

A STUDY ON DISTRIBUTION, ATTRACTION AND RETENTION OF PHYSICIANS AND NURSES TO COMBAT MATERNAL AND CHILD MORTALITY IN FOUR PREDOMINANTLY TRIBAL STATES OF NORTH-EASTERN INDIA

By

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Abstract

In adopting the Millennium Declaration in the year 2000, the eight Millennium Development Goals (MDGs) have been adopted by the international community. To accomplish the MGDs no. 4, 5 and 6, related to Reduce Child Mortality, Improve Maternal Health and Combat HIV/AIDS, malaria & other diseases respectively, calls the strengthening of health care delivery system and improved health care services. Healthcare is a service sector, depends highly on specially trained professionals, which needs to produced, attract and retain at all level. Shortage in health workforce is one of the main challenges internationally. Producing, distributing, attracting and their retention in tribal rural and remote areas are another challenge to tribal population health. Northeast (NE) states comprises of 9194217 tribal populations in rural areas, which is 11.89% of total in India. It comprises a network of 2850 SCs, 604 PHCs and 157 CHCs in tribal rural areas in NE. The purpose of the study is to understand the current scenario and issues on distribution, attraction and retention of physicians and nurses in public health system in four predominant tribal States of North-Eastern India. The selection of the allopathic physicians and nurses, is due to their utmost importance to provide 24x7 Maternal and Child Health Services in the primary healthcare system in tribal rural and remote areas. A literature review on distribution, attraction and retention of human resource for health in context of rural and remote areas was done. Rural Health Statistics, 2010 is used for the study of distribution in four tribal states in NE regions. In-depth interview for preferential factors were carried out among 11 nos. of respondents and one Key Informant- state official in Arunachal Pradesh. The study primarily concludes that there is a shortage of physicians and nurses globally including these tribal regions in NE India, along with major issues in attraction and retention.

Key words: Attraction and retention of Physicians and nurses, health workforce, Arunachal Pradesh, Human Resource for Health, North-East States.

INTRODUCTION:

In adopting the Millennium Declaration in the year 2000, the eight Millennium Development Goals (MGDs) have been adopted by the international community as a framework for the development activities of over 190 countries in ten regions; they have been articulated into over 20 targets and over 60 indicators. The MDGs no. 4, 5 and 6 are related to Reduce Child Mortality, Improve Maternal Health and Combat HIV/AIDS, malaria & other diseases respectively. To accomplish these MGDs, the strengthening of health care delivery system and improved health care services are utmost importance. Healthcare is a service sector, depends highly on specially trained professionals and technical human resources. Health workforce shortage is one of the main challenges internationally. Both developed and developing countries are currently facing Health worker shortages along with attraction and retention problems.

The National Health Policy of India (2001) acknowledges the acute shortage of healthcare professionals especially in rural/tribal areas. Such shortages are the symptoms of a poorly managed health workforce and health care system. More on the issues are producing, distributing, attracting and their retention in tribal rural and remote areas.

India is a vast country with 77338597 tribal populations of Census, 2001 in rural areas with 427 groups have been recognized as scheduled tribes. Out of which, Northeast (NE) states comprises of 9194217 tribal populations in rural areas, which is 11.89% of the total. These tribal groups dwell in widely varying environmental and geo-climatic settings (hilly, forest, foot hills, difficult to reach areas etc.) in different density throughout the region with different cultural and socioeconomic backgrounds.

The availability of human resource is one of the important components for the efficient functioning of public healthcare delivery system. Increase in health indicators needs increase in the availability of health workers through improved health workforce attraction, distribution and retention. The causes of the crisis are complex, with insufficient production capacity, inability to keep the health workers that are being produced in the places where they are mostly needed.

The widespread poverty, illiteracy, malnutrition, absence of safe drinking water and sanitary living conditions, poor maternal and child health services and ineffective coverage of national health and nutritional services have been traced out in several studies as possible contributing factors to dismal health conditions prevailing among the tribal population in India (Basu, 2000). Available research studies point out that the tribal population has distinctive health problems which are mainly governed by their habitat, difficult terrains and ecologically variable niches (Basu, 2000).

According to the norms by the Planning Commission and emphasized by Indian Public Health Standard (IPHS), in tribal areas the density is to a sub-center for every 3000 population, a Primary Health Centre (PHC) for every 20,000 population and a Community Health Centre (CHC) for every 80,000 population.

According to the Rural Health Statistics (RHS) 2010, the country has a wide network of 26643 SCs, 3742 PHCs, and 802 CHCs in tribal rural areas. Out of which, 2850 SCs, 604 PHCs and 157 CHCs are in public health service with diversified challenges in the achieving health goals in the tribal rural areas of NE region.

