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ASSESSMENT OF SUSTAINABLE HEALTHCARE QUALITY : A STUDY OF EMERGENCY SERVICES IN A PUBLIC SECTOR TERTIARY CARE HOSPITAL

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Key Words :

Healthcare Quality, Quality assessment, public-sector hospital, tertiary care hospital.

Key Messages :

- Quality assurance program in any institution should be an ongoing process which gets intergrated philosophically & functionally.
- It is a fluid process in which essential elements may mature in sequence or in uncoordinated manner.
- Study identified longer tenure of posting of Medical Officer, regular customer feedback, CME programs, management studies & regular peer review as five main factors.

INTRODUCTION

There is a long history of attempts at improving the standards of medical care. Hurwitz (1) has drawn attention to the fact that in the 4th century BC, Plato investigated by setting up panels of doctors and lay people to look at the ways in which the treatment of the sick is practiced(2). Florence Nightingale, in the nineteenth century, was one of the first to study death rates in hospital(3). Within the NHS, the Griffiths Report on management, published in 1983, draws attention to the need to concentrate on measures of the quality of health care. It stated that 'real output measurement, against clearly stated management objectives and budgets, should be a major concern of management at all levels.' We should note that the Griffiths Report gives management a clear responsibility for involvement in quality measures. Performance indicators were introduced into the NHS in 1983 as proxy measures for efficiency. More recently audit, the clinical guidelines movement (4) and the quest for evidence-based medicine (5) have evolved into the current situation with the recent introduction of the NHS White Paper, (A first class service : quality in the new NHS), which announced that the National Institute for Clinical Excellence was to be the standard setter and the Commission for Health Improvement, the monitoring and enforcing agency for quality standards and clinical governance(6).

Health in India is a 'State' subject and majority of the health care institutions are with the government sector. These healthcare institutions are generally characterized by lack of modern equipment, unavailability of motivated staff, noncompliance to standards, poor staff patient relationship etc.

Improvement in social indices such as literacy rate, living standard and introduction of consumer protection act and private health insurance etc., have led to frequent litigations about the poor quality of care provided by the health care institutions and demand of standard care at most competitive prices. All these developments in recent years has forced the managers, planners and policy makers to focus on better health care management with an emphasis on quality of care provided by these institutions, especially that of a tertiary level hospital where highly specialized care is provided.

It is in this context the present study was planned to examine quality as well sustainability aspect of quality efforts with a focus on a tertiary care hospital and to provide areas for the policy implications rated to implementation of sustainable quality efforts.

Aims and objective

The study aims to assess quality of emergency services in public sector (state owned) tertiary care hospital with the specific objectives :

1. To review the existing quality care framework and related norms for emergency services in hospital.
2. To identify and describe the quality parameters such as process, effectiveness, efficiency, acceptability, legitimacy, equity, continuity, safety, etc., which have been used for improving quality management in emergency services in the hospital under the study.
3. To examine the quality of care provided by the hospital under study.

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STUDY DESIGN AND METHOD

Study area:

The present study has been carried out at Emergency (Medical) Services of SMS Hospital, Jaipur. This hospital is one of the large hospitals in India with total sanctioned bed strength of 1575.

Analytical Framework

The analytical framework represents the strategy used to organize topic areas and guide the literature search. After a preliminary review of the literature, discussion with local experts, and discussion with national experts "System approach" was adopted as framework to assess the quality of care provided by SMS Medical College Hospital Emergency. System approach reviews or examines a situation from all the related angles of input, process and output. It also incorporates the perspectives of all the stake holders.

The system model helps in setting quality norms and developing indicators to measure the quality, thus it helps to assess the compliance of hospital against predefined quality norms.

Data collection tools

A total of six types of instruments were designed for the study. They were (i) Checklist for measuring input, (ii) Checklist for measuring process, (iii) Questionnaire for customers, (iv) Questionnaire for doctor, (v) Questionnaire for paramedical staff, (vi) Questionnaire for healthcare experts. All the instruments were derived after intense literature review and interaction with hospital management experts. Pilot testing of all the questionnaires used for patient's satisfaction, staff's satisfaction and expert's opinion on sustainability was done for improving the reliability of the instruments.

