



Human Resources Technical Paper II ¹

What works, where and how well? Lessons from a comparative assessment of current rural retention strategies for doctors in India

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1. INTRODUCTION

The World Health Report 2006 *Working Together for Health* identified India as among 57 countries that are facing a crisis in human resources for health (WHO 2006). India faces several challenges in human resources for the health sector. There is an overall shortage of health workers with the workforce density of qualified doctors, nurses and mid-wives being only one fourth of the WHO benchmark of 2.5/1000 population required to high coverage of health services in cross country comparisons (Rao K et al 2009). Health workers are also inequitably distributed across the country; states in central India where much of the country's ill health and poverty are concentrated have fewer health workers per head than those in the south India where health and economic indicators are considerably better. In addition, attracting physicians to rural areas has been a longstanding challenge (Rao K et al 2009). For every 10,000 people, there are around 10 qualified physicians in urban but only 1 in rural areas – a ten-fold difference. (Rao and others 2009) Not surprisingly, unqualified practitioners have occupied the rural workforce space: national surveys indicate that upto 63% of rural physicians have inadequate medical training (Rao and others 2009). All these issues play a significant role in impeding India's progress towards universal health care.

Objective and methods

States have not been complacent about tackling the shortage of health workers in underserved areas. Indeed, state health departments have responded by launching several initiatives to address this rural shortage (Table 1). In this paper, we examine several rural retention strategies adopted by states in India and compare these in terms of their strengths, weaknesses and management challenges..

Undertaking this review posed several challenges. First, much experimentation with different strategies has gone on across states and over time. Secondly, schemes are tried for a short time and abandoned because they were not perceived as being successful or the changing political climate required them to be stopped. So in this report we focus on the more enduring and prominent of these strategies – educational incentives, non-physician clinicians and compulsory rural service.

Evidence on compulsory service and higher salary is from policy maker interviews and state workforce statistics. Case study methods were used to study the effectiveness of reserving

seats for specialist training for government physicians in Andhra Pradesh state. Evidence on task shifting is from measuring non-physician clinician knowledge, and the management practices of this cadre in Chhattisgarh state. The above strategies have been explored within specific local contexts- and have been collated from both research and non-research sources. We also referred to local and international studies that enabled us to provide relevant supportive comments on the above strategies.

[Table 1 here]

2. FINDINGS

2.1 Educational And Regulatory Interventions

Post-Graduate (PG) Specialization Incentive

In the Indian context, linking Post Graduate (PG) programmes to rural service appears to be a particularly influential incentive for attracting doctors to rural posts. There is a strong desire for specialization among doctors after their first degree (MBBS). This coupled with few available PG seats compared to the number of medical graduates, makes for intense competition for obtaining admission to PG programmes. Evidence from two states- Uttarakhand and Andhra Pradesh show that the PG incentive is a powerful incentive for medical students/graduates to take on rural posts (Rao K et al 2011). Incentives linked to PG have been operationalized in many ways. Some of these have been tabulated (Table 2).

[Table 2 here]

Post-Graduate Reservation (PG) scheme in Andhra Pradesh

Andhra Pradesh has had one of the longest running PG reservation schemes in the country. To be eligible for this scheme, a doctor serving in the public sector currently has to complete continuous regular service of atleast 2 years in a tribal area or 3 years in a rural area or 5 years of continuous regular service with the Government. As it currently stands, 50% of the PG seats in pre clinical (Anatomy, Physiology and Biochemistry) and para clinical

(Pathology, Pharmacology, Microbiology and Forensic Medicine) specialties and 30% of seats in clinical specialties (such as Internal Medicine, Surgery, Gynecology, Pediatrics, ENT and Ophthalmology) in Government Medical Colleges in the State are reserved for candidates serving in the public sector. In private medical colleges, the same reservation for in-service candidates applies to the approximately 50% of PG seats which are filled through the post graduate entrance examination. Students using the in-service quota currently have to sign a bond of twenty lakh rupees (approximately \$45,000) to serve the State Government for five years after completing their PG education. If they decide to quit Government service within the bond period, in-service students are required to pay the full bond amount and refund the salary received till date after starting their PG course.

Significant improvement in the position of vacancies in the public health system have been observed- as recent as 2007, there were 209 PHCs across the state without a doctor, which has now reduced to zero (Table 3). Now, only 2% of the sanctioned posts are vacant. Government officials attribute this difference in vacancies largely to the PG scheme.