A BRIEF INTRODUCTION OF THE FOUR NE STATE:

In India, there are five states/union territories which are predominately tribal areas. Out of these four are in the north-east India viz. Arunachal Pradesh, Meghalaya, Mizoram and

Nagaland. Besides these states, there is only one union territory Dadar and Nagar Haveli in western part of the country. Rest states or the union territories have separate pockets of tribal area along with the general population. A brief introduction of the states which are selected for studies are as follows:

Arunachal Pradesh: Arunachal Pradesh is situated in the north-eastern part of India with 83743 sq. kms area and has a long international border with Bhutan to the west (160 km), China to the north and north-east (1,080 km) and Myanmar to the east (440 km). It stretches from snow-capped mountains in the north to the plains of Brahmaputra valley in the south. Arunachal is the largest state area-wise in the north-east region, even larger than Assam which is the most populous. It is situated between latitude 26. 30' N and 29. 30 ' N and longitude 91. 30' E and 97.30' E. The population of Arunachal Pradesh is 1.1 million according to 2001 census and is scattered over 16 towns and 4065 villages. There are 20 major tribes and a number of sub-tribes inhabiting the area.

Meghalaya: The state of Meghalaya is bounded on the north by Goalpara, Kamrup, Nagoan and Karbi Anglong districts of Assam State, and on the east by the Districts of Cachar and North Cachar Hills, also of the State of Assam. On the south and west is Bangladesh. The total area of the State is 22429 square kilometer. Meghalaya lies between 20.1 N and 26.5 latitude and 85.49 E and 92.52 E longitude. The population of Meghalaya is 2.32 according to 2001 census and is scattered over 7 districts 39 blocks and 6026 villages.

Mizoram: The state is bordering by Myanmar in the east and south and Bangladesh in the west. Situated on the extreme south of the north-eastern India. It has a total of 630 miles boundary with Myanmar and Bangladesh. Mizoram has the most variegated hilly terrain in the eastern part of India. Its latitude lies at 21°58' & 24°35' N and longitude- 92° 15' & 93 ° 29' E. The population of Mizoram is 0.89 million according to 2001 census and is scattered over 9 districts, 26 blocks and 817 villages.

Nagaland: Nagaland is a vibrant hill state located in the extreme north eastern end of India, bounded by Myanmar in the East; Assam in the West; Arunachal Pradesh and a part of Assam in the North with Manipur in the south. Its Longitude lies at 93.20⁰E to 95.15⁰E and Latitude: 25.6⁰ N to 26.4⁰N. The population of Nagaland is 1.99 million according to 2001 census and is scattered over 11 districts, 52 Blocks and 1317 villages.

Table-1 : Summary of Demographic, Socio-economic and Health profile of the four States as compared to India figures

S. No.	Item	India	Arunachal Pradesh	Meghalaya	Mizoram	Nagaland
1	Total population (Census 2001) (in million)	1028.61	1.1	2.32	0.89	1.99
2	Decadal Growth (Census 2001) (%)	21.54	27	30.65	28.82	64.53
3	Crude Birth Rate (SRS 2008)	22.8	21.8	25.2	17.8	17.5
4	Crude Death Rate (SRS 2008)	7.4	5.2	7.9	5.1	4.6
5	Total Fertility Rate (SRS 2008)	2.6	NA	NA	NA	NA
6	Infant Mortality Rate (SRS 2008)	53	32	58	37	26
7	Maternal Mortality Ratio (SRS 2004 - 2006)	254	NA	NA	NA	NA
8	Sex Ratio (Census 2001)	933	893	972	935	900
9	Population below Poverty line (%)	26.1	33.47	33.87	19.47	32.67
10	Schedule Caste population (in million)	166.64	0.006	0.01	0.0003	0
11	Schedule Tribe population (in million)	84.33	0.71	1.99	0.84	1.77
12	Female Literacy Rate (Census 2001) (%)	53.7	43.5	59.6	86.7	61.5

Source : www.mohfw.nic.in**LITERATURE REVIEW-A GIST****a. Global Scenario of HRH Crisis :**

Globally there is a chronic shortage of well trained health workforce. This shortage is due to variety of reasons including: migration to well developed countries, under production of health workforce, inability to pay higher salaries and benefits, inability to sustain other measures to retain health workers in some countries, illness and death and other factors that are uncontrollable. WHO estimates the current full time health workforce to be 59.2 million. Out of this, health service providers constitute about two third, whilst the remaining portion comprises of management and supporting staffs (WHO, 2006). Based on the above estimates by WHO (2006), the critical shortage are in 57 (fifty seven) countries, which includes India. It is estimated that the deficit is 2.4 millions of doctors, nurses and midwives globally. Sub-Saharan Africa region has the highest proportional shortfalls, and by absolute numerical terms it is highest in deficiency in South-East Asian region due to its vast population size. The global profile shows that there are more than 59 million health workers in the world, distributed unequally between and within countries. They are found predominantly in richer areas where health needs are less severe. Their numbers remain woefully insufficient to meet health needs, with the total shortage being in the order of 4.3 million workers (WHO, 2006). Table: 2 and 3 presented below can highlight more on this situation.

