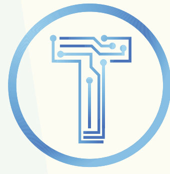

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Interventions in increasing availability of skilled healthcare providers in rural areas: A Case Study of Bihar (India)

Dilip Kumar

Associate Professor, Population Research Centre, Patna University, Patna (India)

dilip360@gmail.com

Abstract. Population of rural areas face distinct health challenges due to economic conditions, cultural/behavioural factors, and health provider shortages that combine to impose striking disparities in health outcomes among them. The process of recruitment takes about four to six months for Recruitment of Medical officers and paramedics. The number of applicants is quite limited because of dearth of doctors and paramedics in the State. It was felt that the health staffs incentives will help to increase the turnover of health staffs to some extent in the rural and remote areas. Monitoring cell has been constituted at the state level. The trainings are being monitored at regular intervals of time. The motivational level of health staff at all levels seems to be low. Continuous communication and feedback by state level programme officers is needed on regular basis. Placement of the suitable trained personnel is needed at those health facilities where sufficient infrastructure is available. Since 2010-11, there has been a continuous focus on the capacity building of the existing manpower in the state. Trainings as per GOI guidelines on Immunization, IMNCI, EmOC, LSAS, SBA and Minilap/MVA etc. have been taken up with full strength. In addition, the State wide training on immunization for Medical Officers, IPC skills for breast feeding and basic training in neonatal resuscitation also has been taken up at various levels. More than four-fifth of the total staffs in the health facilities were agreed on all the educational interventions for retention of health staffs in rural areas. For the regulatory interventions such as enhanced scope of practice, different types of health workers; multi skilling of alternate service providers, compulsory rural service which may be mandatory for obtaining license to practice or can be a prerequisite for entry into specialization and subsidized education in return of assured services were agreed by four-fifth of the total staffs. For the interventions related to professional and personal support such as better living conditions (water, sanitation, electricity, telecommunications, schools, etc.), safe and supportive working environment, outreach activities to facilitate cooperation between health workforce from better served and underserved areas; use of tele-health, designing career development programmes linked with rural service: more senior posts in rural areas and professional networks for rural areas such as rural health professional associations, rural health journals, etc. about 88 percent of the HR categories of Staffs were agreed in the health facilities.

Keywords. ANM, GNM, Medical Officers

1. Introduction

The rural population faces a major health problem of access to health care. Their geographic location and environment influence the health status of this population (Smith et al., 2008). People living in rural communities are more isolated and must travel greater distances to reach a clinic or hospital than the urban population. The rural population exhibit higher rates

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of morbidity and mortality because of the greater travel distances to hospitals or clinics, more severe injuries, and a fewer available health care resources. Rural hospitals and clinics are often understaffed because many health care professionals seek better opportunities in the urban areas (Michael G, 2017).
For provision of adequate health services, qualified and motivated human resources (HR) are essential, but HRH shortages have now reached critical levels in many resource-poor settings, especially in rural areas (WHO, 2006). Access, equity, quality, and cost-effectiveness particularly in rural areas are key issues facing health care in both developed and less economically developed countries. Modern information and communication technologies (ICTs), such as computers, the internet, and cell phones, are revolutionizing how individuals communicate with each other, seek and exchange information, and enriching their lives. These technologies have great potential to help address contemporary global health problems (WHO, 2010).

The shortage of qualified health workers in rural areas is a major issue for health sector in India also. Nearly three fourth of the population of India resides in rural and remote areas. In spite of diverse interventions instituted by Central and State governments to attract health workers to rural and remote areas and to enhance the retention of health personal in such areas, still it continues to remain a biggest challenge for effective and assured health care delivery in rural and remote parts of the country. Rural communities often face challenges maintaining an adequate health workforce, making it difficult to provide needed care to patients or to meet staffing requirements for their facilities. Therefore, rural healthcare facilities need to be proactive and strategic about recruiting and retaining personnel. To improve attraction, recruitment and retention of health workers in remote and rural areas, the interventions fall under four categories: education, regulation, financial incentives and personal & professional support. The unwillingness of health workers to give services in rural and remote areas includes reasons of financial loss, social and professional isolation. The study is based on the secondary sources of data and the survey based results in Bihar.

2. Objectives

The objectives of the study are;

a. To document the existing incentive schemes and benefits available to Doctors, Nurses and ANMs in Bihar State for working in rural areas.

b. Examine the degree of implementation of incentive policies in the state.

c. To review the effect of existing incentive policies on recruitments, transfers, entitlements, etc. in improving availability of staff in rural and remote areas.

3. Methodology

3.1 Research Methodology

Quantitative data elements have been taken from the study which has earlier been completed by the Centre for the NHSRC in 2016. It includes review of secondary data for HR availability at different facilities. Study has been made to understand the existing HR policies (for recruitment, transfer & posting and entitlements etc.) in Bihar State. Review of HR data which have been taken from Directorate Health Services and State Health Society. An evaluation study which has been conducted by the Centre in 2016 to document and study the existing incentive schemes and benefits available to health work force (Doctors, Nurses and ANMs) in Bihar State for working in rural and remote areas.

3.2 Sampling

Earlier the interviews had been conducted with Specialists at CHCs including EmOC & LSAS trained Doctors at CHCs, General MBBS doctors at PHCs & CHCs, Nurses at CHCs and PHCs and MPW (F)/ANMs at Health Sub-centers in rural areas of the selected two districts namely Jamui and Siwan in Bihar state. A total of 4 CHCs, 12 PHCs and 24 HSCs have been selected under the study. Under the study, 76 health staffs on regular and contractual position of the different categories has been interviewed which has been given in Box1.

