STUDY ON DEPLOYMENT AND RATIONALIZATION OF MANPOWER IN WARDS AND CRITICAL AREAS OF THE HOSPITAL

Internship Training
at
Medica Super Specialty Hospital, Kolkata

By
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INSTITUTE OF HEALTH
MANAGEMENT RESEARCH
(WHO Collaborating Centre for District Health System Based on Primary Health Care)

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This is to certify that **Dr. Bhawna Rathi** student of MBA Hospital and Health Management from IIHMR University, Jaipur has undergone internship training at **Medica Superspeciality Hospital, Kolkata** from **5th February 2015 to 18th April 2015.**

The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her all success in all her future endeavors.

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CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **Deployment and Rationalization of manpower** and submitted by **Dr. Bhawna Rathi** Enrollment No **2013-15/1430** under the supervision of **Dr. Shilpi Mishra Sharma** for award of MBA Hospital and Health Management of the university carried out during the period from **2013 to 2015** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

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However, I accept the sole responsibility for any possible error of omission and would be extremely grateful to the readers of this project report if they bring such mistakes to my notice.

Date – 16th May, 2015 Dr. Bhawna Rathi

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DISSERTATION REPORT

1) TABLE OF ABBREVIATIONS

CCU	Critical care unit
DAMA	Discharge against medical advice
GRE	Guest relation executive
HMIS	Hospital management information system
HR	Human resource
HDU	High dependency unit
HCA	Health care assistant
IP	Inpatient
NICU	Neonatal intensive care unit
NPM	Nil per mouth
OPS	Operations
QMS	Quality management system

Study on Deployment and Rationalization of Manpower in wards and critical areas of the hospital

2) INTRODUCTION

Manpower is one of the most important resources utilized in an organization to achieve its objectives. A Hospital is a labour-intensive and capital-intensive organisation, in which healthcare professionals are available at a premium cost to the organisation. In hospitals, the manpower consumes about 30 – 40% of its annual budget. Resource crunch is the limiting factor to achieve efficient and effective service. The difficulty of ensuring an adequate and appropriate distribution of health services, together with increasing financial pressures, are forcing many hospitals to consider methods for determining staffing levels in the health facilities[1] .

Staffing norms are based solely on population or institutional size and do not adequately take into consideration other factors. This necessarily creates real problems in health service provision, not only through under- or over-provision of health service staff but also through the inappropriate allocation of different cadres of staff.

Cost effective care in any setting demands for careful adjustment of staffing levels and adequate skill mix to meet patients' care needs. Information about the amount of time staff spent on various activities is very important for administrators to estimate number of staff required. It also gives them with evidence to maximize productivity by evaluating the appropriateness of staff deployment and skill mix.[3]

3) LITERATURE REVIEW

- An exploratory study on "nursing manpower" requirement for coronary care unit of PGIMER, Chandigarh was conducted and Patients were classified into three categories of dependency i.e. fully dependent patients, partially dependent and low dependent patients and nursing manpower requirement was calculated on the basis of dependency level of the patients i.e. high dependency level, medium dependency level and low dependency level and found a successful method to calculate the number of nurses for unit. study showed that nurses were performing more, direct nursing care activities than indirect nursing care activities and the fully dependent patient required more nursing care hours. Most of the nursing time was consumed in providing patient care as compared to ward related activities[1,2]

- Nursing Resource Utilization Based on Activity Score- The study was conducted at a Tertiary Care Medical institute .During study period critical observations were made on each nursing activities by the trained investigators. Bed compliment and bed occupancy from daily census report, available with the nursing officer was collected every day. Study revealed that however the workload of the nursing care may increase with increase in the bed occupancy but the BOR (bed occupancy rate) is not directly proportional to the workload of the ward. Therefore the BOR is not the key factor in assessing the workload of nursing care in the ward as it does not have direct correlation with the utilization of nursing personnel.[4]