WHO Region	Total Health Worker		Health Service Providers		Health management and support workers	
	Number	Density (Per 1,000 population)	Number	Percentage of total health workforce	Number	Percentage of total health workforce
Africa	1640000	2.3	1360000	83	280000	17
Eastern Mediterranean	2100000	4.0	1580000	75	520000	25
South East Asia	7040000	4.3	4730000	67	2300000	33
Western Pacific	10070000	5.8	7810000	78	2260000	23
Europe	16630000	18.9	11540000	69	5090000	31
Americas	21740000	24.8	12460000	57	9280000	43
World	59220000	9.3	39470000	67	19750000	33

Source: WHO, 2006, Pg- 5

WHO Region	Number of countries		In countries with shortages		
	Total	With shortages	Total Stock	Estimated Shortage	Percentage increase required
Africa	46	36	590198	817992	139
Americas	35	5	93603	37886	40
South East Asia	11	6	2332054	1164001	50
Europe	52	0	NA	NA	NA
Eastern Mediterranean	21	7	312613	306031	98
Western Pacific	27	3	27260	32560	119
World	192	57	3355728	2358470	70

Source: WHO, 2006, Pg- 13

b. Indian scenario of HRH Crisis in the context of tribal areas :

According to Sundararamana & Gupta (2011), there was approximately one doctor per 6300 persons and one nurse for 43000 persons in 1947. By 1961, it comes to one doctor per 4850 persons and per nurse for 14300 persons. The current figures are one per 1507 for doctors and 1 per 1205 for nurses. RHS (2010) data also emphasized on crunch of health workforce shortages in tribal rural and remote areas in India. The number of ANMs at Sub Centres and PHCs in 2010 was 31195 across 26643 SCs and PHCs, which is 5000 nos. in shortage to total requirement of one per each SC and PHC. There are 7356 nurses in PHCs and CHCs, with a shortfall of 2534 nos, to total requirement of one per each PHC and 7 per CHC. The Doctors at PHCs are 3620 in 2010 with a shortfall of 823 in numbers of the total requirement of one per each PHC. The number of specialist doctors viz- Obstetricians & Gynecologists in CHCs are 206 nos. and Pediatricians in CHCs are 126 nos. and the shortfall is much at the higher side of 592 nos. and 656 nos. respectively, with a requirement of one each per CHC. The strength of Specialist doctors at CHCs including Obstetricians & Gynecologists, Pediatricians, Surgeon and Medicine Specialist are 590 nos. and a shortfall of 2506 nos. of total specialist with a requirement of four per each CHC.

To meet up the demand, the production side is another issue at present. The training infrastructure is available in India, both in private and public sector, but the concern is the mushrooming uneven growth all over the country. According to the Medical Council of India,

there are 335 medical colleges spreads all over India, producing 40335 graduate doctors and many as 10,500 post-graduates each year. According to the Training Division of Ministry of Health & Family Welfare, Govt. of India, there are 319 ANM/HW[F] Schools that are running with the funding provided by Govt. of India (RHS, 2010). According to the Annual Report (2004-2005) of Ministry of Health and Family Welfare, Govt. of India, 747 nos. of nursing schools for GNM (General Nursing and Midwifery) Course, 235 nos. of nursing schools for ANM (Auxiliary Nurse and Midwives) courses, 254 Nursing Colleges for graduate nursing courses and 40 Colleges for PG courses in Nursing are functioning in the country.

c. Attraction and retention of HRH in rural remote areas:

Along with the shortage of health workforce, their attraction and retention in rural remote areas is another challenge. Lehmann et al (2008), emphasized on difficulty in production, recruitment and retention of health professionals issues for severely weakened and under resourced health sector. WHO (2006), emphasized on the production issue of enough doctors, nurses and other key health workers. According to the Snow et al (2011), the hindrance of the countries in achieving the health objectives and goals are of the reasons that the country's inadequacy and maldistribution in health workforce. In his study an assessment of rural posting preferences by the senior students of medical was considered. The responses were emphasized in three orders, which are to provide career development incentives, to provide clear terms of appointment with reliable endpoints and salary top-ups. Other responses included were clinical infrastructure, adequate accommodation and provision of schooling of children. Witter et al. (2011) in his study suggested the order of importance of the factors that encourage the doctors to work and stay in rural areas. His order of importance of the factors are : Salary, working condition, training opportunities, Allowances, Career development, Living condition, Supervision and management. According to the study by Lagarde and Blaauw (2009), while they carried out a literature review using discrete choice experiments to investigate the human resources issues related to health workers, both in developed and developing countries. They conclude with the salary variable as an important determinant of job preferences. Beside salaries, the other attributions which were found are workload in case of developed country, location characteristics, housing, and opportunity to benefit for further education and drugs and equipments in the facilities in case of developing countries. In the study of Irene. A. A. (1999), following factors are identified of rural area posting -lack of equipments, non-availability of electricity, safe water, communication system and isolation. She also emphasized on method of selection of community nurses, who often have an urban background and family ties and reluctant to work in rural areas. Advocated on changing the process of selection to enable retain trained nurses in rural areas. Kristiansen & Forde (1992), has also suggested proper education facility for workforce's children as one of the priority requirements for rural posting of doctors and staffs. He also emphasized on work load and suggested the overtime payments. Anderson & Rosenberg (1990), emphasized on combination of compulsory service and incentive, which is being used by various developed and developing countries. Taking into consideration of a study of running financial incentive program in Canada they argued that only financial incentives cannot solve the rural accessibility of health workforce. The programme fails to attend the objective of locating physicians in remote rural areas of Ontario. Seble Frehywot et al. (2010), put another dimension of retention of physicians. In their study, they put emphasize on compulsory service programme for physicians in rural areas. They found more than 70 (seventy)

countries including India with compulsory service programme as a strategy for physicians in rural areas. However, the study emphasizes on compulsory service in rural but, opinion on that no commitment for service could be seen in this circumstances.

Literatures characterized health sector with shortage and poor availability of physicians and nurses in rural areas globally. Health workforce is reluctant to be posted in rural and remote areas. Many factors have been identified from monetary to non-monetary, which affects the willingness or desire of physicians and nurses for rural posting. The studies also suggested and encouraged a wide range of mixed interventions for possibly solve the problem and let physicians and nurses to work for the rural community by their own will or by compulsion. The international experience shows that alone the monetary incentives could not change the picture and blends of interventions are needed.

MATERIALS AND METHODS

The purpose of the study is to understand the current scenario and issues on distribution, attraction and retention of physicians and nurses in public health system in four predominantly tribal States of North-Eastern India. The selection of the allopathic physicians and nurses, is due to their utmost importance to provide 24x7 Maternal and Child Health Services in the primary healthcare system in tribal rural and remote areas.

A range of literature was reviewed relating to distribution, attraction and retention of HRH in rural/remote areas. RHS (2010), published by Ministry of Health and Family Welfare, Govt. of India was used for the understanding of distribution of physicians and nurses in tribal rural areas including the four focused tribal states. Desk review of all the State Programme Implementation Plans (PIP) for the year 2011-12, under the National Rural Health Mission (NRHM) for each state was done. Primary data related to the study was collected through in-depth interview, observation and from the department of health and family welfare, Govt. of Arunachal Pradesh. An in-depth interview was carried out among 11 nos. of respondents including physicians and nurses to understand their preferential factors for accepting the tribal rural posting in the state of Arunachal Pradesh. The interviews were carried out with 4 nos. of physicians and 7 nos. of Nurses who were posted in rural areas in Lower Dibang Valley district of Arunachal Pradesh. The study undertook a random selection of samples of (5) five rural health facilities in the district, and then requested interviews with available doctors and nurses in each facility. Interviews were carried out over a period of (4) four months from August 2011 to November 2011. Besides, a key informant from state health official in Arunachal Pradesh was also interviewed for the understanding of the manager's view on the issue.

RESULTS... THE FINDINGS

a. Human Resources for Health in rural areas of four tribal states- *The distribution, need and production of Physicians and nurses:*

A widespread establishment of health institutions in the region was done across the five year plans. According to the RHS, (2010), there is a sharp increase in the health institutions in rural areas of the four states. From 522 SCs in sixth plan (1981-85) to 1457 SCs in eleventh plan (2007-2012), similarly, 72 PHCs to 389 PHCs and 5 CHCs to 107 CHCs in the region. So, we can see a growth of 64% of SCs, 84% of PHCs and 95% of CHCs. The trend of the growth of the individual states are presented in table 4. It is observed that there is a moderate increase in establishment of functional SCs. A sharp increase in establishment of PHCs and moderate

increase in establishment of CHCs in Nagaland, Mizoram & Meghalaya and sharp increase in Arunachal Pradesh.

Table : 4. Showing health infrastructure growth in rural areas of four states.

