



Situational Analysis of Human Resource and Material Management Skills of Middle Level Health Care Managers at Primary Health Centres of Valsad, Gujarat: Identifying Barriers and Suggesting an Action Plan

Neha A Patel¹, Bhavesh Bariya², Rachana G Kapadia³

¹GMERS Medical College, Valsad, Gujarat

²NAMO Medical Education and research Institute, Silvassa, DNH

³GMERS Medical College, Valsad, Gujarat

ABSTRACT

Background: Management of Human resources in health has been a major challenge. Availability of manpower and material are the key ingredients required for efficient and effective delivery of health services. Removing the barriers related to it can help to improve functioning of PHCs. **Objectives:** 1. To analyse Human resource and Material management skills at PHCs by middle level healthcare managers. 2. To understand the constraints for effective management at PHCs.

Materials and Methods: A cross sectional study was conducted amongst 38 Medical officers who were selected by simple random sampling method. Data collection was done using a semi structured and scale-based questionnaire adopted from NIHFV, India.

Results: Almost half medical officers had experience of less than one year. Only 10.5% PHC/CHCs have full staff. 47.3% health facilities were lacking AYUSH MOs. 63.2% health facilities faced stock out of at least one item in last six months; Lack of manpower (34.8%) and overburden of work (27.9%) are major barriers.

Conclusions: 90% PHCs have one or more posts vacant. Material management need to be improved for better provision of services. Major barriers are lack of Manpower, Infrastructure and Multitasking.

Keywords: Material management, Human resource management, Barriers, Middle level healthcare managers

INTRODUCTION

Primary health centres (PHCs) are the cornerstone of rural healthcare in India, as they are the first point of contact with a qualified doctor. PHCs are a part of the three-tier healthcare system in India; patients are referred to the community health centres, and higher order public hospitals at the block and district levels from these PHCs.¹

Rural healthcare in India faces a crisis unmatched by any other sector. Only 20% of the population seeking

outpatient services and 45% of those seeking inpatient treatment make use of public services due to run-down infrastructure, human resource (HR) and a poor supply of drugs and equipment.²

Material management is also known as logistics and supply management. If there is any interruption, it will seriously dislocate the normal functioning of health care facilities, besides, adversely affecting the patient care. Approximately 60-70% of the budget is consumed on salaries and about 30% on materials

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Correspondence: Dr Neha A Patel (E mail: dr.neha1399@gmail.com)

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like drugs, vaccines, contraceptives, laboratory reagents and other consumables.³

Keeping in view, the current study was conducted to assess the functional PHCs of the tribal district for minimum standards like manpower, instruments, equipment and drugs, as well as material management skills of the Medical Officers. Also, by understanding major barriers which hinders efficiency of Middle level healthcare managers at PHCs, we can recommend possible solutions for better management and functioning of PHCs through an organized Action plan.

OBJECTIVES

The study was conducted to analyse Human resource management (Manpower, Supervision, Monitoring) at Primary Health Centres; to assess Material management by middle level healthcare managers. (Medical Officers); and to understand the constraints and difficulties faced by the middle level healthcare managers in the public health sector.

METHODOLOGY

A cross sectional study was conducted in Valsad district from December 2019 to September 2020. Valsad district has total 68 primary health centres (PHCs). Every PHC is headed by medical officer who acts as a Middle level healthcare manager of the centre. So, the medical officers were taken as study participants.

Sample Size: Valsad district has six blocks namely, Dharampur, Kaparada, Pardi, Umargaoun, Valsad and Vapi. From each block seven medical officers were contacted (42) randomly for assessment of their HR and material managerial skills. Because of non-response from 4 (9.5%) Medical officers, 38 Medical Officers could be included in the study which is 56% of total PHCs of the whole district.

Sampling technique: Simple random sampling was used for selection of medical officers from each block.

Data collection: The information was collected by one to one in depth interview of Medical Officers. Preformed, pretested questionnaire was used to collect data on manpower, logistics, stock outs by using IPHS standards for minimum requirements at PHCs of India.⁴ We analyzed the constraints faced by the medical officers at their level and developed an action plan based on the findings. Written consent was taken from each participant before enrolling them into the study.

Ethical approval was taken from Institutional Ethical Committee on 05/03/2020 letter no. MCV/IHEC/10/20. The permission from Chief district Health Officer (CDHO) of Valsad district was taken prior to inception of the study to enrol Medical Officers.