- Setting safe staffing levels by Cherill Scott- The capacity of the workforce to provide good quality care does not depend solely on numbers of staff in post. The following considerations are of fundamental importance:- Systems of professional education, practice and accountability must respond to public expectations of safe, good-quality nursing care. - The nursing needs of patients/clients and their carers must be assessed systematically by nurses themselves. - Organisational culture should promote whole systems approaches to patient and staff safety. - Local decisions about nursing skill mix should be based upon agreement within the profession, and between the profession and employers, about different nursing roles and levels of practice. - Clinical leaders must acquire the skills to plan and manage the nursing workforce effectively in the interests of good-quality care and high staff morale.[5]

4) RATIONALE

Keeping in view the above literature it was found that it is a tedious task to carry out healthcare delivery for the masses without rationalizing human resources in the form of reallocation and redeployment of health care personnel .. So efforts should be made to achieve maximum output by utilizing minimum input and optimum utilization of the manpower. Present study makes an attempt to study the deployment and rationalization of staff which will lead to cost saving and efficient delivery of services from organization point of view as well as increased level of satisfaction in the staff.

4.1) RESEARCH QUESTIONS

Is the currently deployed manpower adequate in general ward and critical areas ?

Is any redistribution of responsibilities and redeployment of the staff required and how it can be done?

4.2) OBJECTIVES

- To study the current deployment status of manpower (nursing, ward pharmacist, and IP operations) in inpatient department of the hospital
- To assess whether the currently deployed manpower is adequate and optimally utilized
- To assess if any redeployment and redistribution of responsibilities is needed

5) METHODOLOGY

5.1) Study Type

Cross Sectional study for three categories of staff (nurses, ward pharmacist and inpatient operations staff has been done with respect to their deployed number and workload

5.2) Study Area

In- Patient Department which includes general wards and critical areas of Medica Super speciality Hospital

5.3) Location of study

Medica Super speciality Hospital, Kolkata

5.4) Period of study

10 March-10 April 2015

5.5) Study respondents

Sample for the current study constituted of Nurses, Ward Pharmacist and IP Operations Staff

5.6) Sample size

27 (15 nursing staff, 6 IP operations staff, and 6 ward pharmacist) were covered from inpatient area which includes general wards and critical areas.

5.7) Sampling method

Staff was observed as per their duty hour

6) Data collection approach

Source of data

a) Primary data

-Non participant approach-data was gathered through visiting wards and critical areas to observe directly the number of staff deployed and activities they are performing.

-Informal Interviews with the nurses, ward pharmacist, and IP operations staff

b) Secondary data

-Job descriptions were taken from the HR department and responsibility mapping was done

-Average occupancy of every department (last 3 months) was collected from HMIS for rationalization

-Records from the registers maintained

7) RESEARCH ETHICS

a) Quality and integrity of the research ensured.

b) Informed consent from the participants obtained.

c) Confidentiality and anonymity of all respondents respected

d) Participants are not forced by any means and participated in the study voluntarily

8) ANALYSIS AND FINDINGS

Table 8.1: Total number of ward pharmacist deployed

floor	Shift timings	staff	Total staff
4 floor(A wing)	morning-8.00am- 4.00pm	1	8(out of which 1 is in induction period)
	evening-12.00pm-8.00pm	1	
	night-8.00pm-8.00am	1	
B wing	morning-8.00am-4.00pm	1	
	evening-12.00pm-8.00pm	1	
	night-8.00pm-8.00am	1	

Ward pharmacist was only deployed on one floor of the hospital. So it was observed whether the functioning of this floor is smooth and efficient as compared to other floors not having the pharmacist. It was found that number of indents raised on this floor is less.