Methods of data collection

In this study both qualitative and quantitative techniques have been used to diagnose the issues, concerns and constraints in existing facilities of Emergency Medical Services (EMS) of SMS Hospital. Quality provided by the Emergency Medical Services of Sawai Man Singh hospital was assessed using system's framework.

Input data such as building, facilities, services offered, equipment, policy documents etc. were collected using check list based observation of emergency medical

services's facilities, interaction with staff, review of policy guidelines, circulars, proceeding etc.

Process data such as patient examination, investigation, procedures, activities performed for patient care, infection control, waste management etc. was collected using checklist-based observations. Interviews and discussions with the Head, Medical officers, Resident doctors, Paramedical and support staff of emergency medical services was also carried out. Patient records and other hospital records were also reviewed to calculate various performance indicators of the hospitals.

Output data of Emergency department was collected through hospital records, reviews, patient satisfaction surveys and staff satisfaction surveys. Separate questionnaires for patient and staff were developed specially for this purpose. Satisfaction survey was also done to understand their level of knowledge, attitudes, problem faced, etc. Checklist based in-depth interviews were conducted with the unit head, consultants, Health Directorate officials, Medical Superintendent etc. to understand the laid down quality norms, extent to which it is been adhered to, problems faced by the top management and other issues related to quality and sustainability of quality efforts in the hospital.

Quality and satisfaction related questions were rated using a "yes/ no" type response or 5-point scale. Ratings for satisfaction with services ranged from 'very poor', 'poor', 'satisfactory', and 'good' to 'excellent'. Items for each scale of satisfaction were summated to obtain an overall score for satisfaction with care. Quality related responses were tabulated and the responses were analyzed mainly in percentage.

The total score for the satisfaction related options can range from 22 to 110, with higher scores indicating greater satisfaction. Additional space was provided for patients to indicate whether they would recommend the program to a friend and if they would like someone to call them regarding any questions, concerns, or suggestions regarding their care. Responses to these items are yes or no. The pilot testing was done for content reliability of questionnaire. For the study, evaluation of the internal consistency of the tool items was performed using Cronbach's alpha coefficient, which was adequate at .86. No additional psychometric testing was conducted.

Experts opinion on sustainability of quality efforts in Emergency Medical Services of hospital were also

obtained using structured and open ended questions. Hospital medical records, hospital literature was reviewed to analyze hospitals past performances etc.

Data collection on input, process and output was the most time consuming activity of the study. Meeting Hospital experts and administering questionnaire to find out their views on sustainability of healthcare quality was a tedious task as most consultants were very busy. Prior appointment was obtained to get sufficient time from them.

Data Analysis

The data on patient satisfaction, staff satisfaction, and experts' opinion on barriers to sustainability of quality efforts and the factors important for sustainability of quality was first keyed in CSpro software. Data cleaning and table generation was done using SPSS14.0 statistical software (SPSS, Inc., Chicago, Ill.). Descriptive statistics on the sample characteristics and questionnaire items were computed, including means, standard deviations (SDs), and frequency distributions.

For patients satisfaction, first correlation matrix was developed to find out the association between various factors affecting the satisfaction. Since all 22 variable were having significant association with each other factor analysis was performed using principal components extraction to identify a small number of factors that explain most of the variance that is observed in 22 variables and thus five first principal components (fpc) are found.

The underlying logic here is, when two or more variables are of similar nature and are highly inter correlated, a new variable in the form of a linear combination of all those correlated variables could be constructed by the method of principal component analysis (PCA) which would explain most of the total variables of all the constituent variables. These new variables may be conceptualized either as an overall manifestation or as a generator of all those correlated variables. In fact, the number of linear combinations of the variables that could be obtained by PCA is the same as the total number of the constituents variables. However, in a situation where the variables are highly correlated, just few linear combinations might be sufficient to explain most of the total variations of all the variables. In this study five linear combinations were been obtained.

