14	2	3	1	2050	300	220	100
North-east states <sup>b</sup>	9	2	2	0	876	200	90	0
Union Territories <sup>c</sup>	3	7	2	3	325	900	140	300
India	176	195	40	255	24 003	24205	2190	21 610

<sup>a</sup> includes those institution which is approved by Medical Council of India or Dental Council of India; <sup>b</sup> North-east include Assam, Meghalaya, Manipur, Nagaland, Mizoram, Tripura and Sikkim; <sup>c</sup> Union Territories include Daman and Diu, Andaman and Nicobar, Dadar Nagar Haveli, Lakshwadeep, Puduchery and Chandigarh; <sup>d</sup>private includes private universities, institutions, trusts, societies and municipal corporations  
Source: Hazarika, 2013.

### ***Governments Approach Towards Attract and Retain Skilled Professionals in Rural Areas***

The government's approach to attract and retain qualified health workers in rural and remote areas during NRHM program has also been praiseworthy. Several innovative strategies in different states of

India have been introduced to bridge the gap of rural health workers deficit. Monetary incentives are given to public sector doctors serving in remote or rural areas. Educational increments are in place in some states; Kerala and Tamil Nadu introduced compulsory rural service bonds for doctors with specialization and in Meghalaya it is

for general doctors to facilitate subsidized medical education for them.<sup>(11)</sup> Some states have started compulsory rural service for doctors with an option to consider post-graduation degrees in future. The other states such as Gujarat, Andhra Pradesh and Tamil Nadu allows medical doctors to do post-graduation specialization programme if they finish specific years of rural service. The state of Haryana established a simplified decentralized workforce policy where incentive packages were allowed to fill general and specialist doctors. In West Bengal, location based recruitment policy are in place. Such policy provides 18 months of training course on nurse midwives to the interested candidates and after completion, they are posted at the local health facilities in their geographic locations.<sup>(11)</sup>

In most of the states AYUSH practitioner has been recruited in PHCs and they often act as medical officers in the absence of allopathic doctors. Rajasthan government recruits nurse for PHCs in selected areas. In Madhya Pradesh, Swalamban Yojana (self-reliance plan) provides scholarship to the candidates of rural areas against a bond. Mitanin (ASHA) program in Chattisgarh provides career path for ASHAs to train as nurses and midwives. Public-private partnership also plays a vital role to attract qualified health providers to work in the remote and rural locations. In Arunachal Pradesh and Karnataka, government contracted some selected primary health centres to non-government organization to provide low cost health care services. In Gujarat, the private gynaecologists are being purchased by the government to increase institutional deliveries in hospitals among poor households.<sup>(11)</sup>

### ***Challenges and Moving Forward***

The gains of human resources for health in the last seven years are manifold.

Despite such impressive achievement, the shortage of health personnel still remains for optimal functioning and management of health facilities. The states like Bihar and Uttar Pradesh are still far behind in achieving targets of human resources for health owing to slow progress in implementation of NRHM programme. In addition, NRHM estimated approximately three hundred thousand skilled health workers are needed in the next 12<sup>th</sup> five year period (2012-17).<sup>(11)</sup>

Under such a situation, we recommend a bundle of strategies that serve the most important factors in addressing human resource deficit in the health sector. It is unfortunate that India has not been able to create a coherent human resource policy despite many recommendations from different committee reports and existing documents.<sup>(27)</sup> A holistic human resource policy is required at a national level. Such policy will guarantee the creation and establishment of all health and non-health professionals and will guide in the crucial matters such as administrative issues, technical issues and leadership quality to improve India's health care system. It will also correct the imbalances in human resources for health and allowing necessary incentives and career progression for medical students.

Like other developing countries, workforce planning is paralyzed in India due to dearth of updated and reliable data about available number of health workers, where they are located, what are their qualifications, where they migrate and what is the number of students enrolled every year in public and private institutions. An updated database with reliable information about all the above aspects is urgently needed and will be crucial to change the way the health workforce data is collected.

The study draws attention to the nurse-doctor ratio which is significantly

imbalanced. The World Development Report (1993) suggested that the nurse to doctor ratio need to be a minimum of 4:1 or higher for maintenance of cost effectiveness and quality health care. <sup>(28)</sup> Therefore, recruitment and rational distribution of nurse-doctor ratio will solve such heavily skewed figures. Further, specific training programmes are needed for doctors and nurses on the exact community health needs to serve underserved locations. This training programme must be context specific with relevant curriculum and much focussed on the priority areas of development.

The government experience shows that medical doctors are more hesitant to work in rural areas. Thus, physicians trained in Indian Systems of Medicine (AYUSH professionals) can be engaged to deliver primary health care at PHCs while the skills of medical doctors may be utilized at district and sub-district levels to supervise peripheral health staffs. The integration of AYUSH physicians within the public health system after adequate training will add immense value for primary health care.

The geographic misdistribution of qualified health providers between districts within the states of India needs to be better understood. One possible solution may be the provision of appropriate incentive packages (both financial and non-financial) to attract and retain the qualified health workers to serve in remote and underserved areas. The incentive package must include the rise in salary, improved housing condition and provision of post-graduation reservation with a condition of coming back to rural services. This will boost a considerable reduction of urban biasing the distribution of qualified medical providers.

Evidence suggests that basic primary health services can be delivered at low cost by nurses and junior level health workers in the community than trained physicians. Such cadres are easily placed in underserved areas

and are more amenable to join government jobs. The states of Chhattisgarh and Assam have recruited such non-physician clinician to address rural deficit. One of most important steps for government could be recruiting to such candidates from the underserved disciplines, train them as close to the community and enable to work with them in their community.

## CONCLUSION

Human resources for health paint a dismal picture in India's health workforce landscape. Long term sustained efforts are required to address the current geographic maldistribution and human resource deficit. This will require major support from national, international agencies and strong political will of the country. A strengthened public health workforce will ensure the effectiveness of health interventions and improvement of health in all populations including the poor and underserved, not just the most advantaged.

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