Box 1: Type of health service providers interviewed in Bihar

Type of health service providers	Total Number
Regular Medical Officer (MO)	30
Contractual Medical Officer (MO)	6
Total Medical Officers (MO)	36
Regular Nurse Midwives	13
Contractual Nurse Midwives	3
Total Nurse Midwives	16
Regular ANMs	21
Contractual ANMs	3
Total ANMs	24
Total Health Staff	76

4. Results

4.1 Health Infrastructure and Human Resources for Health (HRH) in Bihar State

In Bihar State, the availability of health infrastructure as on 31st March 2015 is presented in Table 1. All of the available health facilities are reported to be functional. Out of the 38 districts, 36 district hospitals are available. The rest of the two district hospitals are function through Patna Medical College and Hospital in Patna district and Darbhanga Medical College and Hospital in Darbhanga district. The human resources for Health (HRH) in the State since 2011 are presented in Table 2.

Table 1: Availability of health infrastructure in Bihar State as on 31st March 2015

Name of Health Facility	Availability of health infrastructure
Health Sub Centre (HSC)	9729
Primary Health Centre (PHC)	1883
Community Health Centre (CHC)	70
Sub divisional Hospital (SDH)	45
District Hospital (DH)	36

The HR categories of staffs are considered as MPW (F) /ANM, Doctors at PHCs, Specialists at
CHCs and Nurse Midwife (PHCs & CHCs). The staffs' position of MPW (F)/ ANM increased from
16943 in 2011 to 19499 in 2014 but decreased to 18343 in 2015 as reported in the Rural Health Statistics 2013, 2014-15. The position of doctors at PHCs includes only allopathic doctors which decreased from 3532 in 2011 to 2521 (30 percent) in 2014 and the position of both doctors at PHCs and specialists at CHCs are reported to be 7244 in 2015. The sanctioned position of the nurse/midwives at PHCs and CHCs are as reported in 2011 were 1662 but actual

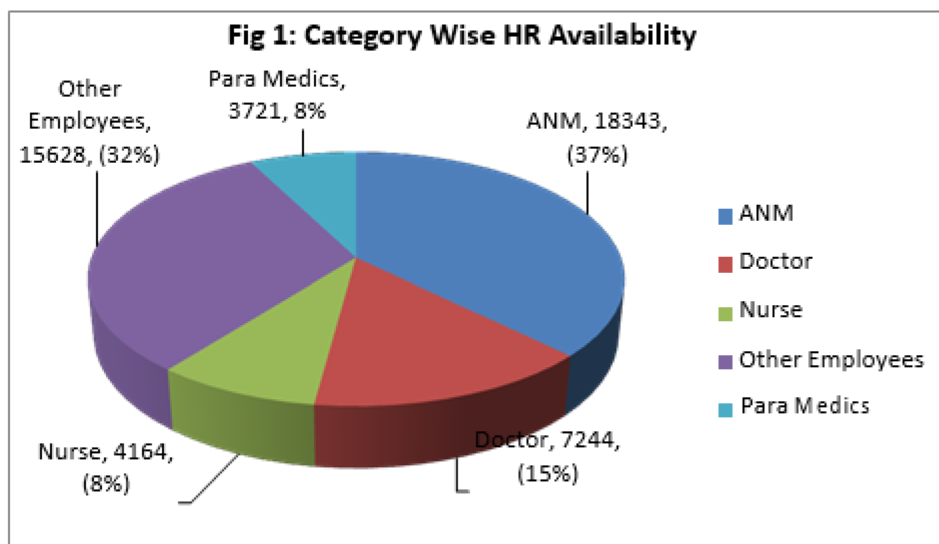
number of nurse/midwives working on these posts since 2011 were 1736 which further increased to 4164 in
2015 as reported in the Rural Health Statistics 2013, 2014-15 .

Table 2: Human Resources for Health (HRH) in Bihar State

Year		Category of Human Resources for Health (HRH)			
		MPW (F) / ANM	Doctors at PHCs	Specialists at CHCs	Nurse Midwife (PHCs & CHCs)
2011	S	NA	2078	280	1662
	P	16943	3532	151	1736
	Sh.	NA	*	129	*
2012	S	NA	2078	280	1662
	P	16943	3532	151	1736
	Sh.	NA	*	129	*
2013	S	NA	2078	NA	1662
	P	17132	3532	98	1736
	Sh.	NA	*	NA	*
2014	S	NA	2078	NA	1662
	P	19499	2521	63	1736
	Sh.	*	*	217	*
2015	S				
	P	18343	7244#		4164
	Sh.	NA	NA		NA

It includes both doctors and specialists.
Source: Rural Health Statistics 2013, 2014-15
S-Sanctioned posts, P-In position, Sh. - Shortfall, NA-Not Applicable,
Doctors at PHCs includes only Allopathic Doctors,
"" represents the additional staff available against the sanctioned posts.*

The Category wise HR availability in Bihar State in 2015 is presented in Fig.1. It includes the ANM (37 percent), doctors (15 percent), nurse (8 percent), other employees (32 percent) and para medics (8 percent).



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4.2 Human Resources for Health (HRH) Generation

There are 9 Government Medical Colleges in Bihar of which Indira Gandhi Institute of Medical Sciences is autonomous Medical College. Barring Patna Medical College, Patna which has 150 seats of MBBS course, all other Medical Colleges have 100 seats of MBBS course (Table 3) and the four Medical Colleges are privately managed under the trust in the University as presented in Table 3.a. The list of Government and private Nursing Colleges are given in Tables 3(b & c).

