

*Review Article*

## Human Resources for Health in India: An Overview

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### ABSTRACT

India faces an acute shortage of human resources for health (HRH). The shortage is so severe in rural areas and major challenges remain in bringing qualified human resources to rural, remote and underserved areas. Despite the implementation of National Rural Health Mission (NRHM), the absence of inadequate trained HRH in both public and private sectors remain a major concern. Apart from taking efforts to increase numerical availability of human resources in rural areas, it is imminent to strengthen competencies of these workers at all levels through specialized courses and setting up of specialized training institutions at state levels to continuously improve the capacity of HRH engaged in provision of basic health services. In order to encourage qualified human resources to work in rural, remote and underserved areas, appropriate packages of monetary and non-monetary incentives, reservation for PG seats, career progression, scheduled transfers, avenues for promotion should be instituted. Most importantly, emphasis should be given on recruiting candidates from the rural, remote and underserved areas and training them on necessary skills adjacent to their places enabling them to work in these areas. Reserving medical seats for candidates from these areas to enabling them to work in these areas would also be beneficial.

**Keywords:** Human resources for health, medical education, nursing education, India.

### INTRODUCTION

World Health Organization (WHO) defines Human Resources for Health (HRH) as “the stock of all individuals engaged in the promotion, protection or improvement of population health”. This includes both public and private sectors and different domains of health systems, such as personal curative and preventive care, non-personal public health interventions, disease prevention, health promotion services, research, management and support services. <sup>(1)</sup> The density of human resources is considered as the reliable indicator of the human resources for health in any country,

and provides a crude proxy of health system capacity. <sup>(2)</sup> Currently, no global norms exist for density of human resources for health. The Joint Learning Initiative has established a threshold of 25 health workers (doctors, nurses and midwives) per 10,000 populations, with a WHO endorsed lower threshold of 23 workers per 10,000. <sup>(2)</sup> According to the World Health Statistics (2014), for every 10,000 population, India has 7 physicians which are lower than neighboring countries like Pakistan (8.3) and China (14.6) and many times lower than developed countries like Germany (38.1), Australia (32.7), United Kingdom (27.9) and

United States (24.5).<sup>(3)</sup>

HRH in India comprise of a range of health workers who provide health services in various specialties' of medicines. They broadly include allopathic doctors, practitioners of ayurveda, yoga and naturopathy, unani, siddha, and homeopathy, nurses, dentists, auxillary midwives, pharmacists, technicians and allied health personnel, community health workers, registered medical practitioners and traditional medical practitioners and family healers etc. There is no reliable and systematic information available for all categories of human resources and it is too difficult to estimate. However, based on the 2001 census, it was estimated that India had nearly 2.2 million health workers in 2005.<sup>(4)</sup> The numbers of human resources for health per 10,000 populations in India range from 23.2 in Chandigarh to 2.5 in Meghalaya. These data was based on self-reported occupation, and are therefore limited by false reporting of qualifications by the families. A rationalized planning for HRH in India has not been realized due to weak knowledge bases on their availability for population and across health facilities in public and private sectors. The government regularly reports data on various health resources employed in the public sector the professional councils for doctors, dentists, nurses and pharmacists maintain cumulative data. Professional councils do not exclude attrition from death, retirement, migration, etc., as there is no periodic renewal of registration. A few states do not have state specific councils and in almost all states data is not recorded for categories such as medical technicians, physiotherapists etc. The present HRH situation in India is also characterized by a lack of human resource development policies and HRH management information at national, state, and district levels. Given these barriers the task of

estimating HRH needs of the growing Indian population is a complex one.

This paper is based on review of the latest information available through official documents, websites and studies related of the human resources for health in India and examines various issues and proposes future actions to achieve universal health coverage.

### **Current Scenario**

India has witnessed a rapid expansion in medical, dental and nursing education in the past two decades. The number of admissions to medical colleges increased from 22438 in 1991 to 50093 in 2014.<sup>(5)</sup> During this period, admissions to dental colleges expanded from 3100 to 23 800. Similar increases occurred in nursing education with the number of General Nursing and Midwifery institutions increased from 659 in 1997 to 2487 in 2012 and Auxiliary Nurse Midwifery institutions from 485 in 1997 to 1307 institutions in 2012.<sup>(6)</sup> The number of recognized nursing colleges offering the Bachelor of Science in Nursing (B.Sc.) degree has increased from 165 in 2004 to 1507 in 2012.<sup>(6)</sup>

The post NRHM era has seen major advances in expansion of medical and nursing education in India. This include amendment of regulations by Medical Council of India, revising norms for setting up of medical colleges and increasing number of PG seats, increased funding of state government medical colleges, establishment of AIIMS-like institutions, strengthening of state government medical colleges, setting up of a number of ANM and GNM schools, upgradation of nursing schools attached to medical colleges into nursing colleges, strengthening capacities and faculty development programmes for nursing colleges, revision of norms for setting up new nursing schools and colleges etc.