[Table 3 here]

Along with the improved position of Medical Officers at PHCs there has been a substantial increase in the number of specialists at the CHC level (Figure 1). However, unlike the PHC case, the shortfall is still substantial. Another point to note is that the situation varies widely across specialties, while vacancies for Gynecologists have been largely filled, the vacancy position is particularly acute for Medicine specialists (Physicians) as well as Pediatricians.

There is unanimous agreement that the PG scheme does attract doctors to rural areas, but most officials concede that this alone is not a guarantee of improved services. Without strict regulation, the scheme does not guarantee the presence of the doctor at PHC level- and there is absenteeism inspite of posts being filled. Concerns have also been expressed about the quality of candidates who get admitted into the degree and diploma programmes through the in-service quota. Pass percentages among the general category students are around 73 %(degree) and 82% (diploma), but only 58 %(degree) and 20% (diploma) among students from the in-service quota.

Another important concern about the PG scheme is difficulties in enforcement of the bond period that follows PG education. There was little awareness in the health department about

compliance among graduates with the bond or the process of enforcing the bond. One reason for the lack of information on bond compliance seems to be the lack of coordination among the various departments involved in the enforcement of the bond.

Compulsory rural service (medical students)

Several states in India- Assam, Arunachal Pradesh, Chhattisgarh, Gujarat, Kerala, Manipur, Meghalaya, Nagaland, Orissa, Tamil Nadu and West Bengal - have made it compulsory for all the medical graduates to serve in rural areas. Usually a bond is signed, and students are mandated to do rural service for 1 to 5 years. The bond amount varies- from 1 lakh in Chhattisgarh to 10 lakhs in Meghalaya. (Gupta G et al 2010)

International evidence on compulsory rural service has not been very favorable. At best, it is seen to address health worker mal-distribution in the short term, but tends to alienate people from the medical profession itself (WHO 2009). A recent review of compulsory education schemes recorded that such schemes rarely got support from health professionals, and health workers rarely continued on the same job after the compulsory stint was over affecting continuity of care (Seble F et al 2010). Forced service has also been regarded as a human rights violation. Administration of such mandates was often highly political and the implementation process not transparent. Many international studies point out that compulsory rural service programmes should be accompanied by support and incentives given to the health personnel (Liaw ST et al 2005, Omole O et al 2005).

In India, compulsory rural service is not well-received by medical students (Rao K et al 2010c). The level of opposition to this compulsion suggests that implementation is a huge challenge especially with the currently weak governance structures. Further, there exists little evidence of the effectiveness of compulsory rural service initiatives.

"If its compulsory, then we don't have any choice.....at the end it would make us feel frustrated. If you think about it, a normal medical student drops a year to prepare for medical entrance, then we spend 5 ½ years for MBBS, then we move on to do PG- already 9 years are over, not adding those who want to super specialize for two years. An engineer who was our counter parts have already being started working and we are nowhere. If you consider all this, medical students are already frustrated and depressed, and compulsory service would only add to that." (Medical student, Uttarakhand)

Health is not just about medical services-- it is also about education and infrastructure and everything else (that is) required in rural areas. But no one asks lawyers, police or teachers, no one asks them to go there..." (Medical student, Uttarakhand)

"Of the 1300-odd PG seats in the State, nearly 900 seats are from private colleges. Students from these private colleges belong to well-connected families and will go to any length to subvert the system. The idea of compulsory rural service is good but implementation should be strict,"(President of Andhra Pradesh Doctors Association (APGDA). Excerpt from the Hindu Feb 15th 2010)

The nature of medical education in India and the profile of medical students also hinders the success of compulsory rural service. It is well known that medical students spend their internship period preparing for their post-graduate entrance examinations. They are ill prepared to take on the responsibility of treating patients. Even when they are posted, it is likely that the main focus of their attention will be their PG examinations. Finally, many medical students are from urban backgrounds with little exposure to rural life.