Let Y_1, Y_2, Y_3, Y_4 and Y_5 denotes the 5 principal components given as :

$$Y_1 = s_{1,1} Q18i + s_{1,2} Q18 ii + s_{1,3} Q18 iii + \dots + s_{1,20} Q18xx + s_{1,21} Q18 xxi + s_{1,22} Q18xxii$$

$$Y_2 = s_{2,1} Q18i + s_{2,2} Q18 ii + s_{2,3} Q18 iii + \dots + s_{2,20} Q18xx + s_{2,21} Q18 xxi + s_{2,22} Q18xxii$$

$$Y_3 = s_{3,1} Q18i + s_{3,2} Q18 ii + s_{3,3} Q18 iii + \dots + s_{3,20} Q18xx + s_{3,21} Q18 xxi + s_{3,22} Q18xxii$$

$$Y_4 = s_{4,1} Q18i + s_{4,2} Q18 ii + s_{4,3} Q18 iii + \dots + s_{4,20} Q18xx + s_{4,21} Q18 xxi + s_{4,22} Q18xxii$$

$$Y_5 = s_{5,1} Q18i + s_{5,2} Q18 ii + s_{5,3} Q18 iii + \dots + s_{5,20} Q18xx + s_{5,21} Q18 xxi + s_{5,22} Q18xxii$$

Where $S_{i,j}$ ($i=1,2,\dots,5$ and $J = 1,2,\dots,22$) are the coefficients, estimated by PCA.

Logit regression was used to develop the relationship between these five principal components with the dependent variables that is the "willingness to refer the family member or relative to this hospital". The same was also done with data collected from the experts for developing sustainability model.

The quality parameters of input, process and output was first tabulated in word file. Then performance for each quality component and element of EMS scoring was done on 0,5, and 10 points. Zero point was given in case the hospital did not adhere to the standard at all and five point was given if the compliance against standard was partial. Full ten marks were given if the compliance was complete in all respect. Paired T test (The Paired-Samples T Test) procedure compares the means of two variables for a single group) was applied assuming that there is randomness in scoring against norms. It computes the differences between values of the two variables for each case and tests whether the average (differs from 0) were applied to see significance of variation. The level of significance was set as $P < .05$ at 95% confidence interval.

RESULTS

SMS being a Medical College Hospital follows Medical Council of India norms mainly on inputs. It does not follow any other standards such as JCI, NABH etc which adopt total quality management approach. The detailed analysis of data on hospital quality is divided in three categories input, process and output. The key findings are given below:

Analysis of Input Indicators :

Component-1 Mission and Policies on Emergency Medical Services

Mission statement is an important guiding factor for defining the scope and availability of the emergency services along with the values and those of the hospitals. Table 1 gives the compliance of hospital for the norms of quality elements CQ1 is 28.6% (paired sample *t* test is 0.063 which means that the compliance variation is not significant).

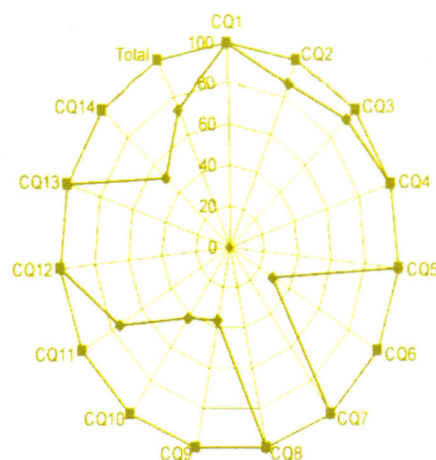


Fig. 1 : Radar image of Compliance

Table –1 : Scoring of hospital for Quality Component 1 : Mission and Policies on Emergency Medical Services