Table 3: List of Government Medical Colleges in Bihar State

Sl. No.	Name of Institution	Location	Management	Year of inception of College	MBBS Seats
1	A N Magadha Medical College,	Gaya	Govt.	1970	100
2	Darbhanga Medical College	Lehriasarai	Govt.	1946	100
3	Indira Gandhi Institute of Medical Sciences	Sheikhpura, Patna	Govt. (Autonomous)	2011	100
4	Jawaharlal Nehru Medical College	Bhagalpur	Govt.	1971	100
5	Nalanda Medical College	Patna	Govt.	1970	100
6	Patna Medical College	Patna	Govt.	1925	150
7	Shri Krishna Medical College	Muzzafarpur	Govt.	1970	100
8	Vardhaman Institute of Medical Science	Pawapuri, Nalanda	Govt.	2013	100
9	Bettiah Medical College	Bettiah (West Champaran)	Govt.	2008	100

Table 3.a: List of Private Medical Colleges in Bihar State

Sl. No.	Name of Institution	Location	University	Management	Year of inception of College	MBBS Seats
1	Katihar Medical College, Katihar	Katihar	B.N. Mandal University	Trust	1987	100
2	Lord Buddha Koshi Medical	Saharsa	B.N. Mandal University	Trust	2012	0 (Not permitted for
	College and Hospital, Saharsa			Trust		renewal of permission for 2013-14)
3	Mata Gujri Memorial Medical College, Kishanganj	Kishanganj	B.N. Mandal University	Trust	1990	60
4	Narayan Medical College & Hospital, Sasaram	Sasaram	Veer Kunwar Singh University, Bihar	Trust	2008	100(Permitted for renewal of permission for the year 2013-2014)

Table 3.b: List of Government Nursing Colleges in Bihar State

Sl. No.	Name of Institute	Location
1	ANM School of Nursing	Sadar hospital Biharsharif, Nalanda
2	ANM School	Sub divisional hospital, Barh, Patna
3	Sadar hospital	Hajipur, Vaishali
4	Sadar hospital	Samastipur, Vaishali

Table 3.c: List of private nursing colleges in Bihar Stat

Sl. No.	Name of Institute	Location
1	Ramakrishna Welfare Nursing and Paramedical Institute	Ramakrishna Welfare Hospital, Chitragupt Nagar, Kankarbagh Patna, Bihar
2	Mahavir Paramedical Training and Research Institute	L.C.T. Ghat, Mainpura Patna, Bihar
3	Kurji Holy Family Hospital College of Nursing - KHFH	Sadaquat Ashram P.O. Patna, Bihar
4	Khawaja Garib Nawaz School of Nursing and Paramedical	Near Petrol Pump, Saidnagar, Ekmi Road, Lahriasarai Darbhanga, Bihar
5	Hirawati Nursing School	D.A.V. Campus, Bagdulhan, Hajipur (Vaishali), Bihar
6	GEMS School of Nursing	GEMS, Sikaria, Indrapuri P.O., Dehri on Sone, Rohtas, Bihar
7	Dr. Mishra Institute of Nursing	Mishra Campus, Ara Road, Bihta, Patna, Bihar
8	Buddha Institute of Health Education and ANM Training School	Singra Sthan, Police Line Gaya, Bihar
9	Bihar Institute of Nursing and Paramedical - BINP	Jaitipur, Post- Neora, Patna, Bihar
10	Ambedkar Institute of Higher Education	Aihe Campus, 21-B, Near Unicef, Patliputra Golumber, Patna, Bihar

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5. Workforce Management: Policies and practices for Recruitment, transfers, promotions etc.

The key activities identified under the policies for recruitment, transfers, promotions, etc. of the staff of different HR categories, which had been discussed with the various officials of the State Health Society, Bihar (SHSB) and the information was also collected from the available literature on the website of the Govt. of Bihar and procured documents. SHSB employs a large number of contractual staffs working at various levels. From the community level to the tertiary care institutions and from lower level management to top management positions within the SHSB, the contractual staffs have been instrumental in the successful attainment of health sector objectives. The performance of contractual staffs, thus, is a crucial factor for effective and efficient delivery of healthcare services to the community.

5.1 Policies, Recruitment, transfers, and promotions of Medical Officers:

There are two sub-cadres in Bihar Health Service Cadre: (a) Bihar Health Service : General Duty sub cadre
(b) Bihar Health Service: Specialist sub-cadre

Appointments to the Bihar Health Service are made by the Government against the posts of Medical officer/ Specialist Grade- II. The selection is made through the Bihar Public Service Commission and it is necessary to follow the age limit and reservation rules determined by the government. In case of non-availability of suitable doctors for appointment/ promotion, in the public interest, Government appoints doctors on contact from the outside for a limited period. The procedure for such recruitment is decided by the government.

For appointment in General Duty Sub-Cadre, minimum educational qualification is MBBS degree from a recognized university. Postgraduate degree from a recognized university is the minimum educational qualification in the concerned subject for appointment in the specialist sub-cadre. Different posts in the service is give as follows

1. General duty medical officer:
i. Medical Officer
ii. Senior Medical Officer
iii. Dy. Chief Medical Officer iv. Chief Medical Officer
2. Specialist sub- cadre:
i. Specialist – Grade II ii. Specialist – Grade I iii. Senior Specialist
iv. Consultant (Subject)
3. Combined Administration Post:
i. Civil Surgeon/ Dy. Director ii. Director/ Regional Director iii. Director in Chief

Doctors of Bihar Health Service have been granted first financial progression, along with up- gradation of post, on completion of six years. Second and third financial progression, along with up gradation of post, is granted after equal intervals of 6 years each following the first financial progression. However, among the regular 30 MOs, only 33.3 percent had got the promotions after 10 years of service, none of the nurse/midwives had received the promotions after 10 years of service

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and nearly 5 percent of 21 regular ANMs had got promotions even after 10 years of service as found in the field study.

