



International Journal of Research in Pharmacology & Pharmacotherapeutics



ISSN Print: 2278-2648

IJRPP |Vol.5 | Issue 4 | Oct - Dec - 2016

ISSN Online: 2278-2656

Journal Home page: www.ijrpp.com

Research article

Open Access

A study on SNCU performance indicators for effective implementation of total quality management system

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ABSTRACT

The total quality management system is committed mostly in order to attain high standards of work output in various fields. By applications of this technique in a sick neonatal care unit, it will be beneficial. Generally, various SNCU indicators were used for the effective implementation of a total quality management system. Actually main goal of this is for, an organization should establish, maintain certain documentation and implement them along with the maintenance which suits for an international standards which can be found by various data presentation and analysis technique to be calculated by using some of the formula for an analysis of trend in system and also alterations to do for them. General observations are done at in hospital SNCU, some considerations need to be done for this study, analyzed data of performance of indicators which were analyzed over a period of 6 months and discussions of various performance indicators are to be noted .if any problems were detected in TQM that can be altered by taking some suggestions, by doing so standards can be attained.

Keywords: Trend analysis, LAMA rate, SMART, Performance Indicator.

AIM

The organization shall establish, document, implement and maintain a TQMS and continually improve its effectiveness in accordance with the requirements of this International standard.

Objectives

- To Determine the performance indicators needed for the QMS and their application in SNCU.
- Ensure the availability of recourses and information necessary to support the operation and monitoring of the performance indicators.
- To monitor, measure and analyze the performance Indicators.
- To help decision making for implementation of planned SNCU objectives.
- To provide the necessary feedback in guiding policy makers and health care administrators in evolving polices, improving procedure and establishing effective system of the SNCU care.

METHODOLOGY

Following performance indicators are taken for determining the total quality management system in SNCU.

1. Bed occupancy rate
2. Average length of stay
3. Bed turnover rate
4. Bed Turnover Interval
5. Death rate (neonatal monthly rate)
6. LAMA rate
7. Employees satisfaction index
8. Nurse to bed ration
9. Staff absenteeism

These performance indicators help in evaluating and monitoring the effectiveness and efficiency of operations of a hospital.

DATA PRESENTATION AND ANALYSIS TECHNIQUE

Similarly the data over a period of six months collected and analyzed for trend analysis. Any significant or alarming change in the trend requires root cause analysis followed by corrective and preventive actions. We have collected data pertaining to the quality indicators on the basis of available record with the following formulae.

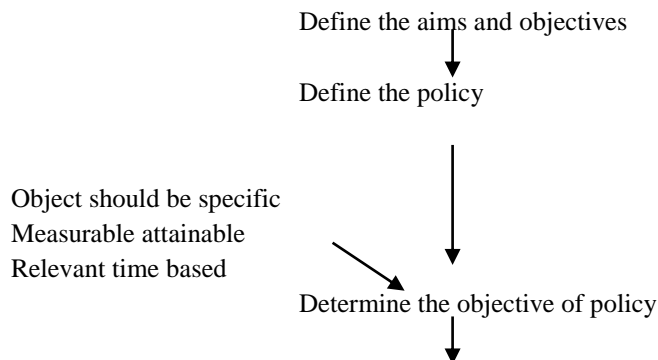
Data techniques

BOR $\frac{\text{Total patient bed days for a month} \times 100\%}{\text{Calendar days in month}}$

ALS $\frac{\text{Total patient bed days in a month}}{\text{Discharges in month (Death, referred, LAMA, Abscond)}}$

TQMS

Total quality management system process.



BTR $\frac{\text{Total number of discharges (including deaths, lama, abscond/Functional bed)}}{\text{Functional bed}}$

BTI It denotes the average time in days elapsing between the Discharge of one patient and the admission on the next on that bed

$\frac{\text{Bed compliment} - \text{Number of hospitalization that month / Discharges and death}}{\text{Discharges and death}}$

Neonatal death rate

Number of deaths during the first 28 completed days of life.