For ward pharmacist-8 staff are sufficient as in night duty 2 staff are not required and it is judicious to reduce 1 staff in night shift

In the overlapping time 12.00pm-4.00pm there are 2 ward pharmacist

On observation it was found that these activities are performed by the ward pharmacist

- checking and monitoring medicine cards
- clarify quantity of medicines and dosage with allocated nurse and indent according to the priority
- indenting and follow up with IP pharmacy
- checking of the stock at patient bedside locker at regular interval
- receiving of the medications dispatched from the pharmacy and thorough checking against the issue slip for quantity, batch no, expiry date, and condition of the drugs
- ensuring return of medicines for discharged patients

Table 8.2: Total number of nursing staff deployed in general wards

department	Total beds	Total asso nurses	Shift-wise distribution	Existing ratio	Expected ratio(norms)	rationalization		
General ward B2	32	21	M-5	1:6	1:5	M-6	17	17+11+19=37 37+11(30%leave reserve)=48 total
			E-5			E-6		
			N-5			N-5		
General ward B1	18	11	M-3	1:6	1:5	M-4	11	
			E-3			E-4		
			N-3			N-3		
General ward	15	6	M-2	1:7	1:5	M-3	9	

A wing			E-2 N-2			E-3 N-2		
		38 total						

In general ward shortage of staff has been found and nurses were doing double duty and also stretching their duty hours. Average occupancy of the general wards for last three months was above 80 percent which shows that the workload is not manageable with the existing manpower and more staff is needed.

Activities observed in general ward-

- Daily assessment
- Blood glucose monitoring
- Administration of medication
- Handover of duty
- Feeding and grooming
- Administration of intravenous medication or infusion
- Priming of IV line commencement/changing an IV flask
- Pre and post operative care
- Ensuring bed and mattresses are clean and dry
- Escorting patients for investigations
- Every shift departmental classes
- Transfer in /out
- Discharge

Registers maintained-

Inventory book , Main order handover book, Discharge register, Pharmacy indent book, Admission book ,Allocation book ,Morning and night report book ,Incident record book

Night shift activities-8.00pm-8.00am-

- Handover
- Receiving of indented medicines
- Feeding
- Documentation-nursing daily assessment ,nursing care plan ,diabetic chart ,clinical chart ,fluid balance chart ,entry in billing card for investigations ,requisitions for investigations etc ,consent
- Medication
- File preparation for planned discharges
- Return of medicines
- Linen etc ordered
- Sponging

In night shift 1 staff less can manage the workload in wards as patient usually sleep after taking 10 o clock medication and nurses got free by 2.00am and then again start the morning activities from 5.00am

Table 8.3: Total number of nursing staff deployed on 4th floor

department		Total beds	Total Asso nurses	Shift-wise distribution	Existing ratio	Expected ratio norms	rationalization		
4 floor A wing	Multi-4-12	37	26	M-6	1:6	1:5	M-7	Total 20 nurse per day	20+23=43+13(leave reserve)=56 required
	Multi-6-24			E-6			E-7		
	Private-1			N-6			N-6		
B wing	Twin share-2	43	26	M-7	1:6	1:5	M-8	23 nurse per day	
	Private-1			E-7			E-8		
	Multi 6-24			N-7			N-7		
	Multi 4-16								
			52						

Shortage of nurses was there on the 4th floor if the occupancy is high , but average occupancy for last three months is about 80 percent so the workload can be managed by the existing manpower . Also Overlapping of responsibilities was observed and lot of layers was there in hierarchy of the nurses, also equal number of staff was their in the night and morning shifts but the workload is different and can be managed by one staff less in night

Table 8.4: Total number of nursing staff deployed on 6th floor

department		Total beds	Total Asso Nurses	Shift-wise distribution	Existing ratio	Expected ratio(AS PER NORMS)	rationalization	
6 floor A wing	Twin share (9 rooms	18	20	M-5	1:4	1:5	14	14+11=25+8(leave reserve)=33 total nurses required
				E-5				
	private	7		N-4				
B wing	Private	9	20	M-5	1:3	1:5	M-4	
	Deluxe	2		E-4			E-4	
	suite	4		N-4			N-3	
			40					

