

Gap Analysis of Major Operation Theatre Complex of a Tertiary Cancer Centre against NABH Accreditation Standards

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ABSTRACT

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This observational study aims to review the planning and functioning of the Major Operation Theatre (MOT) complex of a Tertiary Cancer Centre committed to obtain National Accreditation Board for Hospitals and Health care providers (NABH) accreditation

Context: Full advantage of new surgical development can occur only if operation theatre is properly designed. NABH is a constituent board of Quality Council of India(QCI) set up to operate accreditation programme which demonstrates commitment to quality health care. Healthcare organization should carry out a self assessment on the status of compliance with NABH standards for accreditation

Aims: 1.To study the planning and functioning of the MOT complex against NABH standards and identify deficiencies. 2.To review the planning and functioning MOT complex in terms of perspectives of staff

Settings and Design: This was a descriptive study. MOT complex was observed for three months.

Methods and Material: Physical facilities, safety measures, staffing pattern and equipment facilities were analysed against NABH standards and compared with staff perspectives. Data was collected by desk research, observation and by structured interview of 54 permanent staff working in MOT complex.

Statistical analysis used: Frequency and percentage

Results: Physical facilities and safety measures are inadequate. Staffing pattern and equipment facilities are satisfactory. The difference from staff opinion is mainly due to noncompliance with mandatory documentations for NABH accreditation

Conclusions: The planning and functioning of MOT complex do not satisfy the minimum essential standards required for NABH accreditation and needs remodeling

Keywords: Healthcare Quality, Evaluation Studies, Patient safety

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INTRODUCTION

Accreditation of a hospital stimulates continuous improvement and demonstrates commitment to quality care.^{1,2,3,4} National Accreditation Board for Hospitals and Health care providers (NABH) is a constituent board of Quality Council of India(QCI) set up to establish and operate accreditation programme for health care organizations.^{5,6} For NABH accreditation, the organisation should carry out a self assessment on the status of compliance with NABH standards.⁵

New safer surgical skills and anaesthesia techniques and development can take full advantage if operation theatre is properly planned and designed. This study aims at gap analysis (a technique for determining the

steps to be taken in moving from a current state to a desired future state)of planning and functioning of Major Operation Theatre (MOT) complex of a Tertiary Cancer Centre, committed to obtain NABH accreditation, with the aid of NABH standards. It also aims to review the planning and functioning of MOT complex in terms of user's perspective.

Aims of the study were as follows:

1. To study the planning and functioning of the MOT complex with the aid of NABH standards and guidelines.
2. To review the planning and functioning MOT complex in terms of perspectives of staff working there.

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SUBJECTS AND METHODS

This was a descriptive study. After getting Institutional Review Board approval, the MOT complex was observed for three months. Data was collected by observation of the MOT Complex and from the 54 permanent staff working there by structured interview method and from records maintained in the MOT complex and engineering division. A pilot study conducted with four doctors and six nurses confirmed feasibility of the study. Judgment sampling method was used.

The study evaluated the following against NABH standards and guidelines:

- a. Infrastructure facilities
- b. Patient and staff safety measures
- c. Staffing pattern and human resource management
- d. Equipment management programme
- e. Quality of operative services

The study was completed in three months. Data was analyzed in terms of frequency and percentage

The objective elements of all applicable NABH standards were marked on a scale of 0-5-10. All the observations were recorded and a score was allocated to each as follows:

0--- NOT MET (If neither documentation nor implementation is available)

5--- PARTIALLY MET (If only either of the two is available or both are available but only partially)

10-- FULLY MET (If both are met)

The order of compliance with NABH standards were classified as follows:-

1. EXCELLENT

When all objective elements of all standards were fully met (score 10 for all)

2. GOOD

If all the below criteria are satisfied

- a. Most of the objective elements of most of the standards are either partially or fully met
- b. No standard has more than one zero for its objective elements
- c. No zero is there against elements related to legal implications

3. POOR

If any of the below 3 criteria are there

- d. When none of the objective elements of standards are met
- e. When one standard has more than one zero for its objective elements
- f. When there is at least one zero against elements related to legal implications

The limitation of the study is that the results will be specific to the MOT complex studied and cannot be generalized.