Service of Doctors is confirmed after satisfactory completion of probation period of two years, provided that they have passed prescribed departmental examination and got necessary treasury training. The Dynamic ACP/ Promotion are considered on the basis of recommendation of Departmental Promotion Committee. Departmental Promotion Committee used to recommend Dynamic ACP/ Promotion after considering following things:

(a) Character Roll
(b) Vigilance report
(c) Other standards as determined for this purpose from time to time by the State Government. *Kalawadhi* (Time bound) and other conditions for promotion determined separately by the Department.

5.2 Policies, Recruitment, transfers, and promotions of Nurse Cadre staff:

Bihar Nurse cadre have been constituted in separate sub-cadre of District level, concerned Medical College Hospital level and concerned Super Specialty Hospital level, In each sub-cadre, number of posts in every grade and total number of posts in the sub-cadres have been as many as are sanctioned by the State Government from time-to time. Different grade and chain posts of sub-cadres of this cadre are presented in Table 4.

Table 4: Chain posts of sub-cadres of Nurse Cadre

<table>
<tr><th>Sl. No.</th><th>Grade</th><th colspan="2">Name of Post</th><th>Remarks</th></tr>
<tr><td>1</td><td>Basic grade</td><td colspan="2">Grade A Nurse</td><td rowspan="5">Completion of Post Basic-B.Sc. Nursing Course is essential for promotion from ward Sister to Asst. Matron/ Asst. Nursing Superintendent grade. Otherwise promotion will be in Senior ward Sister grade.</td></tr>
<tr><td>2</td><td>First ladder of Promotion</td><td colspan="2">Ward sister</td></tr>
<tr><td>3</td><td>Second ladder of Promotion</td><td>Senior ward Sister</td><td>Assistant Matron/ Assistant Nursing Superintendent</td></tr>
<tr><td>4</td><td>Third ladder of Promotion</td><td>Ward Sister Supervisor</td><td>Senior Matron/ Deputy Nursing Superintendent</td></tr>
<tr><td>5</td><td>Forth ladder of Promotion</td><td></td><td>Nursing Superintendent/ Assistant Director (Nursing)</td></tr>
</table>

The recruitment in this cadre is, on the basis of recommendation of the commission, by direct recruitment to the basic grade post in the State Government. For appointment by direct recruitment to the basic grade posts, minimum educational qualification is to pass in G.N.M training course. For direct recruitment of the GNM, minimum age limit is 21 years and maximum age limit is to be the same which may be determined reservation category wise from time to time by the Government. 1st August of the concerned year is deemed to be the cut-off date for determination of age.

The appointing authority, after calculating vacancy on the basis of position on 1st April of the year and getting roster cleared, and send reservation category wise requisition to the Commission latest by 30th April in each of the year. In view of the requisition the Commission invite applications by advertising vacancies and prepare merit list for recruitment.

Promotions are also given on the basis of recommendations of the Departmental Promotion
Committee which is constituted by the Department.

5.3 Policies, Recruitment, transfers, and promotions of ANM cadre staff:

ANM cadre is called as the Bihar Lady Health Worker (Auxiliary Nurse Midwife - ANM) and extended to the whole State of Bihar. Deferent grade and chain posts of sub-cadres of this cadre are presented in Table 5.

Table 5: Chain posts of Bihar Lady Health Worker (A.N.M) cadre

Sl. No.	Grade	Name of Post
1	Basic grade	Lady Health Worker (ANM)
2	First Ladder of Promotion	Senior Lady Health Worker
3	Second Ladder of Promotion	Lady Health Worker Supervisor
4	Third Ladder of Promotion	Senior Lady Health Worker Supervisor

The appointment in this cadre is made by direct recruitment to the basic categories posts, on the basis of recommendation of the commission.

For appointment by direct recruitment to the basic categories posts, minimum educational qualification is to pass in A.N. Midwifery training course. For direct recruitment minimum age limit is to be 21 years and maximum age limit is the same as may be determined reservation category wise from time to time by the State Government. Promotions are to be on the basis of recommendations of the Departmental Promotion Committee. The Departmental Promotion Committee is to be constituted by the Department.

Apart from the secondary information collected from the State, the field information has also been collected by interviewing the HR categories of health staff regarding their average duration of total service at the current station, mode of getting posting at current station, reason for requesting transfer and promotions in whole of their service time.

5.4 Special initiatives taken by State to increase HR availability and retention like Decentralized recruitments, rural service linked promotions etc.

On discussion with the various States level officials of the Health and Family Welfare and information collected from the sources like; govt. health web portal and reports, the outcomes emerged as follows:

Human Resource Development forms one of the key components of the overall architectural corrections envisaged by NRHM. Government of Bihar also has brought out the same as the

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number one priority. However, the implementation of this vision could not been materialised due to various hindrances such as political, social and behavioural Though the state has reasonable number of MBBS doctors, there is an acute shortage of specialized medical manpower. Some of the other findings emerged as given below:

5.4a Recruitment of Medical officers and paramedics: The process of recruitment takes about four to six months. The number of applicants is quite limited because of dearth of doctors and paramedics in the State.

5.4b Low turnover of personnel due to lack of incentives: As reported in the field by the HR categories of staff, it was felt that the health staffs incentives (financial and non-financial) will help to increase the turnover of health staffs to some extent in the rural and remote areas.

5.4c Quality of training: Monitoring cell has been constituted at the state level. The trainings are being monitored at regular intervals of time.

5.4d Low motivation level of health staff: The motivational level of health staff at all levels seems to be low. Continuous communication and feedback by state level programme officers is needed on regular basis. Placement of the suitable trained personnel is needed at those health facilities where sufficient infrastructure is available. Since 2010-11, there has been a continuous focus on the capacity building of the existing manpower in the state. Trainings as per GOI guidelines on Immunization, IMNCI, EmOC, LSAS, SBA and Minilap/MVA etc. have been taken up with full strength. In addition, the State wide training on immunization for Medical Officers, IPC skills for breast feeding and basic training in neonatal resuscitation also has been taken up at various levels.