Despite this expansion, there are clear inequalities exist in their distribution among various states. As far as allopathic doctors is concerned, though much of the addition to the existing stock of allopathic doctors occurred during the last decade, the states like Bihar, Odisha and West Bengal still far behind. A close look at Table-1 reveals that number of allopathic doctors registered with State Medical Councils during the last 10 years in states like Andhra Pradesh, Karnataka and Rajasthan has recorded more than 50% increase in contrast to states like Bihar (18.52%), Odisha (17.26%) and West Bengal (20.11%). Delhi and Haryana recorded manifold increase in registration of doctors. The table also

reveals inequalities in absorption of doctors in public health system in different states. According to the information from the Ministry of Health & Family Welfare, Government of India states like Bihar (3.22%), West Bengal (5.42%), Gujarat (7%) and Punjab (8.67%) absorb less proportion of doctors in the public health system as compared to states like Delhi (89.90%), Arunachal Pradesh (86.85%), Haryana (48.34%), Jharkhand (42.58%), Chhattisgarh (34.07%) and Rajasthan (30.70%). Data also shows that only 13.06% of all registered allopathic doctors in India are working in government system in 2012 as against 10.78% in 2006 (Table 1).

**Table-1: Number of Allopathic doctors registered with SMC/MCI and their availability in Government Sector**

State	Cumulative number of registered doctors				Doctors in Govt. Sector	
	2002	2006	2012	Increase (2002-2012)	2006	2012
Andhra Pradesh	45426	50790	70799	25373(55.85)	4487 (8.83)	7799 (11.01)
Arunachal Pradesh	-	-	426	426	400	370 (86.85)
Assam	15170	16800	20195	5025 (31.12)	2103 (12.52)	4676 (23.15)
Bihar	31528	36165	37368	5840 (18.52)	NA	1206 (3.22)
Chattisgarh	1	654	4701	4700	NA	1602 (34.07)
Delhi	924	3470	8612	7680 (831.16)	NA	7749(89.90)
Goa	1955	2564	3082	1127(57.64)	562 (21.92)	312(10.12)
Gujarat	34398	40230	51223	16825(48.9)	2712 (6.74)	3586 (7.00)
Haryana	1638	1661	5717	4079 (249.02)	1755	2764(48.34)
Himachal Pradesh	-	256	1600	1600	NA	4919
J & K	7263	9222	12289	5026(69.20)	NA	2518(20.48)
Jharkhand	-	756	3994	3994	1234	1701(42.58)
Karnataka	61394	71809	95668	34274 (55.82)	4175 (5.81)	4648(4.85)
Madhya Pradesh	20098	30430	28693	8595(42.76)	NA	4928 (17.17)
Maharashtra	106845	96560	141460	34615 (32.39)	5061 (5.24)	14509 (10.25)
Odisha	14314	15573	16786	2472(17.26)	5079(32.61)	3435(20.46)
Punjab	32097	36100	40884	8787(27.37)	3545 (9.82)	3545(8.67)
Rajasthan	20678	24789	31100	10422 (50.40)	5899 (23.79)	9551(30.70)
Sikkim	0	0	751	751	232	273(36.35)
Tamilnadu	67258	75415	94314	27056 (40.23)	8377 (11.11)	13538(14.35)
Kerala	29810	35477	41188	11378 (38.16)	3227 (9.09)	3878(9.42)
Uttar Pradesh	44218	49527	61829	17611(39.82)	6766 (13.66)	10164(16.43)
Uttarkhand	0		3908	3908	1051	1060(27.12)
West Bengal	51061	54513	61331	10270 (20.11)	6115 (11.22)	3325(5.42)
MCI	22781	29319	45894	23113(101.45)	NA	NA
Other States/UTs	NA	NA	NA	NA		
India	608857	682080	883812	274955(45.11)	73549(10.78)	115483 (13.06)