7 staff in excess are there for A and B wing. But it's a VIP floor and has physical barrier as rooms are single or twin share so frequency of call bells is also high. But whenever required they can be shared in other departments

Table 8.5: Total number of nursing staff deployed in critical care units

department	Total beds	Total asso-NCS	Shift-wise distribution	Existing ratio	Expected ratio(AS PER NORMS)	rationalization		
CCU-1	12	29	M-7 E-7 N-7	1:1(ventilator) and 1:2	1:1(ventilator) and 1:2	M-7 E-7 N-7	21	21+18+18=57+17(leave reserve)=74 staff required
CCU-2	10	23	M-6 E-6 N-6	1:1(ventilator) and 1:2	1:1(ventilator) and 1:2	M-6 E-6 N-6	18	
CCU-3	10	23	M-6 E-6 N-6	1:1(ventilator) and 1:2	1:1(ventilator) and 1:2	M-6 E-6 N-6	18	
		75 total						

-Staff of CCUs is according to the norms and ratios are maintained

Table number 8.6: Total number of nursing staff deployed in HDUs, NICU, and emergency

department	Total beds	Total nurses	Shift-wise distribution	Existing ratio	Expected ratio(AS PER NORMS)	required	
HDU	25	34	M-8	1:3	1:3	23 +7(30%leave reserve)=30	
			E-8				
			N-7				
HDU 2 Floor	10	18	M-5	1:2	1:3	13+4(30%leave reserve)=17	
			E-5				
			N-4				
NICU and paed HDU	10+5	15	M-4	1:1(ventilator baby) and 1:2	1:1(ventilator baby) and 1:2	M-7	20+6(leave) =26
			E-4			E-7	
			N-3			N-6	

NICU is short of staff if we go by the bed strength but the average occupancy is low about 27% so the workload can be managed by 4 staff per shift and if occupancy increases than staff can be taken from 2 floor HDU and CCUs as there is excess.

Table number 8.7: Total number of IP operations and billing staff on emergency, 1st ,2nd and 4th floor

floors	SHIFTS	IP OPERATIONS		shifts	BILLING
Emergency and Ground floor	8am to 4pm-1	GRE	3	8am to 4pm-2	7
				12pm-8.00pm-2	
	10am to 6pm-1	coordinator			
	12pm-8.00pm-1	GRE		9.00am-5.00pm-1	
1 floor	8am to 4pm-1	GRE	3		
	10am to 6pm-1	coordinator			
	12pm-8.00pm-1	GRE			
2 floor	8am to 4pm-1	GRE	3		
	10am to 6pm-1	coordinator			
	12pm-8.00pm-1	GRE			
4 floor	8am to 4pm-1	GRE	3	8am to 4pm-1	2
	10am to 6pm-1	coordinator			
				12pm-8.00pm-1	
	12pm-8.00pm-1	GRE			
In the overlapping time i.e -12.00pm-4.00pm 3 staff of IP operations are there 10.00am-4.00pm-2 staff are there					

Table 8.8: Total number of IP operations and billing staff deployed on 5th,and 6th floor

floors	SHIFTS	IP OPERATIONS		shifts	BILLING
5 floor	8am to 4pm-1	GRE	3	8am to 4pm-1	2
	10am to 6pm-1	coordinator		12pm-8.00pm-1	
	12pm-8.00pm-1	GRE			
6 Floor	8am to 4pm-1	GRE	3	8am to 4pm-1	2
	10am to 6pm-1	coordinator		12pm-8.00pm-1	
	12pm-8.00pm-1	GRE			

On ground floor,4th floor, 5th floor and 6th floor there was a separate IP operations and billing staff but on 1st and 2nd floor there was a common staff which was affecting the smooth functioning as they have to manage both and as a result they were not able to promptly address the queries of the patient attendants.