	Quality Elements	Desired Score	Achieved Score	Deflating Factors	Deflated Achieved Score
CQ1	Mission statement of Emergency medical services	10	0	10.00	0
CQ2	Policy on Access, Assessment and Continuity of care	30	15	3.33	50
CQ3	Emergency services are guided by policies, procedures, applicable laws and regulations	30	5	3.33	17
Total		70	20	1.4	28.6

Paired Differences	
Mean	17
Standard deviation	8
Standard Variation (95% Conf. Interval of the Diff.)	-2 to 36
t	4
df	2
Significance (2 tailed)	.06

Component 2– Physical Structure

The physical structure of the emergency medical services has a bearing on the quality of the services that is provided. The compliance of hospital to the physical structure norms is 73% (paired sample *t* test is 0.02).

Radar image (Fig. 1) depicts that compliance to norms of location, floor, door, trolley, reception area, briefing room and store is good. However compliance to the

standards of beds, nursing station, sluice room etc. is low.

Discussion about critical areas of EMS :

- 3.1 X-Ray Rooms : The EMS has two X-ray machines placed near the registration counter of the department. The doors of the X-ray room remain open all the time causing unwanted radiation exposure to the staff, patients and relatives.

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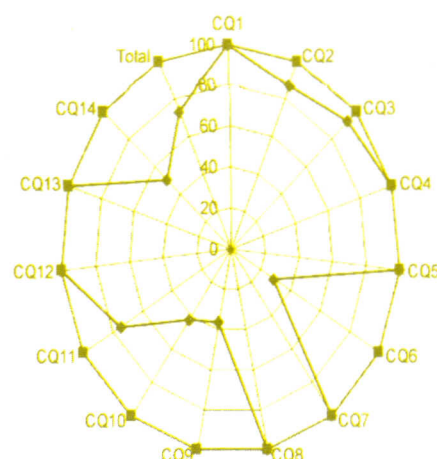


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- 3.2 Observation Cubicle (Room) : No curtain/ screen is placed in the observation cubicles area which compromise privacy of the patients. No equipments are used to monitor the vital signs of patients such as temperature, blood pressure, pulse; central oxygen system etc. are available in the observation area.
- 3.3 Trolley : All patients coming to the emergency department are provided with trolley facility to take the patient inside the examination room. There are total 35 trolleys out of which 25 trolleys are placed out side the emergency department to receive the emergency patient, five trolleys are inside the department and the remaining 5 are kept in stock. Thirty two contractual trolley attendants (porters) are deputed to operate the trolley, however most of the time they do not receive the patients.

Also as per the policy, the trolleys used for patient transfer to other ward/ department are to be immediately returned to EMS. However, most of the time, this policy is not adhered to resulting in shortage of trollies.

- 3.4 Reception area : Though reception is situated near the entrance to EMS, it does not have sufficient space for the relatives to wait.
- 3.5 Waiting area : There is no waiting area in the department. As a result, the patient's relatives usually surround the patients and obstruct the patient care for doctors and hospital staff. The waiting area neither has stipulated space nor does it have the basic facilities such as drinking water, toilets etc.
- 3.6 Store : The room space provisioned for the store is inadequate due to which IV sets are kept on the stairs/floors.
- 3.7 CSSD : The department has a water boiler which is incapable to take the heavy load of EMS.

Component 3 : Utility

Table 2 shows that the compliance of hospital to the utility services norms is 42.11% (paired sample t test is 0.05). Compliance to the norms of light, electricity, water and morgue is hundred percent, but it scores low against the norms of noise level, air conditioning, transportation, communication and security systems.