Data Analysis: Data entry and analysis was done using Microsoft Office Excel software.

RESULTS

We interviewed 38 middle level healthcare managers (medical officers) for assessing their human resource and material management skills. Almost two third (71.1%) of medical officers were between the age of 20-29 years and only 5.3% of them were beyond the age of 50 years. Male and female distribution was almost equal. We found more than half (55.3%) of the MOs were freshly appointed and having experience of less than one year, only 5.2% had experience of more than 15 years.

Table 1: Supervision and training related information amongst middle level managers (n=38)

Supervision & Training related Factors	Frequency (%)
Supervision plans available	25 (65.9)
Supervisory checklist available	29 (76.3)
Feedback given to their subordinates	33 (86.8)
Annual/ Monthly plan for trainings available	13 (43.2)
Trainings overload according to MOs	23 (60.5)
In service training policy available	23 (60.5)

Table 2: Stock out of Materials According to duration at health facilities (n=38)

Item	Facilities with stock out (%)	Duration of stock out
Iron folic acid tablet	8 (21.5)	>2 months
Gloves	6 (15.8)	1 to 6 months
Bandages/Gauze pieces	5 (13.2)	1 to 5 months
Baby warmer	5 (13.2)	1 yr or more
Tablet Amlodipine	4 (10.5)	10 days to 2 months
Bio-medical waste bags	3 (7.9)	>2 months
Injection Anti-rabies vaccine	3 (7.9)	>6 months
Tablet Multivitamin	2 (5.3)	2 months
Tablet Metformin	2 (5.3)	3 months

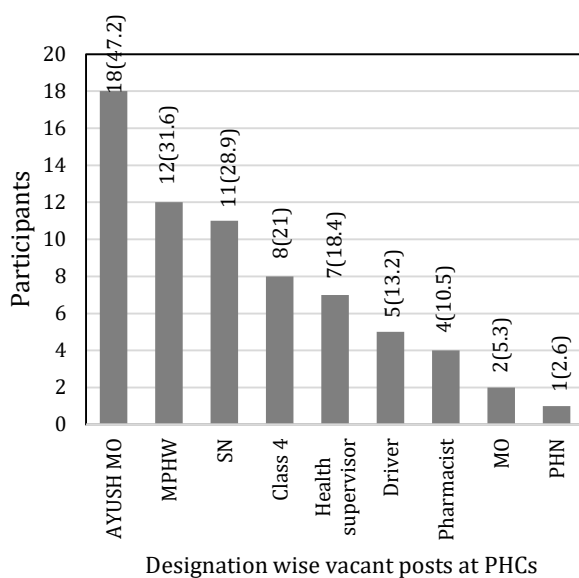
Table 3: Distribution of barriers/difficulties faced by the managers in management* (n=38)

Barrier/Difficulty	Frequency (%)
Lack of manpower or deputation of staff	15 (34.8)
Overburden of work (Administrative)/ Multi-tasking	12 (27.9)
Lack of Communication/Unity in Team or demotivated staff /Team conflicts	8 (18.6)
Lack of infrastructure	5 (11.6)
Lack of Internet services	5 (11.6)
Geographical constrains	5 (11.6)
Lack of support from community	5 (11.6)
Lack of transport	4 (9.3)
Work pressure/ humiliation/ demotivation from higher authorities	3 (6.9)
Frequent reporting and meetings	2 (4.6)

*Multiple responses possible

Table 4: Action plan suggested for better Human Resource and Material Management by Middle Level Healthcare Managers.

Activities to be performed	Resources/inputs required	Who will do?	Monitoring to be done by
Trainings on Material Management	-Experts at state level -Resource material	State/District	State/District officials
Prepare supervisory plans and policies	-List of field activities and list of persons to be supervised	District/MO level	District level managers/MOs
Filling up vacancies at grass root level	-List of vacancies at different health care facilities	State	State officials
Uninterrupted supply of logistics	-List of drugs with stock out	State/District	District Officials
Better Community participation	-List of communities with less utilization of services	District	MO
Rational work allotment	-List of roles and responsibilities of MOs and other staff at PHCs	State/District	State/District officials

