Original Research Paper　　　　　　　　　　**Management**

Analysis of Geriatrics patient's drugs inventory management in the Outpatients Pharmacy in a tertiary care hospital in West Bengal

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ABSTRACT

Introduction: The pharmacy is one of the most extensively used therapeutic facilities of the hospital and one of the few areas where a large amount of money is spent on purchases on a recurring basis. This emphasizes the need for planning, designing and organizing the pharmacy in a manner that results in efficient clinical and administrative services.
Aim: Efficient supply of required Drugs for optimum patient satisfaction in elderly chronically ill patients
Methodology: Multifactorial analysis by ABC, VED and FSN methodology was done in elderly patients attending Outpatient's clinic with chronic illness for consultation and collecting medicines free of cost from Outpatient's Pharmacy.
Results: Multifactorial analysis of Drugs: Combination of ABC, VED, FSN analysis was done. **AVF:** 211 Drugs which consume 80% of Total Drug Expenditure, which may be narrowed down to 44 Items in AVF group which need repeated order placements and close vigilance to enhance clientele satisfaction. 43 Items were high cost vital and fast moving items. **CVF and CVS:** 60 Items which are low cost but critical mostly slow moving. **CDN:** Low cost, desirable but non-moving items at risk of expiry.
Conclusion: Application of scientific inventory management tools for effective and efficient management of the pharmacy stores, efficient priority setting, decision making in purchase and distribution of specific items and close supervision on items belonging to important categories.

KEYWORDS　　　ABC analysis, inventory management, pharmacy, VED analysis

INTRODUCTION:

About one-third of the annual hospital budget is spent on buying materials and supplies, including medicines. The pharmacy is one of the most extensively used therapeutic facilities of the hospital and one of the few areas where a large amount of money is spent on purchases on a recurring basis. This emphasizes the need for planning, designing and organizing the pharmacy in a manner that results in efficient clinical and administrative services. The goal of the hospital supply system is to ensure that there is adequate stock of the required items so that an uninterrupted supply of all essential items is maintained. Inventory control in hospital pharmacy is very essential in a developing country like India. As resources are limited, it is essential that the existing resources be appropriately utilized. With the existing drug budget, if rational drug use and improved drug management practices are followed, more number of patients can be served. It is essential that health managers use scientific methods to maximize their returns from investment at a minimal cost. Drug inventory management stresses on cost containment and improved efficiency. Each item may be considered critical and there is a perceived need to supply very high levels of service. There is no denying that stocking hospital pharmaceuticals and supplies can be expensive and tie up a lot of capital, and bringing efficiencies to such important cost drivers - often 30-40% of a hospital's budget - can present meaningful savings. Thus, a hospital materials manager must establish efficient inventory system policies for normal operating conditions that also ensure the hospital's ability to meet emergency demand conditions. But, it is impossible and unnecessary too to monitor every drug used in the health system. High-cost and high-volume drugs come in priority, whose intervention is likely to cause the greatest clinical and economic impact. In the whole process, it is important to trace the costliest medicinal products first, those that consume the major portion of the budget, and then design a strategy to further study and identify their use pattern. The study of use pattern will help in designing appropriate corrective measures. ABC analysis is an important tool used worldwide, identifying items that need greater attention for control.

AIM: Efficient supply of required Drugs for optimum patient satisfaction in elderly chronically by proper Inventory Control.

MATERIALS AND METHODS:

This study was conducted in Outpatient's clinic and Pharmacy in a hospital which provides Primary, Secondary and Tertiary level care. Geriatrics patients in both gender were included in the study. The dependents of the retired employees who were below 60 years of age were excluded from the study. Those elderly patients admitted in Indoor, were also excluded from the study. 1) Analysis of the Drug consumption for 3 months (April, May, June, 2016) using ABC, VED and FSN methods. Identification of the Drug category requiring monitoring of Provisioning, Procurement, Stocking, Issue, Accounting for optimum patient satisfaction. Prioritize and categorize the Drugs using ABC, VED, FSN Analysis.

