



A WAY TO ASSESS FUNCTIONAL STATUS AND IMPROVE EQUIPMENT UTILIZATION IN A TERTIARY CARE INSTITUTE.

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ABSTRACT

Medical equipment is an integral part of the physical and functional infrastructure of any healthcare setup. Hospital equipment appliances & technology have become important issues because of their significant contribution in patient care and hospital management. It is therefore imperative to assess their operational functionality and utilization by equipment audit, maintenance and repair. As equipment audit is a lengthy process with delayed results there is requirement of more frequent review in order to ensure maximum functionality and identify surplus/deficiency. The regular administrative rounds in a tertiary care institute in NCT of India revealed number of faulty non-functional equipment as well as deficiency as per need in select patient care areas. A less time consuming semi structured equipment assessment was planned to find out the status of non-functional, deficient and surplus equipment in these areas. This paved the way to take remedial measures like reducing downtime of critical equipment and optimising future procurement, thus resulting in better patient care and better utilisation of hospital resources.

KEYWORDS : Equipment assessment, equipment audit.

Introduction

The current global healthcare scenario is focused on improving patient care and ensuring smooth functioning of any healthcare setting. Any industry for its smooth functioning requires an amalgamation of manpower, machinery, materials, methods and monitoring in general. However in a healthcare setting all these 5M's revolve around patient outcome of which Medical equipment (machinery) is an integral part of the physical and functional infrastructure of any healthcare setup. Hence hospital equipment appliances & technology have become important issues because of their significant contribution in patient care and hospital management. Equipment inventory is an essential part of an effective health care technology management system. Quality management of health-care technology helps ensure that these services are provided in a safe and effective way. The first step in managing health-care technology is to determine what items are to be managed and to create the health-care technology inventory. The inventory is a working document that is regularly checked and updated to accurately reflect the status of health-care technology assets. When used appropriately, the inventory serves as an important and powerful tool to improve management of many key aspects of health-care technology. It is therefore imperative to assess its operational functionality and utilization by equipment audit, maintenance and repair. The inventory also serves the purpose of getting the status of existing equipment in a snapshot on a regular basis, which if incorporated in periodic administrative rounds may help reduce the downtime of the equipment, rather than only relying upon resource intensive equipment audits.

Background:

During routine administrative rounds of the in patient areas, it was reported by the Nursing Incharges that certain medical equipment were either non-functional or deficient in number. As a human tendency surplus was not reported. This was a regular feature during the administrative rounds.

Though, the equipment audit is the method of choice to assess the ground situation, it being a lengthy process, a quicker and feasible method which can be easily integrated into the daily working was carried out. Therefore as a concerted effort, it was decided to carry out a spot assessment of all the existing medical equipment available in the select inpatient wards.

The objective of this exercise was to find out the functional status of the existing equipment, quantify surplus/deficient, assess their optimal use and to check, for any, discrepancies in the stores and Nurses' equipment log register.

Case Presentation:

The medical equipment is a critical and vital part of any patient care area. To ensure the functionality and effective maintenance of equipment inventory, the Nursing In charge maintain an equipment log. However, it was found during the regular rounds that these equipment logs were inappropriately maintained, making it difficult to get a clear picture of the functional status of all the available medical equipment. In addition to the irregular maintenance log of equipment, the functional status of the certain critical medical equipment was also found to be erratic.

Methodology:

All Nursing in charges maintaining equipment log in the ward were asked to give a record of critical/high value equipment under the following heads: Name of Equipment; Serial No; Name of the manufacturer and its supplier; Date of Purchase; Existing frequency of maintenance; Date of last maintenance & present functional status. On collection of the above mentioned information, a physical verification of the documented equipments was carried out to confirm the authenticity and to assess the on ground situation. The above mentioned format was given to the 9 select in-patient areas spread across three floors of the hospital. The data was collected over a period of one month (April 2016) and collated.

The physical verification of the listed medical equipment was followed by an informal unstructured interview with nursing staff in order to assess the frequency of utilization of individual equipment, their frequency of breakdown and its adequacy according to requirement. Nursing staff was also enquired regarding its maintenance frequency and procedure followed during equipment breakdown. This information was further crosschecked with the records maintained in the stores along with their maintenance schedules (both annual and comprehensive maintenance contracts which ever applicable and if existing).

Result:

A substantial part of the hospital equipment was found idle due to ill maintenance affecting patient care. Challenge was to have all the equipments functional at all times. The exercise carried out revealed the following findings.

1. Certain critical equipment that are required on a daily basis were found non-functional due to noncompliance by the vendor for maintenance.

2. It was also found that commonly required critical equipment were surplus and lying idle in certain areas which could have been better utilised if re-appropriated at different places as per need.

3. There were few high cost noncritical equipment which were very sparingly utilised to an extent that they were either used once or less than once in a year.

4. Certain critical equipments were found deficient in certain patient care areas as per the requirement of the patient care area.

Remedial Measures:

This exercise resulted in certain remedial measures that required administrative attention:

1. The Stores was asked to render a show cause notice to the vendor in the case of long standing non functional equipment. The result of this action taken was that the vendor brought the non-functional equipment to a functional status and started carrying out periodic maintenance as per the schedule in AMC.

2. The existing non-functional equipments were checked for their maintenance contracts with the help of the Stores Officer. The items which were beyond economic repair were condemned and those which could be repaired intimation was sent to the respective vendors.

3. The medical equipment not being optimally utilised were taken into consideration for relocation and future procurement. The request for purchase of a similar sparingly utilised high cost equipment was turned down quoting this exercise as the existing functional equipments were lying idle and the same could be taken for use from these areas if need be.

Conclusion and recommendation:

The scheduling of maintenance of equipment in a particular health-care facility should be finalised during the installation of every equipment and the same should be integrated with technology to maintain equipment log at ward level and at the store level. A uniform procedure needs to be followed in case of an equipment breakdown along with proper timelines regarding maintenance schedule of the equipment so that recourse action may be taken in case of non compliance by the supplier of the equipment.

Exact matches between workload for the equipment in the hospital and the staff available to do the work are rare. So, rather than plan a programme with the goal to inspect and maintain all the equipment and then not completing the scheduled work, it is better to carefully identify the equipment in the health-care facility that is the most important to inspect and maintain, and schedule this work as a priority. Creating a 'tiered process', where the most important equipment is dealt with first, is a better use of limited resources. The present study conducted revealed that routine informal checks with respect to functional status, adequacy vs deficiency and optimum utilisation of equipment as first tier of Equipment Maintenance programme was less time consuming and brought out significant discrepancies and provides a dynamic real time actionable input which would ensure maximum equipment uptime and future procurement. This regular exercise would be a valuable aid to a comprehensive yearly equipment audit which is a mandatory requirement of any healthcare setup.

Reference:

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