2.2 Non-physician Clinicians (NPC)

In many states of India, AYUSH physicians trained in Indian systems of medicine (ayurveda, yoga, unani, and siddha) or homeopathy are posted at Primary Health Centers (PHC) to mainstream Indian systems of medicine . Often they are the sole clinician present and practice both allopathic and their own system of medicine. Clinicians with three years training in allopathic medicine operate in two states; the state of Chhattisgarh has posted Rural Medical Assistants (RMA) at PHCs while in Assam state, Rural Health Practitioners serve at sub-centers. In a recent initiative, the central health ministry proposed to nationally introduce a three year clinician course, the Bachelors of Rural Health Care (BRHC), with the intention of posting these graduates at rural sub-centers.

[Figure 2 and Table 4 here]

A study on NPC in the state of Chhattisgarh found that physicians and clinicians with shorter duration clinical training (i.e. RMAs) were equally competent in managing conditions commonly seen in primary care settings (Rao and others 2010a). AYUSH doctors were less

competent than physicians and RMAs. This was observed for infectious, chronic and maternal health conditions and for a range of patient types – infants, children and adult men and women (Figure 2). The similar level of clinical competence exhibited by physicians and RMAs is consistent with evidence from other countries on the clinical performance of physicians and clinicians trained for a shorter duration. Further, patients and community members served by Medical Officers, AYUSH doctor and RMAs were equally satisfied. Importantly, the presence of a RMA or AYUSH doctor as the primary clinician at the PHC did not reduce its usage by local residents seeking treatment relative to having a physician (Table 5).

2.3 Monetary Incentives

The provision of monetary incentives is the most common strategy used by States to bring health workers to rural areas. Currently, most states in India have some kind of additional monetary compensation being given for postings in underserved areas. States often differ in their categorization of areas that are underserved- this categorization is based on distance from urban areas, geographical terrain, accessibility, tribal areas or areas of conflict (Table 4). Around 18 states in India compensate doctors for service in difficult area- however, only five of these states - Haryana, Maharashtra, Nagaland, Rajasthan and Tripura – give similar incentives to ANMs, nurses and paramedics. Monetary incentive for rural service given to health workers range from Rs.500 per month in the state of Tamil Nadu to Rs. 25,000 per month in Haryana(Sundararaman T and Gupta G, draft policy brief).

[Table 5 and 6 here]

Monetary incentives have not been evaluated in India for their effectiveness. However, international experience has shown that these play a limited role, especially if the amount increased is nominal. Some qualitative work in India reflects this sentiment among medical students: (Rao K et al 2010c).

“If someone is getting 50,000 in his home town, and 55,000 in a rural area... then it will not make any difference. So the incentive should be more” (MBBS student, Uttarakhand)

“ I may consider rural area independently on financial bases if I will get 1.5 lakh to start with... but that is not the only issue, my kids won't get schools over there and if I have to

send them boarding schools, then I will (be) sacrificing my personal life” (Post graduate student, Uttarakhand)

In general, strategies that involve single incentives for making rural service (e.g. better salary) attractive have not been successful. Health workers choose postings based on several considerations and not only better salary. Consequently, it is important to think in terms of ‘packages’ of incentives rather than single interventions.

3. CONCLUSIONS

A plethora of rural recruitment strategies have been attempted in different states in India. In this paper we have tried to understand what strategies work and in what contexts. While policy options on rural retention incentive mechanisms can be provided at national or regional levels, given the federal nature of the Indian state and that constitutionally health is a state subject, it is at state and sub-state levels that actual choices on incentive mechanisms need to be made. The diverse contexts in different states including availability of health workers, their production capacity, geographical terrains, and cultural viewpoints bring about this necessity. An understanding of what incentives might work in a particular local environment should be an important part of all long term human resource plans.

Some lessons from the comparison of rural retention strategies in India have been summarized below and discussed:

Strategy	Positives	Some lessons for implementation
Post-Graduate (PG) seat reservation for rural service	Appealing to candidates, appears to be a powerful incentive, some evidence of success in filling rural posts (specifically in primary care)	Need for close monitoring and effective mechanisms for dealing with bond defaulters. Will work in situations where adequate numbers of medical graduates are available, and as long as PG seats are competitive. For the scheme to be successful, a balance between the proportion of in-service aspirants and reserved PG seats needs to be maintained.
Compulsory Rural Service	Some evidence of success in filling rural posts although viewed as a short-term solution	Not appealing to candidates. Need for close monitoring and an effective mechanism for tracking defaulters. Fresh graduates posted in rural service need meaningful induction to rural service, and professional development opportunities.