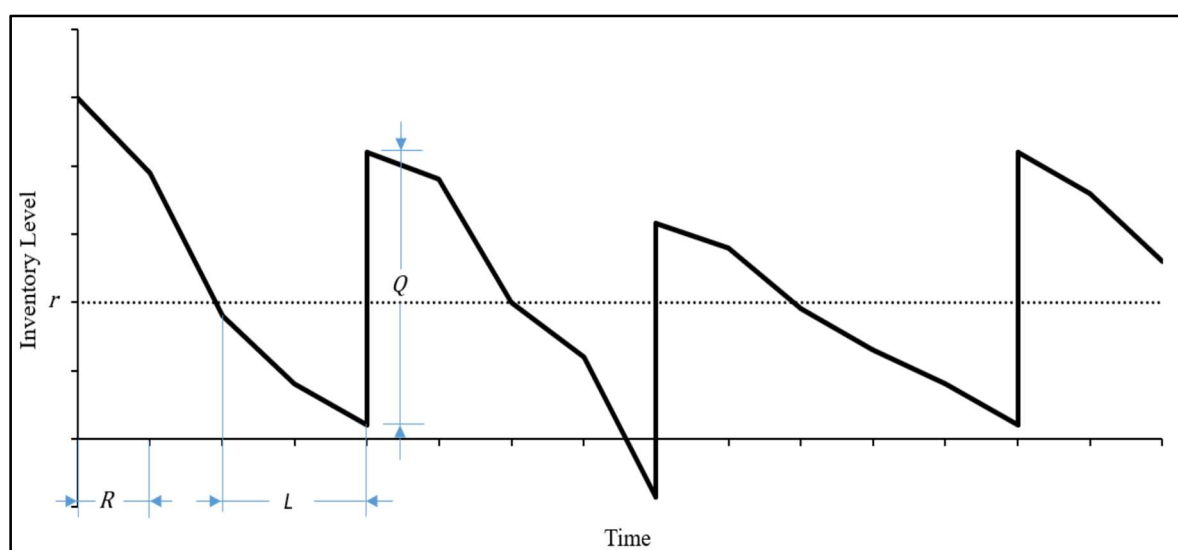


*Acronyms: MO- Medical officer, MPHWH- Multi-purpose health worker, PHN- Public health nurse, SN- Staff nurse

Figure 1: Designation wise vacant posts at PHC/CHC (n=38)

In our study it was found that only 10.5% PHC/CHC s have full staff available. 42.1% facilities have one or two posts vacant, while 34.2% facilities have 3 to 5 posts vacant. Every one in ten facilities has more than five posts vacant. Indian Public Health Standards (IPHS) specifies the manpower requirements at PHC/CHC. Above Findings are vacancies against IPHS standards. ⁴ Almost half (47.3%) of the health facilities were lacking AYUSH MOs. While almost one third (31.6%) of the health facilities were having vacancies for MPHWH followed by Staff nurses (28.6%). Also, one fifth (21%) of the facilities were having vacancies of class 4 workers. Every one in ten (10.5%) health facility is lacking the pharmacist. It was found that only two facilities were running without a medical Officer and PHNs. (Figure.1)

On asking questions related to Supervision, 65.9% managers said that they have supervision plans and 76.3% of them said that they have supervisory checklist available. 43.2% of them have the annual /monthly plan of trainings. 60.5% managers feel that they are overburdened with too many trainings. (Table 1)

**Figure 2: Inventory control model for product with varying demand and lead time at care unit (adopted from Pai PG et al. ¹³)**

The study revealed that almost two third (63.2%) of the health facilities faced stock out of one or more items in last six months. On asking the stock outs at PHC/CHC it was found that the Iron Folic acid tablets were stocked out in around 21.5% health facilities for more than 2 months. Materials like gloves and bandages were also lacking at 15.8% and 13.2% health facilities respectively for one to six months. The equipment like baby warmer were absent at 13.2% health facilities for more than one year. Bio-medical waste management bags were out of stock at 7.3% health facilities. Other materials which were out of stock at the time of study were Calcium, Acyclovir, Famotidine and Asthalin tablets etc. (Table 2)

On asking about "how do you decide the reorder level of drugs or other materials", only 3 (7.8%) MOs could reply correctly. Other 35(92.2 %) MOs didn't know about how to decide reorder level of materials.

Expiry of drugs in last one year: Five health facilities have few drugs expired in last one year. One PHC had 1000 ascorbic acid tablets and 51 copper-T expired in last one year, while at another PHC had 600 Iron folic acid tablets and 350 Vitamin A capsules expired in last one year. The others expired were syrup dicyclomine, syrup paracetamol, and injection adrenaline at rest three PHCs. Other health facilities have no drug expired in last one year.