Now, LSAS and EmOC training are being given to the contractual MOs and proposed to get the signing of bond of Rs. 2, 00,000 or service for 5 years in Bihar. The selection of doctors for LSAS and EmOC training are done through the panel of doctors comprising Head of the Department (HoD) of the relevant departments of the medical colleges. Incentives are also proposed for conducting C- section deliveries. As reported LSAS and EmOC doctors have more theoretical training than the hands on practice. As found EmOC doctors are not very much confidence to practicing independently whereas LSAS doctors are relatively more confident and having practicing skills because they got ample amount of exposure and hands on practise. However, mentoring supports systems has been started in the districts of Bihar to support EmOC trained doctors for increasing hands on practices.

1) Grading and Salary of the existing and new contractual human resource under State Health Society in Bihar (SHSB)

With the launch of NRHM in 2005, to strengthen delivery of health services especially in the rural areas consequently substantial investments have been made in all areas including augmentation of human resources. However, the state capacity to absorb the additional fund flow had proved to be a major bottleneck and progress had been slow as compared with other states of the country.

In the early stage, the emphasis had been on strengthening HR management within NRHM and the State Health Society, Bihar has been delegated for expansion and thus plans to recruit

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professional at district, regional and State level. With opportunities increasing in the State it rapidly become a challenge to retain the existing trained human resources. To ensure that the State is able to take maximum benefit of the NRHM programme, it is important to retain the trained manpower and also attracting new talents. Under centrally sponsored scheme, the GOI has placed several consultants at a salary structure defined by them which is in disparity with the prevailing structure. There is already a proposed enhanced salary of Rs.1, 00,000/= to 1, 20,000/= per month to the specialists as per the enquiry with the state officials.

2) Annual Increment with Annual Appraisal of contractual manpower under SHSB

Annual increment is normally given to employees to cover inflation. It is often used as a tool to motivate, acknowledge and award the contributions made by workers.

5.4e Regulatory interventions like Compulsory Rural postings, etc.

The performance of the system would be best when we have the most appropriate person, in terms of both skills and motivation, for the right job in the right place, working within the right professional and incentive environment. Now, it is proposed that MBBS students applying for admission to post- graduate medical courses from academic year 2015-16 will have to undertake a mandatory rural posting at a Primary Health Centre (PHC) for one year. In the empirical study by the Centre in 2016 some of the results obtained are presented in different tables.

The average duration of total service of all MOs (both regular and contractual) was 15.4 years (Table
6). Similarly, the average duration of total service of all the Nurse/ Midwives was 15.8 years and those of all ANMs were 16.6 years.

Table 6: Average duration of total service and at current station of the Health Providers in Bihar

HR Category	Average total service (in months)	Average service duration at current station (in months)	HR Category	Average total service (in months)	Average service duration at current station (in months)	HR Category	Average total service (in months)	Average service duration at current station (in months)
Regular MOs	206.8	52.6	Contractual MO	71.4	50.6	Total MOs	184.4	52.3
Regular Nurse/ Midwives	209.9	51.7	Contractual Nurse Midwives	104.4	56.4	Total Nurse/ Midwives	190	52.6
Regular ANMs	215.6	53..8	Contractual ANMs	88.4	88.4	Total ANMs	199.7	58.2
Total Regular Staff	210.4	52.8	Total Contractual staff	83.6	61.5	Total staff	190.4	54.2

The mode of getting posting at the current satiation by 62 percent of the total staff, as shown in Table 7, is mainly due to the administrative transfers whereas 22 percent working at current

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work station are those who got initial posting there only, 10.5 percent got the appointment at current workstation on request posting, 3.9 percent of the staff had to work at the current work station as against compulsory rural service posting. A small percentage (1.3) gave some other reasons for getting posting at the current workstation. The compulsory rural service posting was reported by only about 3 percent of the MOs and nearly 8 percent of the ANMs while none of the nurse/midwives reported about the compulsory rural service posting.

Table 7: Mode of getting posting at current station

HR Category	Posted during initial appointment	Requested for posting	Administrative transfers	Compulsory rural service posting	Other
Total MOs	36.1	2.8	55.6	2.8	2.8
Total Nurse/ Midwives	0	25	75	0	0
Total ANMs	16.7	12.5	62.5	8.3	0
Total Staff	22.4	10.5	61.8	3.9	1.3

Doctors of Bihar Health Service have been granted first financial progression, along with up-gradation of post, on completion of six years. Second and third financial progression, along with up gradation of post, is granted after equal intervals of 6 years each following the first financial progression. The regular categories of health staff were enquired about the promotions in their whole service time. Among the regular 30 MOs, only 33.3 percent had got the promotions after 10 years of service, none of the nurse/midwives had received the promotions after 10 years of service and nearly
5 percent of 21 regular ANMs had got promotions even after 10 years of service. As such, about 17 percent of the regular staffs were promoted after 10 years of their services (Table 8). The table shows that the period of promotion has not been followed as per the guidelines of the government as it may be due to some constrains of the State Government.

Table 8: Promotion(s) in whole of the service by the HR category

HR Category	Percentage of 'Yes' responses
Regular MOs (years of service > 10 years)	33.3
Regular Nurse/ Midwives (years of service > 10 years)	0
Regular ANMs (years of service > 10 years)	4.8
Total Regular staff (years of service > 10 years)	17.2

The HR categories of staffs of the health facilities were enquired about their transfer and as well as reasons for the transfer. It was noted that 23 (30.3 percent) of the total staff in the health facilities wanted to get transferred anywhere from their current station (Table 9).