Table-2 : Scoring of hospital for Quality component 3 : Utility Services

S.No.	Quality Elements	Desired Score	Achieved Score	Deflating Factors	Deflated Achieved Score
1.	Air Conditioning	50	0	2.00	0
2.	AC Ventilation	20	0	5.00	0
3.	Noise Level	20	5	5.00	25
4.	Lights	20	20	5.00	100
5.	Electricity	30	30	3.33	100
6.	Water	10	10	10.00	100
7.	Morgue	30	30	3.33	100
8.	Support Services	20	20	5.00	100
9.	Medical Gas	50	45	2.00	90
10.	Transportation	50	0	2.00	0
11.	Communication	50	0	2.00	0
12.	Security Systems	30	0	3.33	0
Total		380	160	0.26	42.11

% Compliance				42.11%
Paired Differences				
Mean				16
Standard Deviation				25
Standard Variation (95% Conf. Interval of the Diff.)				0 to 32
t				2
df				11
Significance (2 tailed)				.05

Critical Discussion

- The department does not have a full fledged transportation system and the hospital vehicles are mainly used for transporting the staff. However the hospital management has planned to start state of the art ambulance services for the patients of SMS.
- The staff does not have patient's safety orientation. There is no alarm connecting 'triage' area to the main emergency to alert the emergency staff once the patient arrives at the hospital entrance gate.

Critical Discussion

The analysis of personnel structure against the norms depicts hospital has trained medical and paramedical staff but there is no system to define and standardize the job. Similarly there is no system to do training need assessment etc. for the hospital staff.

Though the full time medical officers are deputed round the clock in the EMS. During the nights mostly resident doctors are available in the department.

Table-3 : Scoring of hospital for Quality component 4 : Personnel Structure

S.No.	Quality Elements	Desired Score	Achieved Score	Deflating Factors	Deflated Achieved Score
1.	Management of emergency medical services	20	20	5.00	100
2.	Number of Doctors, Staff Nurse, Technicians, Ward Boys, Security staff etc.	80	60	1.25	75
3.	Availability of Staff	30	30	3.33	100
4.	Training for Skill	80	0	1.25	0
Total		210	110	0.48	52.38
% Compliance				52.38	
Paired Differences					
Mean				25	
Standard deviation				37.9	
Standard Variation (95% Conf. Interval of the Diff.)				-35to 85.2	
t				1.3	
df				3	
Significance (2 tailed)				.028	

- There is no fire alarm system, the security and other medical and non medical staff working in the EMS do not have orientation for fire drills, fire exits etc.

Component-4 : Personnel (structure)

Table 3 shows that the compliance of hospital to the personnel norms is 52.38% (paired sample t test is 0.02). Table 3 clearly depicts that the compliance with availability of staff, management of emergency medical services is good but it does not comply with the norms of training for skill enhancement.

Component 5 : Equipment, drug and furniture

Table 4 depicts that hospital's compliance to norms related to equipment, drug, supplies and furniture to be 73% (paired t test significant level = .00). The department is fully equipped with the basic equipments except for the few life saving instruments such as Infusion pumps, nebulizers and pulse-oximeters.

Critical Discussion

The EMS has medical gas but it is not connected with the central medical gas system.

Table-4 : Scoring of hospital for Quality component 5 : Equipment, drug and furniture

S.No.	Quality Elements	Desired Score	Achieved Score	Deflating Factors	Deflated Achieved Score
	Availability				
5.1	List of equipment, drugs, supplies and furniture	30	30	3.3	100
5.2	Equipment	210	155	0.48	74
5.3	First aid and examination equipment and instruments	180	180	0.56	100
5.4	Medical furniture	130	125	0.77	96
5.5	Surgical Instruments and accessories	140	70	0.71	50
5.6	Dressing Material	120	120	0.83	100
5.7	Non life saving drug material (Tablets/ Capsules/ syrups etc.)	230	80	0.43	35
5.8	Non life saving Injections	120	110	0.83	92
5.9	Life saving drug material	180	180	0.56	100
	Adequacy				
5.10	Equipment First aid examination equipment and instruments	180	110	0.56	61
5.11	Medical furniture	130	110	0.77	85
5.12	Surgical Instruments and accessories				
5.13	Dressing material				
5.14*	Non life saving drug material (tablets/ capsules/ syrups etc.)	230	80	0.43	35
5.15	Non life saving Injections	120	110	0.83	92
5.16	Life saving drug material (tablets/ Capsules/ Syrups)	180	180	0.56	100
	Functionality				
5.17	Equipment	210	130	0.48	62
	Total	2600	1900	0.04	73
% Compliance				73%	
Paired Differences					
Mean				43	
Standard deviation				50	
Standard Variation (95% Conf. Interval of the Diff.)				18 to 68	
t				4	
df				17	
Significance (2 tailed)				.00	

