

Analytical Study on Inventory Management of Pharmaceutical Products in Hospital

By

Abhishek Arora

*Dissertation submitted for the partial fulfillment of the
MBA Pharmaceutical Management*

Academic year, 2016-2018



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TO WHOMSOEVER MAY CONCERN

This is to certify that **Abhishek Arora** student of MBA Pharmaceutical Management from The IIHMR University, Jaipur has undergone internship training at **Moolchand Medicity, Delhi** from **5th Feb 2018 to 5th May 2018**.

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.



(Col.) Dr. Ashok Kaushik

Dean, Academics and Student Affairs

The IIHMR University, Jaipur



Mr. Abhishek Dadhich

Assistant Professor

The IIHMR University, Jaipur

The certificate is awarded to

Abhishek Arora

In recognition of having successfully completed his
Internship in the department of

Supply Chain

And has successfully completed his Project on

Inventory Management of Pharmaceutical Products

7th May 2018

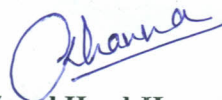
Moolchand Medcity

He comes across as a committed, sincere & diligent person who has a strong
drive and zeal for learning

We wish him all the best for future endeavors



Training & Development



Zonal Head-Human Resources

India's First JCI and Comprehensive NABH Accredited Hospital

THE IIMMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **An Analytical Study on Inventory Management of Pharmaceutical Products** and submitted by **Abhishek Arora** Enrollment No. **IIMMR-U/02/2016-18/0057** under the supervision of **Mr. Abhishek Dadhich** for award of **MBA in Pharmaceutical Management** of the University carried out during the period from **5th Feb 2018 to 5th May 2018** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.


Signature

ABSTRACT

Objective:

To evaluate present status of demand, consumption, pattern and position of pharmaceutical products in stores in order to plan a strategy for optimum utilization of resources.

Research design:

Data was collected from **secondary records** and study was **descriptive study**. Study was conducted in **Moolchand Medicity, Delhi**.

Purposive sampling was used to collectively obtain the data from inventory management software.

Tools used for analysis of inventory management was **ABC analysis, VED Analysis**.

Methods:

ABC Analysis was used to differentiate the drugs according to categories of consumption with 70% contribution of demand goes to drugs in category A, 20 % in category B and 10% in category C.

VED Analysis made a distinction on basis on conditional need or primary need as Vital, Essential and Desirable categories.

Results

According to ABC analysis **22.43%** of drugs falls under **category A** , **62.62%** of drugs falls in the **category B** followed by **14.95 %** of drugs in **category C**.

According to VED analysis **47.35%** of drugs comes under **vital category** followed by **36.76% in essential** and **15.58% in desirable** category. Majority of injection comes under vital category. **ABC-VED matrix** analysis of the inventory reveals that only **191 (59.68%)** items out of an inventory of 320 drugs belonging to category I will require maximum attention.

Conclusion

The drug inventory analysis enabled classification of pharmaceutical products into categories based on their priority and assignment to appropriate managerial levels. This analysis is hoped to promote effective management of drug inventory with minimal monetary resources while maintaining required safety stocks of high priority drugs and reduce frequency of drug supply shortage. An efficient inventory management system at a health care level will contribute to provision of uncompromised patient care. Inventory is the physical asset of the organization that create problem of shortages or supply, inventory constantly changing as quantities are sold or replenished.

Hence it can understood that positive inventory control can take the organization to new heights otherwise it ruin it.

The study of inventory management in Moolchand Medicity, Delhi is all about forecasting for future inventory and it is predicted that sales in future have to be achieved and inventory level have to be maintained. This necessitates 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. ABC and VED analysis identifies the drugs requiring stringent control for optimal use of funds and elimination of out-of-stock situations in the pharmacy.

Acknowledgement

It is my immense pleasure to express my thanks and obligations to all those who have given their support in working out this project.

First of all, I would like extend my sincere thanks to **Mr. Shravan Talwar, Managing Director, Moolchand Medicity** and also too **Managers of Moolchand Medicity** for providing me an opportunity learn and develop professionally.

I would like to express my sincere thanks to my mentor **Mr. Abhishek Dadhich Assistant Professor** of IIHMR University Jaipur, for providing me the opportunity and all necessary Facilities to accomplish this endeavor successfully. I am greatly indebted to all of them for providing their valuable guidance at all stages of the study, their advice, constructive suggestions, positive and supportive attitude and continuous encouragement, without which it would have not been possible to complete the project.

To place on record, I owe a debt of gratitude to all my teachers for grooming me and my classmates for the inspiration needed to work with dedication and motivation throughout as an Intern at Moolchand Medicity.

I hope that I can build upon the experience and knowledge that I have gained and make a valuable contribution towards the industry in coming future.