The reasons to get transferred were mainly due to inhabitable living conditions as reported by 16 (70 percent) of the total staff (Table 10).

Table 9: Whether wanting to get transferred from current workstation

HR Category	Yes (N)	Percentage
Total MOs	10	27.8
Total Nurse/ Midwives	4	25
Total ANMs	9	37.5

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Total staff	23	30.3

Table 10: Reasons for wanting transfers

HR Category	Secu-rity/ safety issues	Inhabi-table living condi-tions	No proper school-ing facile-ties	Far away from home	Limit-ed scope of learn-ing	Current posting not relevant to training/ qualify-cations	Poor infra-struct-ure of facility	Lack of supp-ort staff	Poor connec-tivity with city/ Town	Limited / no scope for private prac-	Politi-cal inter-ference s	O (s
	N	N	N	N	N	N	N	N	N	N	N	N
Total MOs	8	6	7	3	5	4	1	4	6	1	1	3
Total Nurse/ Midwives	2	2	4	4	2	1	1	3	2	1	0	2
Total ANMs	2	8	2	5	4	5	4	5	4	3	1	3
Total staff	12	16	13	12	11	10	6	12	12	5	2	8

6. Skill-based training attended

The skill-based training such as LSAS, EmOC, and BEmOC etc. for the MOs and the training in SBA, IUCD, IMNCI, and immunization etc. for the nursing staffs in the service period are important enablers to enhance the health services. Among the 36 MOs, only 17 (47.2 percent) MOs had received the skilled based training in the past, out of which 11 (30.5 percent) had LSAS training, 6 (16.6 percent) had EmOC training, 7 (19.45 percent) had BEmOC training, 6 (16.6 percent) had Minilap training and etc. to make them enable for the better health practices at the health facilities (Table 11). The LSAS training was comparatively higher than the other trainings like; EmOC and BEmOC also.

Table 11: Skill-based Training attended in the past

HR Category	LSAS		EmOC		BEmOC		Minilap		Lap. Steril.		NSV		MTP		Blood Storage		No Training attended	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Regular MO	8	61.5	5	38.5	6	46.2	5	38.5	4	30.8	1	7.7	2	15.4	2	15.4	17	56.7
Contractual MO	3	75	1	25	1	25	1	25	0	0	0	0	0	0	0	0	2	33.3
Total MOs	11	64.7	6	35.3	7	41.2	6	35.3	4	23.5	1	5.9	2	11.8	2	11.8	19	52.7

Among the Nurse/Midwives and ANMs were also enquired about the skilled based training they received in the past to enable them for better practice in the health facilities. All of the Nurse/Midwives and ANMs had received some kind of skilled based training (Table 12). Among the
16 Nurse/Midwives, 13 (81.3 percent) had received training on IUCD, 12(75 percent) had received training on immunization, 11(68.8 percent) each of the nurse/midwives had

received training on SBA & IMNCI and 8 (50 percent) had the training in RTI/STI. Three-fourth of the ANMs received the training in IUCD insertion. It was further followed by 17 (70.8 percent) ANMs training in IMNCI, 16 (66.6 percent) each of the ANMs training in immunization and RTI/STI and 10ANMs training in SBA.

Table 12: Skill-based Training attended in the past

HR Category	SBA		IUCD		IMNCI		Immunization		RTI/STI		No training attended	
	N	%	N	%	N	%	N	%	N	%	N	%
Regular Nurse Midwives	9	69.2	12	92.3	9	69.2	9	69.2	8	61.5	0	0
Contractual Nurse/ Midwives	2	66.7	1	33.3	2	66.7	3	100	0	0	0	0
Total Nurse /Midwives	11	68.8	13	81.3	11	68.8	12	75.0	8	50.0	0	0
Regular ANMs	8	38.1	17	80.1	16	76.2	13	61.9	15	71.4	0	0
Contractual ANMs	2	66.7	1	33.3	1	33.3	3	100	1	33.3	0	0
Total ANMs	10	41.7	18	75	17	70.8	16	66.7	16	66.7	0	0

Among the HR categories of MOs barring the skilled based practice of LSAS, EmOC, BEmOC and NSV, there was decrease in the skilled based practice of Minilap, lap sterilisation, MTP and blood storage (Table 13). There was decrease in the skilled based practice of RTI/STI among the nurse/midwives and ANMs of those who had ever attended any skill based training in the past.

Table 13: Number of staffs who are able to practice skills taught under the specific training, out of the total staffs who have ever attended any skill-based training

HR Category	LSAS		EmOC		BEmOC		Minilap		Lap. Sterilisation		NSV		MTP		Blood Storage	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Total MOs	11	100	6	100	7	100	3	60.0	3	75.0	1	50.0	1	5.9	1	50.0

HR Category	SBA		IUCD		IMNCI		Immunization		RTI/STI	
	N	%	N	%	N	%	N	%	N	%
Total Nurse/ Midwives	11	100	13	100	11	100	12	100	6	75.0
Total ANMs	10	100	18	100	17	100	16	100	8	50.0

6.1 Reasons for not practicing the skill-based training

The reasons for not practicing the skills by those staffs trained in skill-based training are present in Table 14. Among six MOs who had reported for not practicing the skill trained in skilled based training, three of them reported to have no confidence in practicing the skills, two MOs reported about lack of infrastructure or equipment and one MO reported that posting was not relevant. Two of the nurse/midwives were not able to practice the skilled based training due to lack of Infrastructure or equipment, no confident in practicing the skills, lack of

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mentoring support and posting not relevant. Eight of the ANMs were not practicing the skill based training due to lack of Infrastructure or equipment (37.5 percent), not confident in practicing the skills (37.5 percent), lack of mentoring support (50.0 percent), posting not relevant (50.0 percent) and low turnout of relevant cases (12.5 percent).