Provision of monetary incentives	Appealing to candidates, frequently used, adequate rural monetary incentives are often considered essential to motivation.	Monetary incentives play only a limited role in rural recruitment or retention if the amount increased is nominal. Monetary incentives work better in combination with other incentives than in isolation.
Non Physician Clinicians	New cadres such as Rural Medical Assistants in India can be a good alternative to primary care doctors; there is some evidence of their competency and willingness to serve in rural areas.	The development of new primary care cadres like needs to be carefully planned, with the consultation of all stakeholders. It is important to design a career pathway through which such cadres can progress in their professions.

In the Indian context (in similarity with several other countries in South East Asia), studies have shown that only providing monetary incentives are not effective for attracting or retaining doctors in rural areas. Further, it is important that the monetary benefit provided to doctors needs to be viewed as substantial and are provided complementary to other incentives. Compulsory rural service schemes (with no incentive attached) may not be the best way to face doctors in rural areas- such schemes have little appeal among doctors and adherence to such schemes has been found to be lacking. Among educational incentives, reservation of post-graduate seats for doctors on completion of a rural tenure, appears to be a powerful motivator for attracting doctors to rural areas. Such incentives will work as long as the competition for PG seats in India continues to be fierce. However, for a PG scheme to work well, it is important to ensure that it is well-governed and strictly monitored. Training and orientation of fresh graduates towards rural service is also likely to improve care provided by these personnel in rural areas. Task shifting through the use of non-physician clinicians offers another way to strengthen rural clinical services. However, when new cadres are being developed, it is important that their training and placement is managed carefully so that they remain rural. It is also important to provide clear-cut career pathways for new cadres, and devise mechanisms for their integration into the health system.

Factors affecting rural recruitment and retention are complex and inter-linked; hence a package of interventions is likely to work better than any incentive in isolation. The provision of better housing, education for children, access to vehicles, transparent transfer policies and opportunities for professional development – all need to be considered for better rural retention. In this review, we found few initiatives in these areas and this

highlights the need for contextual evidence on the working of different strategies. Further, even those strategies that were being or had been implemented were poorly documented. It is critical that there are more policy relevant research on the effectiveness of rural recruitment and retention strategies.

References

- Gupta G, Sundararaman T and Raha S (2009). Improving Work Force Management Practices in Haryana to Attract and Retain Medical Professionals in Public Health Service. http://nhsrindia.org/thematic_human_resources_for_health.php. Accessed on January 11th 2011.
- Gupta G, T. Sundararaman and Rao K. (2010) Human Resources for Health in India: Strategies for increasing the availability of qualified health workers in underserved areas. June 2010 http://nhsrindia.org/thematic_human_resources_for_health.php. Accessed on January 11th 2011.
- Liaw ST, McGrath B, Jones G, Russell U, Bourke L, Hsu-Hage B (2005). A compulsory experiential and inter-professional rural health subject for undergraduate students. *Rural Remote Health*; 5:460.
- Ministry of Health and Family Welfare (2005), Joint Review Mission - RCH-II Madhya Pradesh Field visit report, January 14-19th 2005.
- Ministry of Health and Family Welfare (2007) Bulletin of Rural Health Statistics: State wise area, district, and villages in India: 14-106.
- Omole O, Marincowitz G. (2005). Perceptions of hospital managers regarding the impact of doctors' community service. *South African Fam Pract*; 47:55-9.
- Rao K., Bhatnagar A., Berman P (2009). India's health workforce: size, composition and distribution. In: La Forgia J, Rao K, eds. *India Health Beat*. New Delhi: World Bank, New Delhi and Public Health Foundation of India, New Delhi.
- Rao K., Bhatnagar A, Sundararaman T et al (2010a). Which Doctor For Primary Health Care? An Assessment Of Primary Health Care Providers In Chhattisgarh, India. . Public Health Foundation of India, National Health Systems Resource Center, State Health Resource Center, Chhattisgarh.
- Rao K., Shroff Z and Murthy S. (2010b) Attracting Doctors to Rural Areas: A Case Study of the Post-Graduate Seat Reservation Scheme in Andhra Pradesh (Unpublished report). December 2010.
- Rao K., Ramani S, Murthy S, Hazarika I, Khandpur N, Chokshi M, Khanna S, Vujicic M, Berman P, and Ryan M. (2010c) Health Worker Attitudes Toward Rural Service in India: Results from Qualitative Research. HNP Discussion Paper Series. World Bank, Washington, DC.
- Rao K., Shroff Z, Ramani S, Murthy S, Hazarika I, Khandpur N and Chokshi M. (2011). How to Attract Health Workers To Rural Areas In India? Evidence from a Discrete Choice Experiment. Public Health Foundation of India.(Unpublished report)
- Seble Frehywot Fitzhugh Mullan Perry W Paynea & Heather Rossa (2010). Compulsory service programmes for recruiting health workers in remote and rural areas: do they work? *Bull World Health Organ*: 88:364-370
- Sundararaman T & Gupta G (2011). Indian approaches to retaining skilled workers in rural areas. *Bulletin of the World Health Organization*: 89 :73-77