Note: Compiled from various issues of National Health Profile, Ministry of Health & Family Welfare, Government of India

One of the major changes in the medical education has been a notable increase in the private sector's involvement in medical education. Prior to 1991, there

were 144 medical colleges in India, out of which only 43 (30%) were private colleges. By 2014, the number of institutions recognized or approved by the MCI has

increased to 385, of which private colleges are 209 constituting 54.3 percent. <sup>(5)</sup> Similarly, due to increasing demand for nurses nationally and internationally, India has witnessed a dramatic proliferation of

nursing education institutes in recent years. Almost 91% of nurses' education (ANM, GNM & B.Sc.) is being delivered in the private sector. <sup>(7)</sup>

**Table 2 : Annual production of Nurses & Midwives 2012**

State	% of India's population (2011)	Annual Production				
		GNM	ANM	Bsc Nurses	Total	% in India
Andhra Pradesh	7.00	10924	1315	11481	23720	10.10
N - E States	3.86	1543	829	883	3255	1.50
Madhya Pradesh	6.00	7950	3765	5245	16960	7.82
Bihar	8.58	426	1198	40	1662	0.76
Chhattisgarh	2.11	1046	2205	2260	5511	2.54
Goa	0.12	70	20	130	220	0.10
Gujarat	4.99	3155	2040	1695	6890	3.18
Haryana	2.09	2140	1830	1065	5035	2.32
Himachal Pradesh	0.57	1170	185	540	1895	0.87
Jammu & Kashmir	1.04	470	285	180	935	0.43
Jharkhand	2.75	735	685	230	1650	0.76
Karnataka	5.05	25214	1325	18133	44677	20.62
Kerala	2.76	7015	390	6630	14035	6.48
Maharashtra	9.29	3624	7493	3820	14937	6.89
Orissa	3.47	1860	2230	690	4780	2.20
Punjab	2.24	8893	4440	4170	17503	8.08
Rajasthan	5.67	8760	1170	6296	16226	7.49
Tamil Nadu	5.96	5540	435	8790	14765	6.82
Uttar Pradesh	16.49	7520	3800	1760	13080	6.00
West Bengal	7.55	2021	2555	705	5281	2.43
Uttaranchal	0.84	380	315	320	1015	0.47
Delhi	1.38	705	150	605	1460	0.67
Union Territories	0.19	160	40	935	1135	0.52
India	100	101321	38700	76603	216624	100

Source: National Health Profile, Ministry of Health & Family Welfare, GOI 2013

It is estimated that most of the allopathic doctors (80%), dental (90%) and AYUSH doctors (80%) are employed in private sector. <sup>(4)</sup> However, these figures are high considering the private practice by government doctors in different states. The number of female doctors is extremely low per 10,000 populations, ranging from 7.5 in Chandigarh to 0.26 in Bihar. The number of health workers per 10000 populations in urban areas (42) is more than four times that in rural areas. <sup>(4)</sup> The number of allopathic doctors per 10,000 populations is more than three times larger in urban areas (13.3) than in rural areas (3.9), and for nurses and midwives (15.9) in urban areas and 4.1 in rural areas. The number of female allopathic doctors is only 0.5 per 10,000 populations in

rural areas, in comparison to 6.5 in urban areas. <sup>(4)</sup>

### Human Resources In Rural Areas

Many states in India face huge shortage of HRH in rural areas. The requirement in government system is much more as shown by the vacancy positions especially in rural areas. Specialist allopathic doctors are in very short supply in the public sector. Shortage of specialists, doctors and other support staff has been cited as one of the major reasons for poor healthcare delivery in rural areas. Along with shortage of doctors, nurses and support staff, their unwillingness to work in the rural areas has compounded the problem. The availability of specialists in rural areas of some states is much worse. Across India,

only 36% of the required specialist positions were sanctioned. In addition, 29% of sanctioned posts for specialists were vacant. Only 13% of CHCs had all the 4 required specialists. There are huge state-wide variations. Chhattisgarh had an 86% shortfall in the sanctioned posts. Even non-focused states like Gujarat had a 94 % shortfall in required posts and 78 % vacancy rate, while Haryana had an 89 % shortfall in required positions and an 82 % vacancy rate in 2012. <sup>(8)</sup>