States	Sub Centres						Primary Health Centres						Community Health Centres					
	6th	7th	8th	9th	10th	11th	6th	7th	8th	9th	10th	11th	6th	7th	8th	9th	10th	11th
Arunachal Pradesh	55	155	223	273	379	286	0	24	45	65	85	97	0	6	9	20	31	48
Meghalaya	172	272	377	413	398	405	32	56	81	85	103	109	3	3	10	13	26	29
Mizoram	162	220	324	346	366	370	19	35	55	58	57	57	1	4	6	9	9	9
Nagaland	133	244	244	302	397	396	21	33	33	46	84	126	1	4	5	9	21	21
Total	522	891	1168	1334	1540	1457	72	148	214	254	329	389	5	17	30	51	87	107

Source : RHS, 2010

The availability of manpower is one of the vital prerequisite for the competency in Rural Health Infrastructure. When it is compared the manpower in position of 2005 and 2010 according to the RHS 2008 and RHS 2010, the growth in-position numbers of ANMs in SCs/PHCs is 33%, Nursing staffs (nurses) at PHC/CHCs is 19%, physicians [MO] at PHCs is 20% and Specialist (Surgeons, OB&GY, Physicians[medicine specialist] & Paediatricians) in CHCs is 97%. The trend is shown in the table 5. There is an increase in position of ANMs in the state of Meghalaya, Mizoram and Nagaland, where as in Arunachal Pradesh there is decrease in-position ANMs in SCs/PHCs. The reason for decrease in-position ANMs is due to decreasing numbers of SCs in this period in Arunachal Pradesh. We can see that the states has significant increase in in-position nurses, Nagaland shows 218 nos. position vacant but there is surplus of nursing staffs, the result is due to skewed distribution of staffs. A significant increase in-position of physicians (MO) in PHCs can be seen in Arunachal Pradesh, Mizoram and Nagaland and decrease in case of Meghalaya is due to the in-position surplus which is 109 only. The availability of in-position specialist [OB&GY & Paediatricians] shows an increasing trend in all the states.

Table 5: Showing the trend in physicians and nurses in-position in 2005 & 2010

States	SCS/PHCs ANM		CHCs/PHCs nurses		Physicians (MO) in PHCs		Specialists in CHCs	
	2005	2010	2005	2010	2005	2010	2005	2010
Arunachal Pradesh	454	395	105	293	78	92	0	1
Meghalaya	608	775	263	413	123	117	1	4
Mizoram	345	619	122	241	35	51	0	4
Nagaland	342	822	520	302	53	102	0	34
Total	1749	2611	1010	1249	289	362	1	43

Source : RHS, 2010

According to RHS (2010), there was no shortfall of ANMs for SCs and PHCs in the region, as per the required number of one per each Sub Centre and PHC. For nursing staffs (nurses) at PHCs/CHCs as per the required number of one per each PHC and 7 per CHC, there was a shortfall of 32% in Arunachal Pradesh only, the rest of the states have surplus of the category. For allopathic Doctors at PHCs, there was a shortfall of 12.5% of the total Requirement of one per each Primary Health Centre. This is mainly due to significant shortfall in Doctors at PHCs in the States of Arunachal Pradesh, Mizoram and Nagaland. The current position of specialists manpower for maternal and child health services as compared to requirement for existing infrastructure of CHCs reveals that there is a shortfall of 88% of Obstetricians & Gynaecologists and 92% of Pediatricians. The shortfall in Specialists is significantly high in all the States. The table 6 placed below puts light on detail.

Table-6: Requirement and shortfall of human resources in SCs, PHCs and CHCs in the four states.

Sl.no.	Tribal States	ANMs for SCs/PHCs		Physicians for PHCs		Specialist for CHCs			
				Medical Officers		Obstetricians & Gynaecologists		Pediatricians	
		Required	Shortfall	Required	Shortfall	Required	Shortfall	Required	Shortfall
1.	Arunachal Pradesh	383	12 surplus	433	140	48	48	48	47
2.	Meghalaya	514	261 surplus	312	101 surplus	29	28	29	29
3.	Mizoram	427	192 surplus	120	121 surplus	9	9	9	7
4.	Nagaland	522	300 surplus	273	29 surplus	21	10	21	16
5.	Total	1846	765 Surplus	1138	140	107	95	107	99

Source : RHS, 2010

Meeting the demand is at the production side in the country or the states itself. The training infrastructure is available in NE India catering to the need of individual states. According to the Medical Council of India, there are only 9 medical colleges in NE region, producing 976 graduate doctors and many as few post-graduates each year. There is no medical college for under graduate course in these four states. There are 28 nos. of ANM Schools in public sector in NE States, out of which only 2 each at Meghalaya and Nagaland, 1 each at Arunachal Pradesh and Mizoram. There are one nursing college and 1 GNM school with 1 regional institute for graduate courses are running in Mizoram, 1 Nursing school in Nagaland, 5 public and private sector in Meghalaya and 1 by NGO Trust and no GNM nursing school in public sector in Arunachal Pradesh.