Table 14: Reasons for not practicing the skills by the staff trained in skill-based training

HR Category	Lack of Infrastructure or equipment		Not confident in practicing the skills		Lack of mentoring support		Posting not relevant		Low turnout of relevant cases		Any other issue(s)	
	N	%	N	%	N	%	N	%	N	%	N	%
Total MOs	2	33.3	3	50	0	0	1	16.7	0	0	0	0
Total Nurse/ Midwives	1	50	1	50	1	50	1	50	0	0	0	0
Total ANMs	3	37.5	3	37.5	4	50	4	50	1	12.5	0	0

7. Ratings of the interventions for increasing availability of skilled healthcare providers in rural areas

The staffs of the health facilities were queried about their opinion of interventions which may enable to increase the availability of skilled healthcare provider in rural areas. The opinion of interventions was related to the education (preferential selection of students from rural backgrounds etc.), regulatory (enhanced scope of practice, multi skilling of alternate service etc.), financial incentive and professional & personal support (better living conditions, safe and supportive working environment, use of tele-health etc.) which was judge on the basis of different scale such as 1- strongly disagree, 2-disagree, 3-no opinion, 4-agree and 5-strongly agree and the results are presented according to the categorisation of HR staffs and presented in the Tables 15.

As per the ratings of the interventions by the total staff in their effectiveness in increasing availability of skilled healthcare providers in rural areas for the educational interventions, most of the them were agreed to the preferential selection of students from rural backgrounds, establishing Medical College and Nursing College in the rural and remote areas, clinical rotations of students in rural areas during studies, curriculum focusing on rural healthcare and continuous professional development for rural health workers in the health facilities. As such, more than four-fifth of the total staffs in the health facilities were agreed on all the educational interventions.

For the regulatory interventions such as enhanced scope of practice, different types of health workers; multi skilling of alternate service providers, compulsory rural service which may be mandatory for obtaining license to practice or can be a prerequisite for entry into specialization and subsidized education in return of assured services were agreed by 80 percent and above of most of the total staffs.
Most of the staffs (88 percent) were agreed with the appropriate financial incentives in the health facilities.

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The interventions related to professional and personal support such as better living conditions (water, sanitation, electricity, telecommunications, schools, etc.), safe and supportive working environment, outreach activities to facilitate cooperation between health workforce from better served and underserved areas; use of tele-health, designing career development programmes linked with rural service: more senior posts in rural areas and professional networks for rural areas such as rural health professional associations, rural health journals, etc. 88 percent were agreed by most of the HR categories of Staffs in the health facilities.

Table 15: Ratings of the interventions given by total staffs in their effectiveness in increasing availability of skilled healthcare providers in rural areas

Type of interventions		Number of Total Staff (N)				
		Strongly disagree	Disagree	No opinion/ Neutral	Agree	Strongly agree
Education	1. Preferential selection of students from rural backgrounds	0	5	7	29	35
	2. Establishing Medical Colleges in the rural - remote areas	1	11	6	22	36
	3. Clinical rotations of students in rural areas during studies	0	7	8	24	37
	4. Curriculum focusing on rural healthcare	3	3	7	31	32
	5. Continuous professional development for rural health workers	0	4	8	28	36
Regulatory	1. Enhanced scope of practice	1	2	8	28	37
	2. Different types of health workers; Multi skilling of alternate service providers	1	2	9	22	42
	3. Compulsory rural service (May be mandatory for obtaining license to practice or can be a prerequisite for entry into specialization)	2	7	11	24	32

	4. Subsidized education in return of assured services	0	4	11	20	41
Financial Incentives	1. Appropriate financial incentives	0	3	6	27	40
Professional & Personal support	1. Better living conditions (water, sanitation, electricity, telecommunications, schools, etc.)	0	1	3	20	52
	2. Safe and supportive working environment	2	2	4	28	40
	3. Outreach activities to facilitate cooperation between health workforce from better served and underserved areas; Use of Tele- health	0	1	8	29	38
	4. Designing Career development programmes linked with rural service: More senior posts in rural areas	0	2	6	32	36
	5. Professional networks for rural areas such as Rural Health Professional Associations, Rural health journals, etc.	0	4	7	40	25
	6. Public recognition measures such as Rural health days, awards and titles at local and state level	2	5	8	33	28

8. Summary

Inadequate availability of health personnel and unequal dispersion of health personnel in the State is disturbing and still remains a barrier towards ensuring quality health care service delivery. Only about 40 percent of health workers are present in rural areas where about 89 percent of the population resides. Rural communities often face challenges maintaining an adequate health workforce, making it difficult to provide needed care to patients or to meet staffing requirements for their facilities.

Successful recruitment and retention practices can minimize the number and duration of staff vacancies, which can in turn save money, improve quality of care, and ensure that best services being provided in the community.

There is a need to understand the constraints and the ways to reduce the constraints for the health workers retention in the rural or remote areas of the States. This study aims at reviewing various benefits being provided to health workers in these areas and the effectiveness of these incentives in their retention.

This study is primarily based on the study 'Causative Analysis for better dispersion of Skilled Health Professionals in Rural and Remote Areas' which has been undertaken by our Centre in 2016 with the financial assistance from NHSRC, New Delhi.

In the study, there were interviews of different senior staff at the State level to understand the effect of existing incentive policies on recruitments, transfers, entitlements, etc. in improving availability of staff in rural and remote areas. For the field information collection, 76 health service providers which included 36 Medical doctors, 16 nurses/midwives and 24 ANMs of both the regular and contractual health staff categories were interviewed on the structure schedules from the different health facilities in Jamui and Siwan districts in Bihar.