- Most of the EMS equipments such as OT table, OT light, Boyles Apparatus, X-Ray machines etc. are very old and are required to be replaced. The EMS's OT light, AC in OT does not function and doctor has to use torch for putting stitches on the patients.
- Analyzing the availability of instruments and supplies (CQ1–CQ8), it is found that all the necessary drugs are available in the department. However, there is shortage of instruments sets. To handle a work load of 250–300 cases the hospital requires a minimum of 20 sets however it has only one set.

Process

Process and performance measurement in healthcare represents what is done and how well it is done.

Component 1 : Patient Care

Hospital's compliance to patient care norms is 30% (paired t test significant level=.00)

Critical Analysis

The detailed analysis of (process) against the standards follows.

- Generally, the reception plays a key role in organizing the non clinical activities of the emergency. However, the staff at reception is contractual and they only do registration. The behaviour of the reception staff is apathetic towards patients.
- In the hospital under study nursing and group D staff do not attend to a patient until the doctor(s) examine the patients and advise the nurse to administer the drug, injection etc. Road accident victims (patients) keep on bleeding even when they are send for diagnostic test such as X-ray, as they are not cleaned, no solution is applied.
- The hospital does not provide ambulance services, and hence norms applicable to "on site" resuscitation, transportation of the patients are not applicable for the hospital.
- In case of severe road traffic accidents, the patients are transferred to the neuro department and the transfer to Neuro itself takes nearly 15–20 minutes inside the hospital and hence the "response time" for such cases are even longer. Most of the time the

patients are attended and treated by the resident doctor.

After initiating treatment patient is kept in observation cubicles under observation. During this time (especially after the closure of the regular OPD) the staff does not interact with the patient/ relatives as a result, some times the attendant becomes furious about their health conditions.

Hospital CT Scan machine is kept in the Neurology department, therefore patients with severe head injury are send there after examination, this wastes vital 15–20 minutes. If the cases which require CT scan could directly be send to neurology department or a CT Scan machine be installed in the department it could save precious life of many head injury victims.

The hospital has a X-ray unit but there is no laboratory facility in the department. All the cases for laboratory tests have to be sent to the main laboratory when it is required. As per the standard (QC8) the sample collection should be done by the nursing staff or a phlebotomist in the department and only samples are send to the lab not the patients. However, this is not followed here in the EMS.

The process of handing and taking over duties by doctors is not documented. This sometimes hinders the continuation of care and could be detrimental to patient health.

The patient medical records are not filled in completely, most of the columns are not filled by the staff and many non standard abbreviations are also used while completing the medical case sheets.

Output

The output is the most important parameter of quality, specially in healthcare sector where the customer that is the patient does not necessarily have sufficient information about his health condition. The patient also at times does not know 'input' and 'process' requirements for getting his ailment cured that is getting the 'output' of his health seeking activity. The summary of output indicators are given in the table 5.

Table – 5: Analysis based on Quality parameters of Output

S.No.	QC	Norms	Assigned Score	Achieved
1.	Patient stablized	All patient are triaged and then critical patient with highest chances of recovery are stablized by medical interventions,	10	10
2.	Speedy care	If the patient is critical all the necessary medical staff is paged immediately and they reach within five minutes. For this indicator the Standard is 90%	10	0
3.	Average length of stay	Average length of stay of emergency services is 24 hours	10	10
4.	Readmission of discharged cases	Unplanned readmission in emergency cased should not be within 72 hours of discharge. It may also reflect premature discharge as a consequence of inadequate resources or reflect the standard of ward care.	10	10
5.	Utilization	85%	10	10
6.	Mortality	The net death that is death after 24 hours of admission in the EMS should not be more than 2–2.5%	10	5
7.	Infection rate	Infection rate should not be more than 10%	10	10
8.	Patient satisfaction	95% patient satisfaction	10	0
9.	Staff Satisfaction	95% staff satisfaction	10	0
10.	Waiting time	After reaching SMS EMS all patients are attended within 10 minutes time	10	5
11.	Total		100	70
12.	% Compliance		70%	
13.	Standard variation		-0.22 to 3.22	
14.	Standard deviation		2.3	
15.	Significance level		0.081	