Equipment beyond repair or not usable - Vehicles are very crucial for hilly and hard to reach areas to provide outreach services which were beyond repair at two PHCs. Vaccine carriers were beyond repair at five PHCs (13%), and BP Instrument was not usable at one PHC.

The condemned equipment is ILR at one PHC and Solar system at another PHC.

The study revealed very important barriers and difficulties which can affect the managerial skills. 34.8% managers narrated lack of manpower as a barrier in management while 27.9% managers said that overburden of administrative work or multitasking is the second major barrier. 18.6% managers said that lack of communication between the team members produce difficulty in management. Other important barriers are lack of infrastructure and external factors such as geographical and lack of support from community.

Very few managers addressed work pressure and humiliation from higher authorities (6.9%) and frequent reporting and meetings (4.6%) as a hurdle. (Table 3)

Looking into that how do the managers motivate their staff for better output and quality of work, 41.8% managers said they appreciate good work of their subordinates. 20.1 % managers motivate their staff by giving them training according to the need, while 13.9% managers do supportive supervision. Only 4.6% managers involve the staff in decision making which is very less. Involvement of staff in de-

cision making will boost up their morale and sense of belongingness towards health care system.

DISCUSSION

We recorded responses of 38 Medical Officers from six blocks of a tribal district. 55.3% Medical officers were having less than one-year work experience. This reflects that very few Medical Officers continues their carrier at PHC/CHC which can affect development of managerial skills due to less work experience. Same issue was narrated by Chief District Medical Officers in a study conducted by Kumar P and Khan AM, that there was staff shortage in Primary urban health centres (PUHCs) and dispensaries, and work was being hampered by frequent transfers of regular staff as well as due to contractual recruitments of human resources.⁵ Major Constraints perceived by the middle and top-level health managers were shortage of manpower in PUHCs/dispensaries, declining strength of regular staff, shortage of officials causing problems of giving more financial responsibilities, low motivation, disparities and anomalies in pay and high attrition rate among the contractual staff.⁶ The concerns of the health workers towards pay, training and promotion avenues in the organization have also been highlighted by the WHO.⁷

The results from Study by Gopalkrishnan et al indicate that those Community Health Workers (CHW) who receive regular supportive supervision are more likely to perform better than CHWs who receive lower less supportive supervision.⁸

The study by Panda B et al found that checklists allowed for better two-way communication between supervisors and CHWs.⁹ The intervention-based Odisha study found that supervisors who were provided training on supervision techniques were better equipped to supervise CHWs, which improved knowledge and service delivery of CHWs providing different services.¹⁰

Our study revealed that only one in ten (10.5%) PHCs had full staff. According to *Saiki D*, only 4 health facility has full staff; 42.1% health facilities have 1-2 posts vacant and 34.2% facilities have 3-5 posts vacant. Due to lack of manpower, about 8% of PHCs were without a doctor, 61% were with only one doctor, 35.8% were without a laboratory technician and 19% were without a pharmacist in 2017. Specialists and lady doctors were short in supply in rural areas; about 92% of CHCs were without all the four specialist doctors and over 74% of PHCs were without a lady doctor. Interestingly, the post-NRHM period (2005–2017) has seen an increase both in absolute number as well as percentage of health centres without adequate manpower.¹¹

In a study conducted by Sriram S et al. in Andhra Pradesh, the deficiency of health manpower according to the IPHS varied significantly across the different types of health personnel in the PHCs. All PHCs

have only one MO. 86.6%. AYUSH medical officers were deficient. The deficiency of pharmacists was 13.3%. A staff nurse was available at all the PHCs, which satisfied the IPHS requirement for one nurse per PHC. 13.3% PHC had deficiency of female health worker. 93.33% of the PHCs lacked Class IV employees who were directly employed by the government. However, all the PHCs had contingent workers who were employed as needed for purposes such as cleaning.¹² These findings match with our study results.

A study showed 80% and 90% MO post filled in the state of Assam and Karnataka respectively¹³ while it was 65% in Uttar Pradesh, 100% in Madhya Pradesh, Assam, Jammu and Kashmir, and Rajasthan, 75% in Chattisgarh, and 50% in Himachal Pradesh.¹⁴ The economically backward states and tribal areas of the country face a dire situation of manpower shortage. Substantial deficit persists for all the public health cadres in most of the backward states. The tribal areas had a shortfall of 15.6% of doctors, 24.6% of pharmacists, 32.6% of laboratory technicians, 27.9% of nurses, 8.4% of ANMs, 54.2% of male health workers, 43.7% of LHVs, and 58.5% of male health assistants.¹¹ The present study found that there are comparatively less vacancies as compare to other states for the post of AYUS MOs, staff nurses and MPHWs.