The selection of Medical officers/Specialists is made through the Bihar Public Service Commission and it is necessary to follow the age limit and reservation rules determined by the government. The Dynamic ACP/ Promotions are considered on the basis of recommendation of Departmental Promotion Committee. The recruitment in Bihar Nurse cadre is, by direct recruitment to the basic grade post on the recommendations of the commission

For appointment by direct recruitment to the basic grade posts, minimum educational qualification is to pass in G.N.M training course of the period as determined by Indian Nursing Council from, time to time. ANM cadre is called as the Bihar Lady Health Worker (Auxiliary Nurse Midwife-ANM) and extended to the whole State of Bihar. The appointment in this cadre is made by direct recruitment to the basis categories posts, on the basis of recommendation of the commission.

Among the regular 30 MOs, only 33.3 percent had got the promotions after 10 years of service, none of the nurse/midwives had received the promotions even after 10 years of service and nearly 5 percent of 21 regular ANMs had got promotions after 10 years of service. Only about 17 percent of the total regular staff had been promoted after 10 years of their services. The period of promotion has not been followed as per the guidelines of the government as it may be some constrain of the State Government. About 30 percent of the staff in the health facilities wanted to get transferred anywhere from their current station.

The shortage of specialists like obstetricians and anesthetists are obstructing the State plans to operationalizing all district hospitals as First Referral Units (FRUs) /CHCs. Since 2010-11, there has been a continuous focus on the capacity building of the existing manpower in the state. Trainings as per GoI guidelines on Immunization, IMNCI, EmOC, LSAS, SBA and Minilap/MVA etc. have been taken up with full strength.

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The LSAS and EmOC doctors have more theoretical training than the hands on practice. EmOC doctors are not practicing independently, on the other hand 11 LSAS doctors are relatively more confident and having practicing skills because they got ample amount of exposure and hands on practise. However, as reported in the field, mentoring support systems have been initiated in the districts of Bihar to support EmOC trained doctors for increasing hands on practices.

Among the 36 MOs, only 17 (47.2 percent) MOs had received the skilled based training in the past, out of which 11 had LSAS training, 6 had EmOC training, 7 had BEmOC training, 6 had Minilap training etc. enabling them for the better health practices at the health facilities. The LSAS training was comparatively more effective than the other trainings like; EmOC and BEmOC also. All of the Nurse/Midwives and ANMs had received some kind of skilled based training. Among the 16
Nurse/Midwives, 13 (81.3 percent) had received training on IUCD, 12 (75 percent) had received training on immunization, 11 (68.8 percent) each of the nurse/midwives had received training on SBA & IMNCI and 8 (50 percent) had the training in RTI/STI. Among 24 ANMs, most of the 18 (75 percent) ANMs received training in IUCD insertion which was followed by 17 (70.8 percent) ANMs have training in IMNCI, 16 (66.7 percent) ANMs received training in immunization and RTI/STI both and 10 (41.7 percent) ANMs were trained in SBA. Among the HR categories of MOs barring the skilled based practice of LSAS, EmOC, BeMOC and NSV, there was decline in the skilled based practice of Minilap, lap sterilization, MTP and blood storage. There was decline in the skilled based practice of RTI/STI among those who had ever attended any skill based training in the past which are from 8 nurse/midwives to 6 nurse/midwives and 16 ANMs to 8 ANMs. Even after getting some type of skilled based training, some of the health service provider could not practice it due to one or other reasons. The main reason as mentioned by them were lack of confidence.

As per the ratings of the interventions by the total staff in their effectiveness in increasing availability of skilled healthcare providers in rural areas for the educational interventions, most of the them were agreed to the preferential selection of students from rural backgrounds, establishing Medical College and Nursing College in the rural and remote areas, clinical rotations of students in rural areas during studies, curriculum focusing on rural healthcare and continuous professional development for rural health workers in the health facilities. As such, more than four-fifth of the total staffs in the health facilities were agreed on all the educational interventions.

For the regulatory interventions such as enhanced scope of practice, different types of health workers; multi skilling of alternate service providers, compulsory rural service which may be mandatory for obtaining license to practice or can be a prerequisite for entry into specialization and subsidized education in return of assured services were agreed by 80 percent of the total staffs. Most of the staffs (88 percent) were agreed with the appropriate financial incentives in the health facilities. For the interventions related to professional and personal support such as better living conditions (water, sanitation, electricity, telecommunications, schools, etc.), safe and supportive working environment, outreach activities to facilitate cooperation between health workforce from better served and underserved areas; use of tele-health, designing career development programmes linked with rural service: more senior posts in rural areas and professional networks for rural areas such as rural health professional

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associations, rural health journals, etc. about 88 percent of the HR categories of Staffs were agreed in the health facilities.
rural health journals, etc. about 88 percent of the HR categories of Staffs were agreed in the health facilities.

Recommendations

1. To create a positive practice environment where professionals can stay in touch with peers and upgrade their skills and a positive social environment, through better housing, better infrastructure and active measures of community support.
2. The Behavioural Change Communication (BCC) is related to health education is poor for raising awareness about ante natal, intra natal and particularly post natal care which needs to be generated through continuous effort by ANM, AWW and ASHA.
3. The intervening strategies must include improving the quality of health care, expanding access to quality health care, strengthen the national coordination efforts, and develop more diverse health care education and research in rural areas.
4. The quality of health must also utilize a standardized measurement of performance. Any improvement cannot be measured without some form of measuring system. Specific quality measures must be established that can be used by all health care providers to encourage providers in promoting innovative clinical designs for an improved health care system.
5. Revise the curriculum in medical and nursing schools that train healthcare professionals, so that they may choose to practice in the rural areas.
6. Develop partnerships between the public and private sectors that design newer ways to deliver healthcare in rural areas.

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