

A Study on ABC Analysis of Surgical Instrument in Selected Tertiary Care Hospital

Shwetha Pradeep

Department of Hospital Administration, Father Muller College of Allied Health Sciences, Kankanady, Mangalore, Karnataka, 575006, India

Abstract: ***Introduction:** A large part of the hospital budget is spent on hospital supplies. It is therefore necessary that proper control techniques are applied in order to control the costs involved in maintaining the inventory. ABC analysis is one such method. **Methodology:** The study used the explorative method. The data was collected from the store manager of the general store through the interview method and the record maintained in the general store. The procedure adopted was that the consumption value calculated for each item was arranged in descending order based on the cumulative annual consumption value computed; items were arranged in the ABC category. **Results:** A-class items were 10% and contributed to 61% of the consumption value; B-class items were 20% and contributed to 26% of the consumption value; and C-class items were 70% and contributed to 13% of the consumption value. **Conclusion:** The study revealed the items that require close supervision and strict control in order to necessitate efficient management. As surgical items constitute a big investment, this will help in controlling unnecessary expenditure.*

Keywords: ABC analysis, inventory control, surgical items instruments. Analyzing the inventory of instruments to determine

1. Introduction

Materials are a significant source of cost for every business. In healthcare institutions, purchasing and store management account for about 40% of the budgetary allocation. It covers all store operations, from the stage of requirements up to final disposal.

Every hospital aspires to master the management of instruments. Surgical equipment has become more complicated and expensive. For healthcare facilities, the devices constitute a considerable financial investment. In the modern healthcare environment, there are thousands of various types, shapes, and sizes of surgical instruments available in hundreds of instrument sets.

The actions listed below can assist improve efficiency and maintain change when creating best practices for managing surgical equipment inventories: Carefully listing the initial their quality and condition. Enhancing the precision of all count sheets. Setting up a mechanism for tracking. Migrating the back stock inventor's data.

When it comes to the healthcare sector, the inventory is a significant investment, and its effective administration generates profits. A wide range of items are offered to the healthcare industry, with clinical consumption materials having a particularly significant financial impact. This sector also includes a specific collection of products called clinical consumption materials, which need to be properly handled if precise healthcare services are to be provided.

Inventory is a record of the products and supplies that a business keeps on hand as available stock. In order to ensure an appropriate supply without an overwhelming oversupply, inventory control involves monitoring the supply, storage, and accessibility of goods.

The ABC analysis approach is one of the primary strategies used in inventory and supply chain management. It is frequently considered the starting point in inventory control

and is frequently utilized as a critical lever to support various other inventory chores, including stock counting, wise purchasing choices, and storage locations. ABC inventory analysis is based on the Pareto Principle. The Pareto Principle states that 80% of the sales volume is generated from the top 20% of the items. It means that the top 20% of the items will generate 80% of the revenue for the business. It is also known as the 80/20 rule.

ABC analysis is the basis for material management processes and helps define how stock is managed. The ABC category for an inventory item is derived based on its cost and quantity. It is not possible to say that an item is always a class A item or a class B item. The category of an inventory item can change over time. An inventory management system should be able to, based on the information available, periodically update the ABC assignment.

Items in Group A are managed at the highest level with strict oversight. It is important to keep safety stocks at a minimum and to maintain strict estimations of requirements. For products in group B, moderate control is used, safety stockpiles are kept at a moderate level, and management is done at the intermediate level. For products in group C, standard control procedures are used, safety stocks should be large, and management is done at a lower level.

ABC analysis is a straightforward analytical management strategy that helps top management concentrates their efforts where they will have the greatest impact. The alphabetical technique, also known as always better control, is a tactic that may be applied in many different occupations.

The ABC Inventory Control Method Has the Following Benefits: This technique aids organizations in maintaining control of pricey assets with significant capital outlays. It offers an order to the chaos of managing all the inventory. Not only does it cut down on pointless employee costs, but it also makes sure that stock levels are always kept at their ideal levels. The ABC technique uses systematic inventory control to ensure that the stock turnover ratio is kept at a

comparably higher level. With this technology, the cost of storage is significantly reduced. Without sacrificing the more crucial commodities, there is a mechanism for maintaining enough C category stocks. In order to improve inventory control in a hospital, it is therefore ideal to study ABC analysis.