LAMA rate $\frac{\text{Total number of LAMA case} \times 100}{\text{Total number of admissions.}}$

Nurse bed rate

1:1 +30% extra for ICU

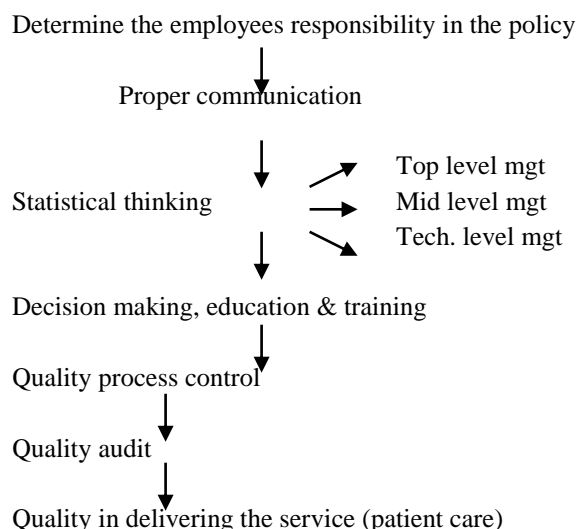
Employee satisfaction index

Staff absenteeism

Absent of staff without prior information of Medical Superintendent, RMO.
Data taken from available records of MRD section

REVIEW OF RELATED LITERATURE

The information regarding TQMS has been taken from quality management in public health facilities, an implementation hand book published by NRHM.



Objectives should be specific, Measurable, Attainable, Relevant and time based (SMART)

Decision making

The process of generating and evaluating alternatives and making choices among them.

Decision making process

Identify the problems or opportunity → Develop alternatives → evaluate alternatives → Choose and implement the best alternatives → Evaluate the decision.

STUDY AREA SNCU

SNCU

Sick new born care unit established at District Hospital, Mahabubnagar on 16.09.2012 by Hon'ble CM of AP, under NRHM programme. The bed strength of total SNCU is 20 beds. 10 beds for out born, 10 beds for in born.

The SNCU established with fully equipped except Neonatal ventilators and also with all resources including Human resources. SNCU located at 2nd floor of hospital which is very near to Lab, Radio diagnosis and emergency medicine department.

General observations

1. Overcrowding of the SNCU
2. Shortage of staff nurses
3. One Head Nurse required for monitoring of the nursing services.
4. The bed occupancy rate is more
5. Lack of Neonatal ventilators.

In above circumstances and after careful examination for better quality of patient care I want to study and examine through the above circumstances effecting and prevailing at the SNCU and I have taken decision to study on SNCU and also I want to monitor, measure analysis the performance indicators to take proper decision making for implementation of planned SNCU aim and objects.

Limitations of study

- a. Area is limited and I have taken District Hospital, Mahabubnagar which should be enlarged other institutions.
- b. Limited times spends for data collected i.e. 6 months which is limited for elaborative work.
- c. A performance indicator has been taken 9 only.

Data Analyses

Performance Indicator	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-13
BOR	100%	131%	112%	95.1%	112.2%	132.4%	162%
ALS	6.8 days	6.5 days	6.7 days	5.4 days	6.18 days	6.15 days	5.6 days
BTR	5.3 times	5 times	4.9 times	4.95 times	5.45 times	6.48 times	8.65 times
NMR	4.1%	10.5%	12.3%	16.6%	13.3%	16.4%	18.26%

LAMA	7.5%	5.17 %	3.4%	10.28%	6.45%	10.85%	13.81%
BTI	0	(-1day)	-0.5 days	0.8 days	-0.5 days	-1 day	-2 days
N to B ratio							
Staff absenteeism							
Employees satisfaction							

DISCUSSION

BOR

Optimum bed occupancy rate for ICU is considered to be between 85% to 90% where as remaining 10 to 15% beds are available for undergoing maintenance change of Lenin and emergency cases. Here in SNCU the bed occupancy rate is more than 100% in every month, it is due to socioeconomic backgrounds of Mahabubnagar district people and also their poverty. Hence, most of the people were depending upon public sector and also the SNCU services are running more effectively, efficiently, that's why any time bed occupancy rate is more than 100% in above circumstances there should be increased bed strength from 20 to 35.

ALS

ALS of patients 5 to 7 days in SNCU it is normal limits even though patients who are admitting with low birth weight immature babies. Actually such type of admissions required 10 to 15 days of ALS. But in SNCU there is choice for them to stay for 5 to 7 days it is due to close monitoring services and delivering the quality of patient care. ALS is influenced by the following factors.

- Patient characteristics
- Disease characteristics
- Hospital characteristics

Here sufficient patients stay has observed and no in-effective handle of them is noticed and they become healthy with in the give duration of time with effective care and nursing.