RESULTS

The approximate MOT statistics was as follows:

Number of surgeries / year = 3300-3400

Number of surgeries / operation theatre / day=3-4

Number of working days / year =300

Number of surgeries per operation theatre / year=900-1200

Table 1. Distribution of sample according to designation

Designation	Number	%
Surgeon	13	24.08
Anaesthesiologist	8	14.81
Nurse	18	33.33
OT technician	8	14.81
Nursing Assistant	3	5.56
Cleaner	4	7.41
Total	54	100

Although the number of operation theatres is adequate as calculated 4-5, the waiting period for surgery is 3-4 weeks (ideal \leq 2 weeks in cancer surgeries). This is due to inadequate number of surgical beds. Almost all the theatres run very late leading to overutilization which itself decreases the efficiency of services and causes excessive fatigue among the limited number of all categories of staff. There are many cancellations due

Table 2. Distribution of sample according to working experience

Total years of Experience	Surgeon N=13		Anaesthesiologist N=8		Nurse N=18		OT Technician N=8		Nursing Assistant N=3		Cleaner N=4	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
3-6 months	-	-	1	12.5	-	-	-	-	-	-	-	-
6 months-1 year	-	-	-	-	-	-	3	37.5	-	-	-	-
1-5 years	-	-	2	25	11	61.11	3	37.5	2	66.67	-	-
5-10 years	5	38.46	1	12.5	4	22.22	1	12.5	1	33.33	1	25
>10 years	8	61.54	4	50	3	16.67	1	12.5	-	-	3	75

Sl No:	NABH Standard	Total no: of objective elements	Score 10	Score 5	Score 0	Order of compliance
A.	Evaluation of infrastructure facilities					
A i-iv	Provision of space, light and ventilation					
A 1	FMS 2	6	2	1	3	POOR
A v	Provision of safe water, electricity, medical gases and vacuum system and provision of alternate sources in case of failure					
A 2	FMS 4	4	4	-	-	EXCELLENT
A vi	Fulfillment of statutory/legal requirements					
A 3	FMS 1	4	4	-	-	EXCELENT

to inadequate theatre time. 13 surgeons, 8 anaesthesiologists, 18 nurses, 8 operation theatre technicians, 3 nursing assistants and 4 cleaners were included in the sample (Table 1) Nurses constitute the majority. They are the category directly involved in the provision of

B. Evaluation of infrastructure facilities						
Bi	Provision of safe and secure environment					
B 1	FMS 9	4	1	2	1	GOOD
B ii	Facilities and resources for infection control					
B 2	HIC 5	4	1	2	1	GOOD
B iii	Availability of infection control manual					
B 3	HIC 2	4	2	1	1	GOOD
B iv	Sterilisation activities					
B 4	HIC 7	1	1			EXCELLENT
B v	Biomedical Waste Management					
B 5	HIC 8	4	4	-	-	EXCELLENT
B vi	Management of hazardous materials					
B 6	FMS 8	5	4	1	-	GOOD
B vii	Storage of medication					
B 7	MOM 3	3	2	1	-	GOOD
B viii	Use of narcotic drugs and psychotropic substances					
B 8	MOM 9	3	3	-	-	EXCELLENT
B ix	Prescription of medication					
B 9	MOM 4	4	1	3	-	GOOD
B x	Medication administration					
B 10	MOM 6	5	4	1	-	GOOD
B xi	Monitoring after medication administration					
B 11	MOM 8	2	2	-	-	EXCELLENT
B xii	Use of medical gases					
B 12	MOM 13	2	1	1	-	GOOD
B xiii	Use of implantable prosthesis					
B 13	MOM 12	3	3	-	-	EXCELLENT
B xiv	Addressing fire and non fire emergencies					
B 14	FMS 5	4	-	-	0	POOR
B xv	Training of staff on safety measures					
B 15	HIC 9	3	1	2	-	GOOD
B 16	HRM 4	4	3	1	-	GOOD

A. Evaluation of staffing pattern and human resource management						
C i Human resource planning						
C 1	HRM 1	2	1	-	1	GOOD
C ii Qualified staff in different categories						
C 2	HRM 11	3	3	-	-	EXCELLENT
C 3	HRM 13	3	3	-	-	EXCELLENT
C iii Professional training and development of staff						
C 4	HRM 3	2	-	-	2	POOR
C iv Performance evaluation						
C 5	HRM 5	3	3	-	-	EXCELLENT
A. Evaluation of equipment management programme						
D i Equipment facility for the services						
D ii Maintenance of proper logs on equipment inventory						
D iii Operation and maintenance of the equipments						
D 1	FMS 3	5	6	-	-	EXCELENT

basic functional facilities for the proper functioning of OT.87.03% of staff have more than one year experience in MOT complex (Table 2). Only one anaesthesiologist and three OT technicians have experience less than one year. This makes the suggestions from the staff very important as they have enough working experience. Analysis and scoring are summarized in Tables 3-6.