Activities:

- Daily rounds in the ward ,Occupancy sheet updated (vacant beds, discharges, OT, and NPM list)

- Addressing queries of the patient attendants
- Discharge registers maintained
- coordinating patient movements to OT/investigations/other procedures/shifts in and out
- Discharge follow up done
- Bed management
- Get the feedback forms filled
- Floor coordinator card is given to the relatives for any queries
- Coordinating with other floor associated housekeeping, transport, F&B
- Records maintained in the registers of- transfer in/out, transport log book
- Daily reporting to higher authorities of DAMA, death, discharge, feedback forms through mail

Billing –

- GRE go the nursing station and note down the number of discharges in discharge copy of billing and bring their bill cards for bill preparation
- One bill preparation needs about 10-15min , and in package patients up to 30 min
- After the final bill preparation bill card is sent downstairs for checking and final payment
- Billing for the investigations is also done
- Outstanding follow up of 4,5,6 floors is done on the 6 floor
- Bill card updation -After 12.00pm they start updating bill card(consultation fees etc are added)

Table number 8.9: Current scenario of the deployed manpower

department	Staff currently deployed	required	Excess or shortage
General wards	38	48	10 less
6 floor	33	40	7 extra
4 floor	52	56	4 less
CCUs	75	70	1 extra
HDU	52	47	5 extra
IP operations	20	17	3 extra
Ward pharmacist	8	8	
Total	123nursing staff extra which can be deployed to 4 floor and general wards having shortage.		

9) Conclusion and Recommendations

From the data it can be concluded that Medica Super Speciality Hospital has shortage of nursing staff in general wards but there is some excess staff in critical care units which can be redeployed.

For ward pharmacist

- 8 staff are sufficient as in night duty 2 staff are not required,1 staff is sufficient for both the wings as no indenting is done in night except for the new admission and STAT but the main responsibility is the return of the medicines for planned discharges.

- In the overlapping time there are 2 ward pharmacist but there is only 1system for indenting so 1 staff in both the wings is idle, so they can be sent to 5 floor for helping

- 1 system more for indenting is required as nurses have to wait for taking the printout of the investigations

For nurses

- Shortage of 4 nurses(on the 4 th floor) can be resolved if coordinators start taking allocation in the presence of team leader(as there are 5 coordinators on 4 floor) as there should be only 1 in-charge for overall supervision

- Both the wings of 4th floor were having separate medication nurse which is not required as there is the ward pharmacist and nurses also check for medication so there is overlapping of responsibilities.

- CCUs were having extra staff which can be redeployed

- Job responsibilities of HCAs can be increased and there can be redistribution of responsibilities from nurses to HCAs

For IP OPS

- 2 GRE are there at the overlapping time of 12pm-4.00pm so there is no need of a separate floor coordinator, can have a combined coordinator for 4,5 and 6 floor
- In emergency 3 staff are not required on daily basis 2 are sufficient (there is only one system) .One reliever can be there to accommodate for the day off and Sunday duty.

10) ANNEXURE 1: Activity tracking

a) Workload analysis of ward pharmacist

Activity	Start time	End time
ward pharmacist took rounds in the rooms ,checks the medicine card of the patients, then he note down the medication to be indented in the pharmacy indent book(checked for 17 beds).and start indenting (5 indents)	8.10am	10.37am
discharge was there and medicines were to be returned so pharmacist went ,checked the cabinets and brought the medicines, and filled the return slip	10.38am	10.50am
Again started with checking of the medicine cards and cabinets	10.51am	11.15am
For discharge he returned medicines and nurse was taking out the print out of reports so pharmacist had to for 15min as there was only 1 system and printer	11.16am	11.45am

Activity	Start time	End time
Filled requisition slip for the chemo –medicines (indented manually as needed on urgent basis	11.47am	12.20pm
Another staff joined at 12.20pm-till 1.00pm they were chatting and pharmacist of A-wing also came	12.20pm	1.00pm