Sundararaman T and Gupta G. Human Resource for Health: The Crisis, the NRHM Response and the Policy Options, Draft Policy Brief from the National Health Systems Resource Center. [http://nhsrindia.org/thematic human resources for health.php](http://nhsrindia.org/thematic_human_resources_for_health.php). Accessed on January 11th 2011.

World Health Organization (2006). *Working together for health –a World Health Report*. World Health Organization, Geneva.

World Health Organization (2007). *Not enough here...too many there-Health Workforce in India*. World Health Organization, Country Office for India, New Delhi.

World Health Organization. (2009) Increasing access to health workers in remote and rural areas through improved retention. *Background paper for the first expert meeting to develop evidence-based recommendations to increase access to health workers in remote and rural areas through improved retention*. Geneva.

Table 1: Initiatives to Recruit and Retain Health Workers in Underserved Areas

<p>1. Educational and regulatory interventions</p> <ul style="list-style-type: none"> Post-Graduate seat reservation for rural service Recruitment from rural areas Compulsory rural service Task shifting: Non physician clinicians <p>2. Monetary incentives</p> <p>3. Improving workforce management practices</p> <ul style="list-style-type: none"> Rotational policies Doctor colonies Overcoming institutional constraints to recruitment
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Table 2 Examples of diverse Post-Graduate Seat Reservation Schemes in India

PG schemes	States -Examples
All students are mandated to complete 2-3 years of rural service before getting admissions for PG	Arunachal Pradesh, Maharashtra and Tamil Nadu (since 15 years)
A percentage of the PG seats (10-30%) are reserved for in-service candidates who serve in rural areas for 2-3 years. These candidates give the usual entrance exams, but complete for only the reserved sheets thereby having a better chance of admission. These seats are not sponsored by the government. Post PG also, they need to serve in the public health system against a financial bond.	Andhra Pradesh, Assam, Chhattisgarh and Gujarat
Additional marks given to candidates who serve in rural areas for 2-3 years. These marks can be added to the total obtained in the entrance exams.	Kerala, Mizoram, Uttarakhand
On completion of certain years of rural service, medical officers are eligible for state-sponsored PG that covers all expenses. For this, Medical officers are selected based on seniority (not entrance exams).	Arunachal Pradesh (total 5 years with 3 years rural service)
After PG, all specialists have to serve in rural areas compulsorily for a certain period against a bond.	Tamil Nadu (government college candidates: 5 years, private college candidates : 3 years, 5 lakh bond), Kerala (1 year , 5 lakh bond)
New PG course for in service candidates	Nagaland has introduced the DNBE course (Family Medicine) equivalent to PG for in-service doctors.

Source: Adapted from Gupta G et al 2010.

Table 3 Medical Officer Vacancies at Primary Health Centers (PHC) in Andhra Pradesh

Year	Total PHCs	Sanctioned Posts	PHCs With Medical Officers			
			Three Medical Officers	Two Medical Officers	One Medical Officer	No Medical Officers
2007	1570	2497	60	211	1090	209
2008	1570	2497	60	56	1444	10
2009	1570	2497	105	656	809	0

Source: Bulletin on Rural Health Statistics in India, Ministry of Health and Family Welfare

Table 4 Visit to the local PHC for treatment by provider type in Chhattisgarh

	Medical Officer	AYUSH Medical Officer	RMA	Paramedical
Visited PHC for treatment*	35%	67%	41%	26%
Crude Odds Ratio for visit to PHC for treatment	Reference	3.75 (2.43, 5.80)	1.30 (0.82, 2.06)	0.64 (0.39, 1.04)
Adjusted Odds Ratio† for visit to PHC for treatment	Reference	2.59 (1.60, 4.19)	1.24 (0.79, 1.93)	0.62 (0.38, 1.02)
N	862	859	961	989

Note: *Percentage of ill (past month) individuals seeking treatment who visited the local PHC at least once. †multiple logistic regression used to control for individual (sex, age, asset index), PHC (infrastructure index, frequency of drug stock outs) and area (tribal area, distance from nearest town) characteristics.