Analyzing the sampling state 'Arunachal Pradesh', which is having a total population of 1382611 as per 2011 census and 79.2% lives in rural and remote areas as per 2001 census. The growth of health institute in rural areas in the state featured by 55 nos. of SCs in 1981-85 to 286 in 2010, PHCs from 0 to 97 in 2010 and CHCs from 0 to 48 in 2010. According to RHS (2010), there is acute shortage of doctors and nurses in the state. 56 SCs are functioning without ANMs, 10 nos. of PHCs without doctors, 47 nos. of CHCs without pediatrician, 48 nos. of CHCs without Obs. & Gynecologist. There is shortfall of 108 nos. of General Duty Medical Officer at CHCs and 140 nos. of nurses at PHCs/CHCs.

Production issue is a setback for the state. Production of the graduate doctors in comparison to expanding health infrastructure is becoming a matter of concern and a challenge of the state. Public sector does not have any medical college in allopathic discipline. Yearly, a fixed number of students, as per the Govt. of India quota seats, are placed in various Medical colleges all over the country, which is strictly based on the merit. 32 seats in First nomination 2010 and 34 seats in first nomination 2011 has been allotted to the students for the MBBS course in various Medical Colleges in India (DHTE, 2010 & DHTE, 2011). The state runs a School of Nursing at General Hospital Pasighat, in East Siang district of the state. This institute runs training programs on midwifery (ANM) nursing courses only. There were 47 nos. of seats in 2008-09 and 70 nos. of seat in 2009-10. Public sector does not have any GNM nursing school. One GNM school is under the Ramakrishna Mission Hospital, Itanagar which is run by the RK Mission Trust.

Overall, the problem of shortage of physicians including the specialist cadres and nurses are primary issue in NE Tribal states, along with a skewed distribution and inadequacy in the production.

b. Attraction and Retention of Physicians and nurses in rural and remote areas in four states:

Out of 1.4 million medical practitioners in India, 74% lives in urban areas, where they serve 28% of the total population (Source: Sundararamana & Gupta, (2011). That means only 26% of medical practitioners serves the 72% rural population. According to Lehmann et al, (2008), the attraction and retention of health workforce in remote areas depends on the factors which influence the health worker's decisions to stay in rural and remote areas. This also depends on the government's effort and strategies that are applied in response to such factors. Witter et al. (2011), debates about the right mix of the interventions to address the issue of rural availability of doctors and nurses globally. Better remuneration and to-up Salary, Working Condition, Job security, Recognition, relationship with co-workers, support and supervision, training opportunities are some of the issues to retain the HRH in rural setting.

The respondents in this study ranked Better Salary (by 7 nos.) and Working condition (by 5 nos.) in first and second rank for boost their spirit of willingness to serve in rural areas. While 9 nos. of the 11 nos. of respondents are moderately motivated and 2 nos. are low motivated while presently working in the tribal rural setting. While responding to factors of attraction and retention into rural posting, respondents (7 nos. out of 11 nos.) 63% ranked -facilities and basic amenities along with financial incentives as most preferred factors for posting to a rural setting. (2 out of 11 nos.) 18% of the respondents preferred to look into for good schools for their children, 9% (1 no. each) would look for better team of staffs with equipments at facility and clinical and training opportunities.

i. Absence of accessibility and basic amenities in rural areas is primarily emphasized by the respondents in this study. Few comments by the respondents the accessibility and amenities are :

"Urban areas are good and convenient because they provide us with basic facilities and amenities which are needed for a human being in today's world. But here posted in rural and inaccessible area, where we are disconnected to outer world due to the natural and topographic reason. This

deprived me of basic facilities like good accommodation quarter, electricity, and over all connectivity like regular mobile and internet facilities. This is also having an adverse effect on my preparation of entrance for PG, I do not have

*internet access which is a basic need for an academics preparing for entrance.”-
A Physicians.*

“I m a nurse for Sub centre, but I m attached to a PHC and working for the PHC and visits once a week to the SC area. This is only because of, there is no provision of residential quarter in that health facility and overall being a lady there is always a safety and security issue, so why do I prefer the rural posting....” - Nurse.

“Even if we appoint the physicians for rural areas especially specialist cadre, they are more reluctant to join the area, they did not even join the place. This may be because of the reason that the places are deprived of the material resources, poor living standards in the village/rural level and possibly less opportunities for their practice and educational opportunities for their children.”. “They are shows reluctance to work in rural and remote areas in the state (Arunachal Pradesh), often they come to state headquarters for seeking transfer and posting to capital and district headquarters areas....some presents their health issues, family problems and other genuine reasons for to be shifted to the urban areas.-Key Informant Official.

"We have no quarters for accommodation, good school for our children, so we are staying in a rent house in nearby urban area and daily I have to cover 40 KMs in Bus to attend my duty, which cost me physically and financially".- A Nurse respondent.