12 o clock shift staff started checking the remaining medicine cards and Medicines indented in the morning were received	1.00pm	1.35pm
started indenting medicine Total 14 indents	1.35pm	3.00pm
Medicines received	4.35pm	5.12pm

b)Workload analysis of general ward

ACTIVITY	START TIME	END TIME
Handover-filling patient allocate information sheet (any special treatment, investigation due and remarks are noted down)3-4 minutes per patient required to receive the handover	8.10AM	8.35AM
medicine cards checked of allocated patients for the available doses and empty packets discarded(1-2 min per patient). then she found out one injection to be given at 10 o clock is not there for 1 patient so she filled the requisition slip manually and went to pharmacy	8.37am	9.10am
took blood sample, filled the pathology requisition form, gave it to housekeeping ,entry is made in the billing card and gave it to the reception	9.12am	9.26am
assisted with doctor	9.26am	9.45am
giving medication10 o clock dose to the patients one by one and signed in the medicine card with their ID .(3-4 min required per patient.) at 9.51am she escorted one of her patients for x-ray as there was only 1 HCA (escorting other patient for dialysis) and came back at 10.20am.then again started with the medications of the patient. But some patients got restless at 10.15 that they got the 10 o clock dose.	9.46am	10.35am

Workload analysis of general ward

Activity	Start Time	End Time
attended phone calls etc and indented medicine for 1 patient after doctor rounds	10.41am	10.45am
one of the patients had planned discharge so checked the file and pending reports taken out of the system and arranged in the file, and received indented medicine	10.53am	11.05am
patient file completion	11.08am	11.50am
took patient for the investigation During that time only one of her patients have to be discharged and no one was there to take the discharge slip as TL was busy with doctor rounds so the patient waited for 7 min. After she came at 12.05 she started with the process(all the investigation reports, discharge summary etc were punched and arranged in the file .at 12.15 dietician came and diet was explained and after that nurse explained about the medications etc and discharge summary was given and entry was made in in the discharge register of all the things given to the patient	11.51am	12.30pm

Activity	Start Time	End Time
file completion of the remaining patients ,and one patient was going for OT so preoperative nursing checklist was filled consent was checked, printout of investigations taken out and relatives were informed. Then started assisting patients with their lunch like serving and adjusting tables and beds etc	12.30pm	1.30pm

new patient - changed clothes, file arranged, height ,weight and vital assessment ,initial nursing assessment done, pt belonging returned to the attendant and undertaking taken, pt counselled about call bells, side rails, toilets etc.	1.30pm	1.50pm
tested blood glucose for 2 of her patients and fill the diabetic chart ,assisted the patient to the toilet ,drip was removed waited outside the toilet and then again it was started	1.51pm	2.05pm
handover	2.05pm	2.30pm

b) Workload analysis of CCU

Activity	Start Time	End Time
checking of side allocation (intubation trolley, dressing trolley ,stock medicine,inventory,o2 cylinder+ fridge, crash trolley +CSSD).one was assigned to each staff. And class was conducted by TL	8.00am	8.30am
handover (main order book was their which was separate for every patient	8.31am	8.46am
patients attendants came, all the expensive antibiotic vials were retained and was mentioned in the file and signature of patient attendants were taken. Consent for procedures were taken. Investigation report chart was filled	8.46am	9.26am
pending reports from the system, medication to her patient ,ryle tube insertion	9.27am	10.15am
medication to other patient, medicines which are to be indented bed wise are written in an indent book	10.17am	10.42am
updating patient information in laptop(done on hourly basis)	10.43am	11.05am
indented medicine ,went for tea , started with back care ,eye care. Dressing, catheter care, suctioning, toileting and dress change	11.05am	12.10pm

Activity	Start Time	End Time
care for second patient started ,indented medicine received	12.15pm	1.23pm

,feeding of one patient ,,assisted doctors rounds		
patient information updated in laptop	1.23pm	1.40pm
gave suction ,and medication to the patient	1.42pm	2.12pm
handover started and report book was filled	2.12pm	2.25pm

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