The output compliance for 10 indicators taken for the study is 70% (t value.08). Since, only 8.3% cases reported to be attended within 5 minutes. (International standards for emergency care) the hospital's compliance was poor in this aspect. The data from patient satisfaction reveals that 4.2% patients had developed some kind of infection such as fever, pneumonia etc. The mortality rates of the SMS hospital is nearly 4.5%, which is less than expected. One reason for this is being a super speciality tertiary care hospital, it gets mostly severe cases referred from the district and distant from Jaipur.

Discussion

Determinant's of patients' satisfaction

- From analysis of patient satisfaction data it is obvious that privacy is maintained in the ward, care provided by the doctor, behaviour of the nursing staff, availability of life saving equipment and availability of drugs are the major factors affecting the patient satisfaction.

Determinant's of staff satisfaction

- The overall staff satisfaction is a meager 48% and therefore the hospital must pay special attention to staff satisfaction.

- As reported by staff, lack of job description, lack of SOP and absence of training for staff affects the quality of care in EMS.

Working with barriers to sustainability of quality

- Work pressure, lack of physical infrastructure, poor communication, lack of clear guidelines, lack of coordination among management and staff, non conductive work environment and poor triage system, poor resource management, attitude of paramedical and support staff and unionism are the main barriers reported by the experts.

Promoters to sustainability of quality efforts

- Analysis of experts opinion about factors, viz, posting of medial officer incharge for longer period, taking regular customer feedback, conducting management studies, organizing continued medical education programme and institutionalizing the regular peer review programme are the five major factors influencing the sustainability of hospital quality.

RECOMMENDATION

Based on the analysis of the gaps, following recommendations are made for sustainable quality efforts of the hospitals.

Inputs

Formulation of Policy

- Need to develop a clear cut mission statement and all the staff be trained on it so that every body bears the same level of commitment towards achieving the mission of the EMS.
- Need to have clinical protocols of the common ailments. Suffered by patients reporting to EMS.

Upgrading the Infrastructure

- There is need to have a digital X-ray machine in EMS for improving the quality of X-ray and increasing the promptness in services.
- A new CT Scan machine should be placed in the EMS department to avoid the transfer of patients from EMS to Neurology department and thus reduce the response time by atleast 15–20 minutes.

- Need to provide the crash cart, effective communication system, nurse call system, patient monitoring systems etc. at the nursing station of EMS.

- Need to create the waiting area with basic facilities such as seating arrangements, drinking and toilet facilities so that relative can get relaxed and wait while their patients are being treated in the hospital.

- Need to provide the sufficient storage facility in the drug store of the EMS

The central AC be provided in the EMS, specially in the CPR, ICU, OT and observation areas of EMS to effectively manage the nosocomial infection.

- Need to provide the central medical gas and central suction facility CPR and minor OT to provide the effective and timely medical care to the patients.

- There is need for an Ambulance equipped with all life saving equipment such as suction machine, oxygen gas, ventilator, defibrillator, ambu bag etc., a good communication system and with trained staff. The ambulance will help provide “onsite” resuscitation, care during transportation and immediate medical care at hospital.

- There is a need of emergency communication system in the hospital, whereby important hospital authorities, consultants, drivers, nearby police station etc are connected with each other through wireless, mobile telephones or other communication system. A clear line of command is also required for the department.

- Main entrance of the EMS be provided with a call bell so that security can alarm the staff on arrival of patient.