B. Evaluation of the quality of operative services						
E i Policies and procedures for anaesthesia						
E 1	COP 11	10	7	-	3	POOR
E ii Policies and procedures for surgery						
E 2	COP 12	9	4	3	2	POOR
E iii Informed consent						
E 3	PRE 3	1	-	-	1	GOOD
E iv Continuous Quality improvement						
E 4	CQI 2	4	-	3	1	GOOD

- The order of compliance of the infrastructure facilities is POOR as the NABH standard A 1 (FMS 2) has more than one 0 for its objective elements
- The order of compliance of patient and staff safety measures is POOR as the NABH standard B 14 (FMS 5) has score 0 for all its objective elements
- The order of compliance of staffing pattern and human resource management is POOR as the NABH standard C 4 (HRM 3) has score 0 for all its objective elements
- The order of compliance of equipment

management programme is EXCELLENT as the NABH standard D1 (FMS 3) has score 10 for all its objective elements

- The order of compliance of the quality of operative services is POOR as the NABH standard E 1 (COP 11) has score 0 for three objective elements and NABH standard E 2 (COP 12) has score 0 for two of its objective elements

DISCUSSION

Poor compliance of infrastructure facilities is due to space constraints, poor documentations and inadequate policies & protocols regarding maintenance of facilities. According to the staff except for the space constraints, infrastructure facilities are satisfactory. The difference between staff opinion and assessment against NABH standards is due to noncompliance with certain mandatory documentations. Mandatory documentations for NABH accreditation like documentation of policies and procedures and detailed drawings on site lay out might seem unimportant for the staff.^{7,8,9}

Poor compliance of patient and staff safety measures is due to inadequate documented policies & protocols on elements like fire and non fire safety plan, facility inspection by safety committee, antibiotic policy, and usage of implantable prosthesis and absence of isolation/barrier nursing facility.¹⁰ According to majority of staff the infrastructure compliance with safety measures is average except for the absence of fire safety measures. Level of safety is also considered average by majority of the staff except for the absence of isolation/barrier nursing facility. The difference between staff opinion and assessment against NABH standards is due to noncompliance with the essential documentations for NABH accreditation

Poor compliance of staffing pattern and human resource management is due to inadequate number of staff, absence of documented training and development policy & feedback mechanism for the assessment of the same. Majority of the doctors opined that a regular professional training and development programme is not available. Majority of other staff opined that it is available. The difference in opinion is because the nurses and nursing assistants are getting some sort of regular internal professional training. Regarding staffing pattern the opinion of the staff and assessment against NABH standards were the same i.e. inadequate. The equipment management programme has excellent compliance with NABH standards. The staff opinion is also the same

Poor compliance of the quality of operative services is mainly due to lack of some mandatory documentations needed for NABH accreditation like documentation of anaesthesia plan at preanaesthetic check up and of an immediate preanaesthetic evaluation on the day of surgery, separate informed consents for anaesthesia and surgery, documentation of time out and sign out procedures, regular documentation of surveillance of OT environment and monitoring of the use of blood and blood products using Key Performance Indicators.^{7,8,9}

The staff opinion is that it is satisfactory. The difference between staff opinion and assessment against NABH standards is due to noncompliance with the mandatory documentations for NABH accreditation.

SUMMARY

The study revealed that planning and functioning of the MOT complex has mostly POOR order of compliance with NABH standards. The difference between staff opinion and assessment against NABH standards is due to the absence of certain documentations which are mandatory for NABH accreditation but not considered so important by the staff probably due to unawareness. This study highlights the fact that understanding of the concepts of quality management and requirements of accreditation standards helps to guide the efforts in the right direction.^{7,8,9,10}

END NOTE

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