Table 5: Monthly incentives for doctors and nurses in “difficult area” postings in India: some examples

State	Classification of “difficult area”	Incentive amount for Bachelor of Medicine/ Bachelor of Surgery/specialists	Incentive amount for staff nurses/ auxiliary nurse-midwives
Andhra Pradesh	Rural areas	Specialists Rs 7000 (US\$ 152) / medical officers Rs 1000 (US\$ 22)/female medical officers Rs 1500 (US\$ 32)	
	Tribal areas	Rs 2500 (US\$ 54)/Rs 2000 (US\$ 43)	
Tripura	Primary Health Center	Rs 3000 (US\$ 65)	Rs 1000 (US\$ 22)
	Comprehensive Health Center	Rs 2000 (US\$ 43)	Rs 800 (US\$ 17)
	District hospital	Rs 1000 (US\$ 22)	Rs 600 (US\$ 13)
Haryana	Difficult areas	Rs 25 000 (US\$ 543) / Rs 10 000 (US\$ 217)	Rs 3000 (US\$ 65)
	Rural areas	Rs15 000 (US\$ 326)	

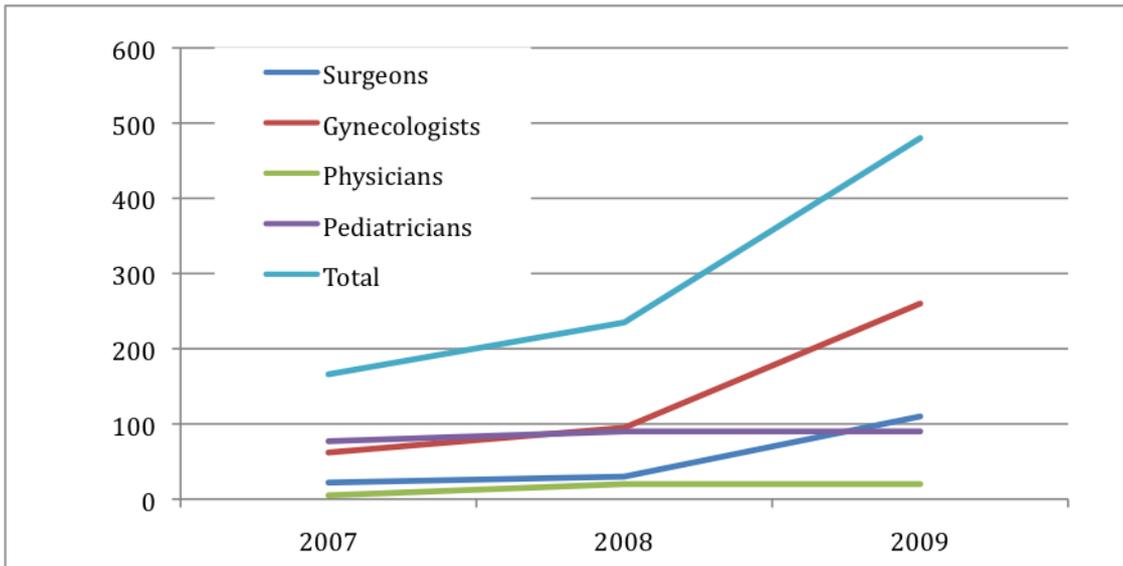
Source: Sundararaman T and Gupta G, 2011

Table 6 Organizational and contextual issues that are important to health workers