With the implementation of the National Rural Health Mission (NRHM) in 2005 several new initiatives are underway for fulfilling the needs of human sources for health in rural areas. As an immediate measure states were funded by the Centre to hire a second nurse-midwife for the peripheral health sub-centers; three nurses and a second doctor for the PHC's; nine nurses and seven doctors including five specialists for the 30-bedded CHC's. Further recruitments were expedited by empowering district health authorities to allow immediate appointment on contractual terms. This led to the appointment of more number of skilled service providers in the public health system. However, a few states that needed it most were unable to make use the opportunity provided under NRHM mainly due to non-availability of ANMs or nurses or doctors for recruitment. NRHM funds have also enabled the revitalizing of the community health worker program in India, and over 800, 000 ASHAs signifies a massive increase in health workers in the country. <sup>(9)</sup>

In order to attract and retain human resources in rural health systems many initiatives have been introduced by states. Preference in postgraduate admission for those serving in rural areas has been incorporated in the rules of a large number of states. This seems to be a very effective method of attracting doctors to rural areas

for a fixed period as PG admission seems to be a priority for many young doctors. This year onwards additional weightage of 10% is being given for each year of rural service, subject to a maximum of 30% for admission to post graduation. Higher gross emoluments on contract to doctors willing to serve in rural areas has also been a principle followed in states with good results. The government is in the process of identifying PHC's which are located at difficult or inaccessible places in every state and is introducing incentives for staff working there. The three year Rural Health Practitioner course in Assam and the Rural Medical Assistants program in Chhattisgarh are initiatives that, with modification and an appropriate policy framework, are under process to be scaled up for implementation throughout the country to make trained personnel available where there are no doctors. The continuous efforts at skill development among the ASHA's and systems of getting them priority admission to ANM and nursing schools will be able to secure resident health workers in remote areas. New courses like the 18-week emergency obstetric and life-saving anesthetist skills and training programs to skill MBBS doctors with select specialist skills are innovative solutions to find specialist skills for rural areas.

## **Issues & Challenges**

### ***Quality of human resources***

While privatization of medical education has helped to overcome the shortcomings resulting from inadequate expansion of the training capacity in the government sector, it has also raised issues related to the quality of medical education. There are many issues like significant problems in medical and nursing education. Serious shortages of teaching staff, poor educational infrastructure, lack of continuing professional development, poor

links between clinical areas and educational institutions etc. <sup>(10-12)</sup>

### ***Availability of Doctors in Public Health System***

Despite the consistent increase in health-worker production, positions in public-health facilities remain unfilled. For instance vacant positions for medical officers at primary health centres and specialists at community health centres, increased by 43.6% and 17.5%, respectively, during 2005–2010, with poor performing states contributing to two-fifths of these vacancies. <sup>(13)</sup> Even when allowance for staff attrition and creation of new posts is made, the trends in vacancies do not match production patterns.

### ***Inequality in the distribution of Training Institutions***

There has been gross inequality in the distribution of the training institutes among the different states. These institutions are primarily clustered in few states, where the issues related to shortages of health workers are relatively less acute. Although larger and poor performing states like Bihar, Uttar Pradesh, Madhya Pradesh, Rajasthan account for a major share of population in the country (about 37%), they have only 17.6 % of the medical colleges, and 20 % of nursing colleges. <sup>(5,7)</sup>

### ***Shortage of Trained human resources***

There are issues related to inadequate training and technical skills, improper deployment, inefficient skill mix of human resources often coupled with poor human resource management, non-existent of career structures, inadequate staff supervision, lack of motivation, poor working environment and lack of opportunities for personnel development. In short, there is absence of a well defined human resource development policy in many states and even if exists, it does not address many key elements such as future requirements, career progression,

compensation and retention of health workers in rural health facilities. The policies also silent on issues like continuing education and on the job skill development of human resources.

### ***Mismatch between health-worker production & distribution***

There has been mismatch between health-worker production & distribution within states. The rapid increase in the production of human resources for health viz. doctors, dentists, nurses and midwives has not helped to fill vacant positions in the public health system. Further, the problems of imbalances in the distribution of them persist. These suggest that mere increase in production capacity is unlikely to resolve the issues related to human resource availability or distribution. There is an urgent need to adopt sustained and innovative strategies to address the current health-workforce crisis.