"I always will look for basic facilities and amenities like housing, water supply, electricity and communication facilities at my preferred work place. OH! These also will include a good school for my child."-A Physician respondent.

“I am frustrated only because I was not posted to my home village, which is in the same district, I could have been stayed at my own home and attends the duty.”-A Physician.

We can interpret the above comments by the respondents that the doctors and nurses disinclined to rural services, primarily due to absence of accessibility of communication and basic amenities in rural and remote areas. Living standards are characterized by poor basic facilities and amenities in the area where the health institutes are situated, for which reluctances in workforce can be seen. According to RHS, 2010, in these four states, out of 1457 SCs only 933 (64%) are with quarter facilities and 731 (50%) are occupied by ANMs, 846 (58%) are without regular water supply, 523 (35%) without electricity and 477 (32.7%) is without All-Weather Motorable Approach Road. Out of 389 PHCs, 63 (16.19%) is without electricity, 119 (30.59%) without water supply, 143 (36.76%) without All-Weather motorable approach road,

206 (52.95%) only with telephone facilities and 145 (37.27%) only having computer access facilities. Out of 107 CHCs, 3 (2.8%) are having residential facility for specialist physicians.

ii. Respondents emphasizes on their work environment as one of factor for rural service. Few comments by the respondents on work environment are:

"I m overburden, no...no... not with my clinical practice.....there are hardly 5-10 patients in this place daily, which is not a matter of concern for me if I talk about the work load. But what I am talking about is the managerial and programme management works entrusted upon us. We are technical and clinical persons, but various health programs including the health institutions management are to be look after by me alone with little support of staffs for these works."-Physician.

"My requirements for works are clinical equipments, adequate medicines and finance. My requirement was of Rs. 4 lakhs but they provided me as little as 50,000/- to 80,000/-. So, how can I work in this situation."-Physicians.

"We are teaches for patients care- putting IV fluids, injections, medicines, bed and ward management.... But here I have to work for all these including maintaining huge registers daily, preparing reports in many numbers for all health programmes and also management of this health institution."-Nurse.

"We are performing without adequate supplies and equipments, working condition should be crucial at the work place."-A Physician respondent.

We can interpret the above comments by the respondents that they are very much involved and concerned about their working environment. They are entangled between the clinical and programme management work at present environment. They also emphasized for adequate supplies, equipments and adequate funding for discharging their duties of rural health care services.

"Urban areas in counterpart are rich living standards and better income opportunities. I can even practice privately after my duty hours, where I can earn a little to support my financial earnings. Overall I am fade up of the less patient load, sometimes it comes to nil. I can't keep pace with my clinical side... I m forgetting all my learning of practice here... now I am becoming a dak (official letter) runner or above that I am becoming a good clerk.... Ha ha.... You do n't feel pity on me yaar. This is the situation where I am becoming isolated from my profession."

With the above comment of the respondent, it is known that not only the work environment characterized with over burden, which makes an effect on the interest of the respondent. But as a professional they are worried about the patient load in their health institutes in tribal rural area. They can't keep pace with their clinical side practice in some of the rural

areas due to the less clinical population. So, overburden as well as under-work makes an effect on the situational preference of rural services.

- iii. **Financial & non financial Incentives as an intervention is also highlighted as motivator in the study.** A mixer of interventions both financial and non-financial is in place for retention of human resource. The health need related issues are looked into by the individual states and Govt. of India supports financially. All

the states prepare annual plans to include all the interventions in health related issues including the human resource issues in the state. However, the Ministry of Health and Family Welfare under the flagship of National Rural Health mission focuses on attraction and retention of the health workers including the Physicians and nurses as well. According to Sundararamana & Gupta, (2011), monthly monetary incentives have been introduced across all the states.

Few comments on incentives by the respondents are:

“Furthermore, there is no provision of extra incentives till date for us leaving in rural area... an even did n’t heard about this in my 3-4 years of rural posting”. –A Physician.

“Financial incentives only will not be adequate for us, what do here in rural and remote area..... if we cannot make use of that money in a productive and entertaining way..., no basic amenities like good housing, regular water and electricity supply, good road connectivity is not there”. –A Physician.