Organizational issues	Contextual issues
<p><u>Facilities</u></p> <ul style="list-style-type: none"> • Clinic infrastructure (Drugs, equipment, laboratories) • Physical work environment (cleanliness, availability of water electricity, toilet, good furniture, good construction, private cabin) • Support staff (helping hands for working) • Mentoring staff (for advising and guiding) • Workload (fixed working hours, shift systems, number of patients) <p><u>Culture and policies</u></p> <ul style="list-style-type: none"> • Regulatory policies to regulate absenteeism, punctuality of staff) • Policies on leave (Ability to take leave when required) • Transfer policies and promotions (transparent, no political interference) • Job security (permanency of job, pensions) • Management (administration, bureaucracy) <p>Growth opportunities</p> <ul style="list-style-type: none"> • Learning opportunities on the job • Training opportunities 	<ul style="list-style-type: none"> • Living facilities (housing, electricity, water, access to the market, hygiene) • Proximity to family (near hometown) • Children’s development (availability of good schooling,) • Family's well-being and comfort (spouse job availability, spouse career growth, support to parents,) • Security (physical security, legal protection against political interference) • Connectivity (transport availability, no sense of isolation) • Social life (entertainment facilities, social circle) • Community type (comfort and connect with the community, no language barriers)

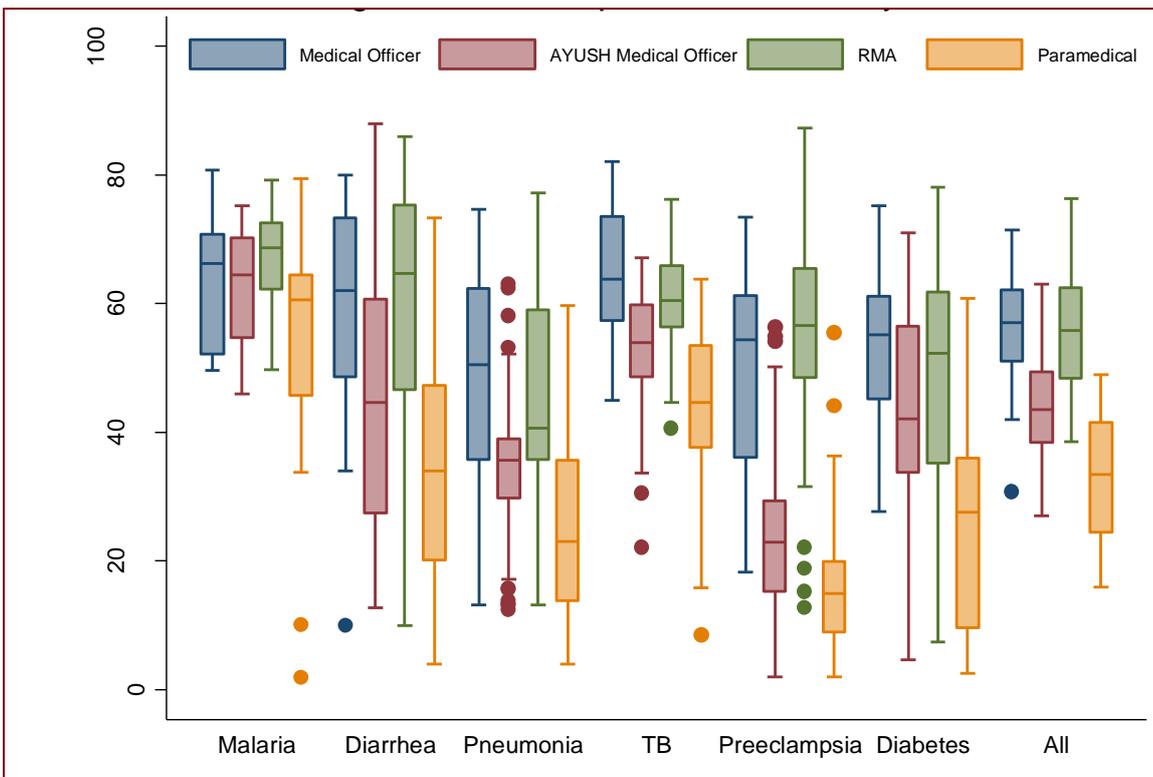
Source: Rao K et al 2010c

Figure 1: Number of Specialists in Andhra Pradesh working at CHCs



Source: Bulletin on Rural Health Statistics in India, Ministry of Health and Family Welfare

Figure 2 Competence scores of clinicians working in primary health centers in Chhattisgarh state.



Source: Rao K., Bhatnagar A, Sundararaman T et al (2010a). Which Doctor For Primary Health Care? An Assessment Of Primary Health Care Providers In Chhattisgarh, India. Public Health Foundation of India, National Health Systems Resource Center, State Health Resource Center, Chhattisgarh.