BTI

Too long or too short BTI both are undesirable. The ideal BTI should be maintained at 0.5 days between one admission and discharge. This is for changing of bed sheets, cleaning of bed, fumigation of bed etc. But in SNCU the gap is around -1.5 days. It is only due to over cording of SNCU. As per my observation of the records and tables, I observed that it is much crowded and no time was given to conduct above process.

BTI BOR

0	100%
(-)	more than 100%
2	Deflating admission and discharge

Defaults BTI due to

- Overcrowding of SNCU
- Default in admission and discharge policy
- Admission of very sick born baby
- Discharges are less compared to admissions.

BTR

In SNCU BTR is 5 to 7 times in a month. It means that one bed turnover is 5 to 7 patients in a month. The BTR is within the normal limits.

Neonate mortality rate

Death occurring below 28 days of birth is called neonatal death rage. It is due to

- low birth weight
- Premature babies
- socio economic background
- education
- rural background
- lack of nutrition
- Lack of health education.. In the above reasons the NMR are increased it is observed that in the SNCU the mortality rate of neonates are increasing day by day due to different reasons from Nov-2012 to May-2013.

LAMA

As per norms LAMA rate is < below the normal limits.

Nurse bed ratio

As per IPHS norms in ICU 1:1 +30% extra
 For SNCU 20 beds: 20+30% extra
 20+6=26

30% extra for (CL's, Day Offs, Maternity leaves, EL and Medial leaves) existing 14 members staff nurses were recruited in SNCU. But as per norms 12 members staff nurses and one senior Head nurse may require to monitor the nursing services in SNCU.

Employee's satisfaction index

Survey conducted at SNCU employees. They are satisfied with their job chart and most of the employees stated that,

- a) Due to more than 100% of bed occupancy rate, the work load of SNCU is more.
- b) Salaries are not received regularly. They are receiving salaries once in 3 months.
- c) SNCU staffs are working on contract basis. They stated that the top management should recruit the employees on permanent basis so as to work.
- d) The employees stated that they feel more responsible if their services are regularized and also discharge duties with fullest satisfaction of top management and public.

Staff absenteeism

Absence from duty without prior intimation to CS RMO and Medical Superintendent is called staff absenteeism. It may be due to

1. Lack of interest on job
2. Dis-satisfactory salaries
3. Un-healthy environment of working area
4. Egoisms

At SNCU staff absenteeism is nil.

SUGGESTIONS

- Enhance the SNCU beds from **20 to 35** beds
- As per IPHS norms the SNCU should recruit 26 staff nurses where the deficit of 12 staff nurses are observed. So there is a need to recruit another **12 staff nurses** to cater to the needs of SNCU.
- All bio-medical equipment is having AMC (Annual Maintenance contract) for minor repairs and problems. But they are not attending with in time for rectifying the repairs and problems of BME. . Hence, one Bio-medical technician may be required for rectifying the bio-medical

equipment problems. So it is required to have **Bio-medical technician**.

- If SNCU bed strength is enhanced from 25 to 35 beds, correspondingly human **resources** should also be enhanced per IPHS norms.
- If any patient required ventilator support we are referring the cases to higher center. Hence, **4 neonatal ventilators** may be required to SNCU for better patient care.
- Most of the SNCU patient attendant's are below poverty line. We are suggesting that the top management should take the decision to pay **Rs.100/- as remuneration** to patient attendants for **IP days like NRC**.
- Required one **medico social worker** to educate to the mothers on the following subjects
 - Breast feeding
 - Immunization
 - Nutritional habits
 - Family planning
- Required fire **safety alarms system** at SNCU in emergency conditions.
- It is better to recruit SNCU employees on **permanent basis** so as to get good quality of services.
- For **enriching their skills** "Continuous Medical Education" should be conducted every six months.
- Required one separate **generator** for SNCU for un-interrupted power supply.
- Required hot water supply to mother's waiting room which may be supplied by solar power system.

CONCLUSION

We conclude this "work study" by saying, if the top management takes necessary steps to improve the job satisfaction and skills of the employees of the SNCU they will work efficiently and their services will improve in the long run. So it is better to follow the suggestions to get 100% quality output from SNCU.

The top management should take decision to implement the quality circle in SNCU for continuous improvement of the SNCU services.

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