Risk and Reward System

- All staff should be provided with job description along with clear guidelines on risk and reward system at work place.
- All the staff be given a training on Standard Operating Procedures for EMS.
- All EMS staff be given training on basic emergency care such as ABC, operating

defibrillator, operating the suction machine, operating ECG machine, transferring the patient to and from ambulance, operating fire fighting instruments, bio medical waste management etc.

- The hospital must organize regular training for all cadres of staff so that they get reinforced with old concepts and get opportunity to know newer and emerging concepts.

Inventory Management

- Need to implement modern drug management system, implement standard equipment maintenance plans and provide the latest equipment such ventilators, defibrillators, Boyle's apparatus, patient monitoring system etc.
- The EMS should analyze the utilization rates and drug consumption for procurement planning of drug and supplies.
- Regular reports for expiry of drugs need to be generated.
- Since in case of "stock" outs hospitals frequently purchase life saving emergency drugs there is a need to have list of 3–4 selected vendors with annual rate contract (if possible) so that efficient drug supply can be ensured.

Process

Patients care

- Need to involve nursing and support staff in patients' care through proper job description etc. This will also help hospital comply with norms of responsive care.
- There is need to revisit the norms pertaining to the patient's physical examination, diagnostic tests to be done, history and other information to be recorded etc. and staff be trained on all these aspects.

Infection control

- Need to develop a thorough infection control manual with complete job responsibility and monitoring mechanism, with HOD EMS to be made responsible for implementation of the same.
- Need to provide supplies and facilities (such as gloves, mask, soap, sterile equipment and environment etc.) in the department.

- Need to develop incentive schemes to be developed for high risk area with lowest Infection rates Mopping and disinfection practices to be followed and documented.
- All the staff be trained and regular surveillance be done to minimize the hospital acquired infection at its accepted level.
- Need to periodically analyze hospital acquired infection rates. Microbiology department to be proactive for the same.

Maintenance

- As per the hospital norms it is required that all the equipment have the history sheet pasted on it with full detail about the equipment, vendor, contract number of vendor, accessories available etc., annual maintenance contract is done and preventive maintenance is done as per the specified plan in the hospital.

Output

Measurement of patient's satisfaction : Hospital management must regularly take the patient satisfaction data and pay attention on privacy maintained in the ward, care provided by the doctor, behaviour of the nursing staff, availability of life saving equipment and availability of drugs are the major factors affecting the patient satisfaction etc.

Measurement of staff's satisfaction

The hospital need to revisit its manpower planning, develop job description and strengthen staff by regular training programme and improve the performance of staff by duty scheduling and proper monitoring system.

CONCLUSION

Quality Assurance institutionalization is an ongoing process where activities related to defining, measuring, and improving quality become formally and philosophically integrated into the structure and functioning of a healthcare organization or system. It is not a linear process, but rather a fluid one in which the essential elements may mature in sequence or in a less coordinated fashion. There is no one formula or set of steps an organization should or must follow to successfully institutionalize QA. The framework of eight essential elements and the phased process of institutionalization outline the critical aspects and road

map for creating a lasting program to improve the quality of healthcare and organization or system provides.

Since posting of Medical Officer Incharge for longer period, taking regular customer feedback, conducting management studies, organizing continued medical education programme and institutionalizing the regular peer review programme are the five major factors influencing the sustainability of hospital quality therefore hospital authorities must make efforts to work on these aspects.

REFERENCES

1. Hurwitz B.. Legal and political considerations of clinical practice guidelines. *BMJ* 1999; 318; 661–4.
2. Plato. *Statesman*. (Annas J, Waterfield R, eds) Cambridge : Cambridge University Press, 1995XVI–XVII, 60–1.
3. *Notes on hospitals*. 3rd Ed, London : Longman Green, 1863.
4. NHS Executive. *Clinical guidelines*. Leeds, NHSE, 1996 : 10.
5. Secretary of State for Health. *The new NHS*. London : Stationary Office, 1997.
6. Deptt of Health. *A first class service : quality in the new NHS*. London : DOH, 1998,21