### ***Brain Drain of Doctors and Nurses***

Migration of health workers depletes the available stock in the country: This also creates vacancies for teaching staff which further hinders the production of professionals. Brain drain of skilled workforce particularly, doctors and nurses from the country are another problem. India has been the biggest exporter of physicians, accounting for about 4.9% of American and nearly 10 % of British Physicians. <sup>(14)</sup> Nearly 54% of medical students who graduated from All India Institute of Medical Sciences (AIIMS) during 1989-2000 now reside outside India. <sup>(15)</sup> Though considerable information exists on the number of doctors emigrating from India to other countries, much less information is available on quality of those medical professionals who migrate, and compared to those who remain. Departure of these well trained students at cost of hugely subsidized public health system becomes a cause of serious concern particularly when the central government continues to fund more AIIMS like

institutions. There is therefore a need for mechanisms that could retain the best talent from top public institutions in the country.

#### ***Low investment in Medical education***

States like Chhattisgarh, have already experimented with the provision of doctors with lower levels of training. While the effectiveness of this cadre of health workers and the quality of care provided remains to be formally evaluated, the central government has expressed plans to expand the model. It has been proposed that a new cadre of rural health workers will be trained through a course that is an abridged version of the traditional medical degree, with a focus on core competencies such as disease prevention, health promotion and rehabilitation. This Bachelor of Rural Medical Science has been advocated as innovative move to address the country's rural health-care challenges.

#### ***Lack of need based training***

Capacity building of HRH in India is another issue which include lack of need based training to different categories of staff, 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. Besides, there are 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 which calls for adequate attention.

#### ***Centralized recruitment***

There are also issues of skill mix to provide quality health care and task shifting in times of changing needs. Baring a few recruitments under NRHM, all recruitment and selection of human resources are usually centralized, and do not bring as many local or locally trained personnel as would lead to greater stability and ownership. Decentralization in recruitment, selection

and deployment of HRH is of utmost importance in countries like India, where majority of primary health institutions are located in rural areas. There is a need to have local cadres and link development of HRH with area specific requirements.

#### **The Way Forward**

It is well recognized that there is gross inadequacy of the current stock of health workers available and significant inequalities in their distribution between the different states. The poorly performing states, in terms of health outcomes, have a greater shortfall in the number of health workers. These shortages highlight the need to develop and implement high quality, evidence-based human resource plans, especially in the poorest and most fragile states. While production of human resources has expanded manifolds during the last few years, but this has been at the cost of increased privatization of medical education in India.

#### ***Improving Quality of Medical Education***

Apart from setting up new institutions, it is also important to strengthen existing training institutions, certification/ accreditation of training institutions, fine tuning syllabus as per the epidemiological needs of population and also newer and appropriate technologies in health is required. In order to equip human resources with adequate skills, their training should be organized in a decentralized setting, in close proximity with public health and social environment for providing broad based community health care. The Bajaj Committee <sup>(16)</sup> had recommended for the establishment of University of Health Sciences in states and group of Union Territories to award degrees and diplomas in health sciences. So far only a few states have established such universities (Tamil Nadu, Karnataka, Maharashtra etc). There is an urgent need for establishment of health

sciences in all states, especially in poor performing states that will ensure uniformity in admission, curricula and accreditation for all degrees in medical, nursing, and other paramedical courses. National Council for Human Resources for Health (NCHRH) should address all issues comprehensively in terms of policy guidance and mechanisms.

#### ***Community Level Recruitment***

In order to identify prospective human resources at community level who have knowledge, skills, and work in close proximity with community, the recruitment should be made at community level. In order to ensure community acceptance, selection will be mediated through community structure whereby trusted members of the community are identified as like ASHAs are selected through the community structure under the NRHM. However, care should be taken to build fair, equitable and non-discriminatory systems that produce the right candidates with the most potential to serve the community needs.

#### ***Retention of HRH in rural areas***

Better incentives and other rewards to address issue of retention of doctors in rural areas. Part of the compensations should be linked to performance on key results areas like achievement institutional deliveries etc under NRHM. The creation of scholarship and loan programmes for students willing to commit to service in rural and remote areas would help improve services to underserved areas. The social recognition of health volunteers in their communities and the appreciation of their efforts by health service personnel are necessary. The provision of certificates, badges and uniforms enhances their self-esteem and social status. States may celebrate 'National Village Health Volunteer Day' as in countries like Thailand. <sup>(17)</sup>

#### ***Career Progression***

Career Progression of human resources should be given due importance.

Preference should be given to those who are already working in the field. For instance, preference to ASHAs during selection of Anganwadi workers, Anganwadi workers into ANMs and ANMS into Staff Nurses to create adequate motivation among those who join the system and to ensure resident health workforce. Similar arrangements to retain doctors and specialists who volunteer to serve in rural areas for some years helps in meeting critical human resource needs where they are most needed.