RESULTS
TABLE - 1 A B C ANALYSIS

CATEGORY	POLYMEDICINE	PERCENT	CUMULATIVE PERCENT	PERCENT OF COST
A	18	11.31%	11.31%	69.70%
B	30	18.80%	30.10%	20.00%
C	111	69.80%	100%	10.00%

Sample size of drugs is 159 which is less than all the items in the Hospital Drug store. This is because the study is restricted to the drugs dispensed in the outpatient's Pharmacy reserved for geriatrics patients. Total cumulative cost of drugs dispensed from the Pharmacy (excluding Local Purchase items) in 3 months (April, May, June 2016) was Rs. 5257933.00. Classification of items according to percentage of utilization in terms of total cost is compiled. Amount spent in Local Purchase of medicines was Rs. 6849039.00. ABC analysis in TABLE 1 shows in GROUP A, 18 Drugs which are 11.3% of total number of Drugs but contributing to 69.7% of total expenditure. The Drugs are in majority for the treatment of Diabetes & Hypertension. The GROUP C has 69.8% of total number of Drugs but consumed only 10% of Total Drug Expenditure.

TABLE - 2 VED ANALYSIS

CATEGORY	POLYMEDICINE	PERCENT	CUMULATIVE PERCENT	PERCENT OF COST
V	46	28.90%	28.90%	55.00%
E	72	49.00%	73.90%	29.00%
D	41	25.70%	100%	16%

VITAL: V group has 46 Drugs which are critical to Hospital functions and consumed 55% of Total Drug Expenditure. The Drugs were mostly antihypertensives, oral hypoglycaemics. ESSENTIAL: E group of Drugs consumes 29% of Total Drug Expenditure. Includes items which are essential to customer satisfaction and absence can adversely affect hospital functions. DESIRABLE: D group of Drugs consume 16% of Total Drug Expenditure. They are desirable to customer satisfaction but their shortage will not adversely affect hospital functions.

TABLE - 3 A B C versus V E D MATRIX

CATEGORY	V	E	D
A	43%	14%	11%
B	10%	5%	3%
C	2%	5%	1.70%

ABC & VED ANALYSIS: TABLE 3 shows the combination of ABC & VED matrix with categorization of drugs into 3 categories according to criticality as well as costs. Category 1: AV, AE.AD, BV, CV consist of 50 Drugs which consume 80% of TDE and require close monitoring. Category 2: BE, BD, CE consisting of 74 Drugs which consume only 13% of TDE. They are less expensive but are essential Drugs. Category 3: CD consists of 31 Drugs which contribute to 1.7% of TDE. These Drugs are desirable for patient satisfaction but not critical.

FSN ANALYSIS: Fast moving items were mostly seen in A and B group of Drugs while majority of non moving items were in C group of Drugs and none in A group of Drugs.

MULTIFACTORIAL ANALYSIS: A combination of ABC, VED, FSN analysis was done. AVF: 10 items were high cost, vital and fast moving items. CVF and CVS : 14 items which are low cost but critical, mostly slow moving. CDN: Low cost, desirable but non moving items at risk of expiry.

DISCUSSION

Worldwide, it is estimated that over half of all medicines are prescribed, dispensed or sold inappropriately, and that half of all patients fail to take their medicine correctly. Medicines are used rationally when patients receive the appropriate medicines, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost both to them and their community. Irrational use occurs when one (or more) of these conditions is not met. Few countries currently monitor inappropriate use of medicines - partly due to a lack of awareness of the scale of the problem and its economic and health costs - and decision-makers often lack knowledge of the most cost-effective ways to tackle this problem. Meanwhile, some countries lack the financial and human resources needed to promote more accurate diagnostic procedures, to implement effective regulation of prescribing and dispensing behaviour and to promote adherence to treatment by patients, in both the public and private sectors. In addition, the high cost of medicines contributes to low adherence levels by patients: in some studies, an estimated 90% of consumers buy three days' supply, or less, of antibiotics, making compliance with the recommended dosage impossible. Institutions, health professionals and patients all have roles to play in promoting more rational use of drugs. Effective regulation, clear clinical guidance, supportive incentive structures, training, education and management, are key components of an effective policy in this area. Overuse and misuse of antimicrobials are contributing to growing resistance to treatment for the very diseases that contribute most to the burden of illness in low-income countries. Resistance to the use of chloroquine for the treatment of malaria, for example, is now established in 81 of the 92 countries where the disease is endemic - substantially raising the costs of treatment with second- and third-line antimalarial medicines.

CONCLUSION:

Multifactorial analysis of Drug Inventory and Issue is necessary for optimum stocking. Close vigilance on 211 Drugs which consume 80% of Total Drug Expenditure. 60 low cost but Critical Drugs can be procured by Bi- Annual Indents to save on Ordering Costs and maintain adequate stocks. 13 Drugs consuming 11% of Total Drug Expenditure, to be procured after calculation of Economic Order Quantity.

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