According to the State Programme Implementation Plan, 2011-12 of all the states, in order to ensure stay of Health workers in difficult rural and remote areas, the states proposed incentive schemes. In Arunachal Pradesh, Incentive for Difficult Area (A Category) @Rs 2000 per month to 83 ANM, 41 MO, 2 Specialist, 57 Pharmacist, 1 Radiographer, 24 Lab. Tech, and 115 Staff Nurse. For Most Difficult Area (B Category) @Rs 4000 per month to 57 ANM, 16 MO, 21 Pharmacist, 4 Lab. Tech, and 41 Staff Nurse. For Inaccessible Area (C Category) @Rs 6000 per month, 74 ANM, 13 MO, 13 Pharmacist, 5 Lab. Tech, and 26 Staff Nurse are proposed. Among the inaccessible areas, the state has further identified 11 health facilities as most difficult to access. Over and above their salary and incentives proposed above, the health staff will get special package - Medical officer@ Rs 10,000 per month and Nurses @Rs 5,000/- per month. However, the incentives are yet to be seen materialized, it may be due to financial constraints in the state. In Meghalaya, to ensure the medical personnel posted in the difficult, most difficult and inaccessible areas incentives are proposed for identified areas. The rate for incentives are Medical Officers @ 2500/-, Staff Nurses @ 1500/- and ANM @ 1000/- per month. In Mizoram, those who are posted in difficult and most difficult areas are paid 10% and 20% increase against the fixed salary for normal areas. In addition to this in Mizoram all contractual staff under NRHM may be allowed to avail 1 month Earned Leave and another 90 days Maternity Leave for married women employee. In Nagaland, the difficult area Allowance scheme formulated for identified backward districts on the basis of backward and difficult areas for special incentives to medicos and para-medicos for performing duties in such difficult areas was prepared and submitted for approval in the SPIP 2010-11. However the same was not approved. In view of

this for the financial year 2011-12 it has been proposed to increase the remuneration/ fee payable to the medical and non medical staff on the basis of categorization the Districts into three categories based strictly on degree of accessibility and difficult terrain.

In-service PG incentive and compulsory rural service for medical graduates –Arunachal Pradesh, Meghalaya, and Nagaland have made it compulsory for all the medical graduates to serve in rural areas for a duration varying from 1 - 5 years. Usually a bond is signed and the doctor can opt out of the rural service by paying a penalty equivalent to the bond amount. The

bond amount as found to be as low as Rs.1,00,000 to as high as Rs. 10 lakhs in the state of Meghalaya. Arunachal Pradesh and Nagaland have made it mandatory for all the graduates to complete two to three years of rural service for admission to the PG degree programs. In the state of Arunachal Pradesh Medical Officers on completion of two years of rural service are eligible to be sponsored by the State, which will cover all expenses of their PG training.

DISCUSSION - A STEP A HEAD :

Based on the research findings, retention strategies need to include creating a more positive work environment for rural availability of physicians and nurses. To address the issues of maldistribution, recruitment and retention in rural community in these states is dependent on the perception of the workforce's non-monetary and monetary needs. A blend of interventions of professional fulfillment, financial remuneration and lifestyle needs are to be taken into consideration while making policies or plans. There should be a strategic planning to address the these three fulfillments. Recruiting and selecting the right people with making conducive working environment will help greatly with retention in rural areas.

Professional fulfillments include the need of adequate supplies, equipments and fund. Conducive working condition at the work place with a good mixture of other cadres and good clients at the posting place are the some requirements. Due to highly regulated environment in which health sector operates, professional training needs and opportunity for continuous education of the workforce must be kept into account for retention of the workforce and their interest on the job and the organisation. Training and multi-skilling will also facilitate the production issues and professional needs, advancement of the workforce and willingness to continue their works in the rural sector. The respondents emphasized on the workload as demotivating factor. The workload is unlikely due to other management works, which can be minimized by posting of clerical or managerial cadres in health institutes. Rotational posting of the physicians and nurses are to be taken into consideration, to increase exposure to rural conditions and overstay of one staff in rural areas.

One of the factors that we saw in this study is compensation, benefits and incentives needs, which will enhance retention of workforce in rural areas. Likewise, the planners must now recognize the importance of non-monetary incentives and recognition, special award; career path of the workforce along with the incentives for rural posting.

This study emphasized to the lifestyle needs of the workforce for retention. The development of rural infrastructure of basic facilities and amenities is great need of the time. For example housing, water supply, electricity and third party's work for development of communication and other facilities in tribal rural areas should be given emphasize on long run. Policies and retention strategies needs to consider rural manpower family lives. Retention strategies should also include recreation and education opportunities for workforce's children.

CONCLUSION

The availability of physicians and nurses in tribal rural areas is a real challenge. The availability of services of obstetricians and gynecologists and pediatricians is critical in present situation. Along with the production issues, the facilities and basic amenities along with financial incentives are determinant of manpower in tribal rural areas in these states.

However, this research study is based on interview with total of 12 nos. of respondents, which is limited in quantity. The findings and results on the perception of the physicians and nurses are of suggestive in nature rather a comprehensive one. And it cannot be a representation of geographical range of opinions. It's too little for capturing the understanding and perception of vast numbers of manpower in NE India.

However, a blend of initiatives is needed to address the problems of distribution, attraction and retention of manpower in these states.

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