#### ***Task Shifting***

Experience in countries like Brazil, Ethiopia, Malawi, Mozambique and Zambia have shown that task shifting can indeed make a vital contribution to building sustainable, cost-effective and equitable health care systems. <sup>(18-20)</sup> At the primary health care level, nurses can perform many of the functions reserved for doctors. For example, nurses can focus on non-communicable diseases of various measures like BP checking, blood sugar examination, identification of risk factors etc. Multipurpose health workers (female) can perform several functions performed by nurses like identification of risk cases, assistance in conducting delivery, immunization of children, providing first aid, health education etc. Male health workers should be involved in sanitation, hygiene, identification of population at risks, health education activities, social mapping, collection and use of epidemiological data for local planning etc. Pharmacists of the PHC can perform many of the curative care functions like treatment of common ailments, preventive services, immunization of children etc. Many of the functions performed by multipurpose workers can also be shifted or shared with community level health workers, like for example, ASHAs.

#### ***Multi-skill Training***

While task shifting or task sharing, the requisite skill mix should be developed



through continuous training and the roles can be redefined to meet pressing needs at community level. Multiskill training of existing workforce should also supplement the efforts. Doctors of indigenous systems like AYUSH can be provided training on jobs performed by medical officers at PHCs including conducting deliveries. Multipurpose workers can be given multiskill training on a set of support services of the PHC. However, the legal and quality of care issues related to multiskilling and task shifting need to be taken into consideration.

### ***Multidisciplinary Team***

In delivering of primary health care service to meet holistic needs of the population, there is a need to have effective multidisciplinary health team. Since health has become an agenda of social development and it is not solely responsible by health sector alone, the multi-disciplinary is required to work with workforce from multi-sector to achieve the common goal. The experience of Bhutan involving multidisciplinary health team like sanitarian, nutritionist, statistician, sociologist, traditional health practitioners in delivery of health services to tackle the shortage and uneven distribution of health workforce at the community level should be recognized.<sup>(17)</sup> The multidisciplinary team members should be trained on community based approaches including health promotion, community empowerment, and communication skills.

### ***Courses on Rural Medical Sciences***

Apart from the Bachelor of Rural Medical Sciences, new courses of three years duration like B.Sc. (Health Sciences), vocational courses on public health and related disciplines may also be introduced for addressing the increasing need of human resources for public health. Vocational courses related to public health disciplines may be introduced at higher secondary level.

### ***Continuing Education***

Continuing education is utmost important to update the knowledge keeping in view of latest development. Therefore new options for the education and in-service training of human resources for health are required to ensure that they are aware of and prepared to meet community's present and future health problems. Human resources at the community level should be oriented with basic science of health promotion, disease prevention, treatment and care. Through pre-service trainings the community health workers should be educated on priority interventions they will undertake, which in turn is dependent of the epidemiology of diseases within their communities. It is also important to develop practical skills of health workforce in communication, motivation, provision of quality care and ability to transfer skills to others, data analysis and interpretation etc. Implementation of CME Programmes, computer networking of training institution, promotion of IT-based e-health, tele-consultancy, tele-radiology and tele-pathology are necessary.

### **CONCLUSION**

There has been a severe shortage of human resources for health in rural areas and challenges remain in bringing qualified human resources to rural, remote and underserved areas. Despite the implementation of NRHM, the absence of inadequate trained HRH in both public and private sectors remain a major concern. Apart from taking efforts to increase numerical availability of human resources in rural areas, it is imminent to strengthen competencies of these workers at all levels. Specialized courses for nurses enabling them to provide all basic health services, setting up of specialized training institutions at state levels to continuously improve the capacity of other health workers engaged in

provision of basic health services need to be strengthened.

In order to encourage qualified human resources to work in rural, remote and underserved areas, appropriate packages of monetary and non-monetary incentives need to be instituted. Apart from salary increase and reservation for PG seats, other schemes like career progression, scheduled transfers, avenues for promotion etc should also be explicitly provided for doctors serving in rural areas. Efforts should be given on continuous training of health workers including ASHAs and their promotion avenues. Most importantly, emphasis should be on recruiting candidates from related disciplines from the rural, remote and underserved areas and training them on necessary skills adjacent to their places enabling them to work in these areas. Reserving medical seats for candidates from these areas to enabling them to work in these areas would also be beneficial.

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