2. Materials and Methods

The study was an exploratory type was conducted in a tertiary care hospital. The data was collected from the records maintained in the general store and store manager was interviewed.

To conduct ABC analysis the following procedure was adopted that is the consumption value for each item was computed & arranged in descending order. The cumulative annual consumption value is computed and items are arranged in ABC category. Data was using analyzed using descriptive statistical methods such as percentage & presented in the form of tables.

3. Results

The hospital was not practicing ABC method of inventory control. An interview was first conducted to study the existing method of inventory management. The findings of the inerview is presented below –

Surgical supplies were divided into four categories: implants, sutures, and expendable and non-expendable supplies. Each item is assigned a unique code based on its classification. The store manager estimates requirements in collaboration with the surgical specialist and purchases as and when required. There is no safety stock kept on hand.

The User Department sends the requisition note to the store department as the need arises. The store manager looks at the stock book to determine the need. If materials aren't in stock, the store manager places order. The instrument is received at the stores department, consignment is first checked for damage then sent for review by the department HOD, and then given to the user department. 30 days was the typical lead time to get a surgical device. Requisition slips, Purchase orders, Department Indent Books, Purchase Bills, Purchase Goods Receipt Notes, and Issue Goods Receipt Notes are all maintained for surgical items. It was observed that the surgical supplies lacked adequate control.

A total of 974 surgical items were selected for the study. The data was collected from the stock registers maintained in the stores. The store maintains the ledger in the following format.

S.No	Item	Opening balance	receipt	Issues	Closing balance	Unit price
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The consumption value for each item is calculated by multiplying unit cost & annual consumption. It is then arranged in descending order and the cumulative annual consumption value is computed for each item. The list of items were categorized into A, B, C category based on cumulative annual consumption value approximately based

on 70%, 20%, 10% respectively.

Table 2: Distribution of consumption in surgical items in stores

S. No	Items	% of items	Annual consumption (Rs)	Consumption value (%)	Class of items
1	97	10	983715.62	61	A
2	195	20	411896	26	B
3	682	70	213753.58	13	C
Total	974	100	1609365.2	100	

Based on the above table, results indicate -

A- Class items: 10 % of items contributing 61% of the consumption value,

B- Class items: 20 % of items contributing 26% of the consumption value

C- Class items: 70 % of items contributing 13% of the consumption value

4. Discussion

The study shows that A Class items were 35(10 %) and contributing to 61% of the consumption value, B Class items were 195 (20 %) and contributing to 26% of the consumption value, C Class items were 682 (70 %) and contributing to 13% of the consumption value. The study is compared to other studies conducted at public sector tertiary care hospital where ABC analysis revealed that 35 items (14%), 52 items (21%), and 171 items (69%) were categorized into A (70%), B (20%) and C (10%) category based on annual consumption value respectively (Hussain et.al, 2019). Similar study conducted at expendable medical store at a tertiary care hospital by Kumar & Chakravathy, 2015 reveals that out of 1536 items, 104 (6.77%), 296 (19.27%) and 1136 (73.95%) items were found to be A,B and C category items respectively. Study gives clear idea A being most valuable items, C being the least valuable ones. This methods aims to draw manager attention on critical few (A items) not on the trivial many(c items).

Storage expenses are cut down considerably with this technique. Annual consumption of A category items is 983715.62, B category items 411896 and C category items are 213753.58 ABC analysis is based on the Pareto principle (80-20 rule) which states that 80% of the overall consumption value (expense) is based only on 20% of the total items i.e. small portion of the items may typically represent the bulk of money value, while a relatively large number of items may form a small part of the money value. For A items were money value is highest 70%, represent only 10% of items should have tight inventory control under more experienced management. Re-orders should be more frequent. For B items: money value is medium 20%, representing about 20% of items require medium attention for control. An important aspect of class B is the monitoring of potential evolution toward class A or, on the contrary, toward the class C items. The lowest 10% of C things with monetary worth, or around 70% of all items, require the least amount of attention and may be kept under simple surveillance and fewer reorders.

5. Conclusion

This ABC inventory control approach helps the material manager to exercise selective control and focus his attention only on a few items. It helps the manager in prioritization of items so that better planning & management can be done. It will result in controlling unnecessary expenditure, pilferage and obsolescence. It will also help in controlling stock-out situation.

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