In a study conducted by Bayapa Reddy et al. in Sub centres of Andhra Pradesh, out of 34 SCs only 7 (20.6%) had stethoscope and B.P apparatus, whereas delivery tables,

Sahli's hemoglobinometer was present only in 4 (11.7%) and 3 (8.8%) SCs respectively. None of the SCs had delivery kits and deliveries were not being conducted in any of the SC. All the SCs had good supply of OPV, DPT, DT, TT, and Hepatitis B vaccines from the PHC, but BCG and measles vaccines were regularly supplied to only 26 (76.4%) SCs. All the SCs had sufficient quantity of drugs to treat minor ailments and anaemia, while none of the SCs had the requisite quantity of essential obstetric drugs as per IPHS.¹⁵ According to study conducted by Shah R et al., existence of vacant staff deficits ranged from 11.3% to 30%. Vacancy of Medical Officers and staff nurse were 20% and 30% respectively.¹⁶

In a study by Kumar S, the drugs that were in less than 50% of the PHCs were: antihypertensives, anti-convulsants, emergency drugs, drops, ointments, and solutions; while the drugs that were available in more than 50% of the PHCs were antibiotics, vaccines, antidiabetic drugs, antihistamines, analgesics, antiemetics, antispasmodics, steroids, diuretics, powders, laxatives, contraceptives, and drugs for peptic ulcers.¹² Rapid assessment survey Report of Odisha says that drug stock out reported in Kalahandi block was 22.3% on the day of survey, in Dhenkanal block 18.4% of drugs were not available and across institutions of Jharsuguda district it was found

that 16.3% of drugs were not available on the day of survey.¹⁷

Deciding the re-order level and the order quantities for a product with stochastic demand and variable delivery lead time is a complex task. The deviations in demand and delivery lead time must be taken into consideration before deciding the parameters. As shown in Figure 2, the inventory of the product depletes with respect to varying rate of demand and lead time. When the level of inventory reaches the reorder level (r), an order (Q) is placed to the distributor of the product upstream. The reorder level (r) of the product is calculated based on the expected demand for the product over the time required to deliver the products after an order is placed. Order quantities (Q) are decided based on the demand, ordering costs and the holding costs of the product, which minimizes the system costs.¹⁸

In our study only 7.3% Medical officers had knowledge about reorder levels which is very crucial for material management. Lack of knowledge about inventory management can lead to stock outs of different items.

Just like barriers found in our study, Ramani s et al. found in their study that doctors they interviewed view primary health centres as platforms for national programmes and schemes; as most of their time and the targets given to them by higher authorities focus on these activities. They perceive work at these centres to be focused on 'preventive care' activities that involved acquiring administrative rather than clinical skills. For most doctors, the only clinical work available at these centres is running the Out Patient Department clinics (OPDs). Most Medical Officers feel that good clinical work at primary health centres is hampered by barriers like lack of drugs and supporting facilities such as functional operation theatres, diagnostics and equipment¹⁹ Another study by Ramani S revealed that Doctors reported challenges in delivering primary healthcare-like lack of resources, the top-down imposition of programs that were not meaningful to them, limited support from the organization to improve processes as well as professional disinterest.²⁰

CONCLUSIONS

One in every ten PHCs have more than five posts vacant, posts of AYUSH medical officer and MPHw were vacant most frequently. Almost two third (63.2%) health facilities faced stock out of one or more items in last six months. The middle level healthcare managers lack the knowledge about reorder level of consumables. Major barriers which hinder the managerial capacity of managers are lack of Manpower and infrastructure and multitasking due to which, managers with good skills also can't perform well. Material management and human resource management skill needs to be improved for better provision of services.

ACTION PLAN

The study recommends following action plan for to improve the skills middle level healthcare managers and providing efficient and quality services to the community which is the goal of any health care delivery system. (Table 4)

List of problems selected for solving **a) Lack of Human skills** (a.1 Motivation of the staff; a.2 Supportive supervision); **b) Material management** (b.1 How to manage the stocks of logistics at their respective facilities; b.2 When to reorder the logistics; b.3 How to avoid expiry of drugs and other logistics; b.4 How to prevent the condemnation of equipment etc.); **c) Main Barriers** as stated in Table 3.

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