Abhishek Arora

MBA-Pharmaceutical management

Batch- 2016-2018

IIHMR UNIVERSITY, Jaipur

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List of Abbreviations

Term	Explanation
IT	Information Technology
PO	Purchase Order
QC	Quality Control
ERP	Enterprise Resource Planning
D & C	Drug and Cosmetic
RC	Rate Contract
MD	Managing Director
HOD	Head of the Department
HQ	Head Quarter
NOSQ	Not of Standard Quality
LD	Late Delivery
Avg.	Average

ABOUT ORGANISATION

As one of India's foremost names in healthcare, Moolchand has been setting standards for the past half century. For over five decades they have been providing healthcare services to three generations of Delhites with care and dedication.

“Vision”

To be an integrated, global healthcare service provider, recognized for integrity, quality of care, service and innovation

“Mission”

To consistently deliver excellent and compassionate medical care to our customers throughout their lives

“Guiding Values”

“Uncompromisable ethics”

They will aspire to maintain the highest ethical standards at all times

“A passion for excellence”

They do not settle for mediocrity and take pride in whatever they do. Their passion for excellence will show in their technology, processes and care

“Unmatched quality”

They relentlessly focus on constant improvement and development of systems which integrate their learning. They never forget that people trust them.

“Dedicated to innovation

They strive to seek innovative or creative solutions and aggressively leverage technology. In many cases, technology will improve the quality of peoples' lives

“Leverage teamwork and partnerships”

They work in collaboration, across boundaries; to deliver ‘more’ than they can do in isolation

BACKGROUND

Inventory control, a similar term, is the area of inventory management that is concerned with minimizing the total cost of inventory while maximizing the ability to provide customers with product in a timely manner.

A component of supply chain management, Inventory management supervises the flow of goods from manufacturers to warehouses and from these facilities to point of sale. A key function of inventory management is to keep a detailed record of each new or returned product as it enters or leaves a warehouse or point of sale.

Objectives of Inventory Control:

The main purpose of having an inventory control is:-

- Maximum customer services.
- Minimum inventory investment.
- Low cost plant operation.

Functions of Inventory Control:

- To keep the inventories as low as possible consistent with the market conditions.
- To forecast the market and economic conditions of supply as regards availability of materials.
- To maintain a sufficient stock of finished product to meet the reasonable expectations of customers for prompt delivery of goods.
- To maintain proper records so as to supply accurate and regular materials reports to the management.
- To minimize “ out of stock ” danger which result in crash purchase at uneconomical rates.

Techniques of Inventory Control:

The following are different techniques commonly used to control the inventory :-

- **ABC Analysis**
- **Economic Order Quantity**
- **Perpetual Inventory System**
- **Review Of Slow And Non Moving Items**
- **Setting Of Various Levels**
- **VED Analysis**

1. “ABC Analysis”

In a big drug store, large items are stocked in order to maintain a proper control of inventories. The ABC analysis (always better control) technique is used. In this materials are divided in three groups A, B,C according to the cost of the materials and money value of the consumptions.

A Items in the whole inventory, there are few costly items which come under this group, these items may not be more than 10% of total items, but these consumed about 70% of the total budget of inventories.

So these items require proper storage and handling, over-stocking is avoided, only necessary quantities of these inventories are purchased and stock, so as to minimize the investment of these items.

B Items the items coming under this group are neither costly nor cheap, these items constitute 20% of the total quantity of the inventories and 20% of the expenditure of inventories is spent on these items.

C Items these are cheaper in cost, and these items covers 70% of the total inventories and consumes 10% of the total expenditure of inventories.

Distribution of ABC class		
ABC class	Number of items	Total amount required
A	10%	70%
B	20%	20%
C	70%	10%
Total	100%	100%

Advantages of ABC Analysis :-

- The investment in inventory can be regulated and funds can be utilized in the best possible manner.
- It helps in maintaining enough safety stock of C categories of items.
- The scientific and selective control helps in the maintenance of high stock turnover rate.

2. ECONOMIC ORDER QUANTITY(EOQ)

“This technique is used to find out how much of inventory is to be ordered. The correct quantity to buy is the quantity at which the ordering cost and the inventory carrying cost will be the minimum.”

The ordering cost consists of the cost of paper work involved in placing an order like use of paper, typing, posting, etc it also includes the cost of the salaries of staff involved in this work, the costs incidental to placing an order like follow up, receiving, inspection. The ordering is more or less fixed.

The inventory carrying cost is represented by items like rent of storage, cost of insurance and taxes, salaries of store keeper or staff and losses in stores due to pilferage , wastage , breakage etc.

“Methods for determination of (EOQ)”

- TABULAR
- GRAPHIC
- ALGEBRAIC

ALGEBRAIC FORMULA FOR EOQ :-

$$EOQ = \frac{\sqrt{ab}}{\sqrt{cs}}$$

Where a = **annual c**

3. PERPETUAL INVENTORY SYSTEM :-

This is a method of recording the store balance after every receipt and issue to facilitate regular checking and to prevent closing down for stock-taking After every receipt or issue, the entry is made in the bin card and balance is adjusted. Thus bin card becomes perpetual inventory record and store balance is recorded continuously after every receipt and issue.

This system comprises :-

- **BIN CARD** this is a document maintained by the store keeper in his store to keep record of all items of materials and goods in his store. It shows quantities of each material received, issued and in stock.
- **STORE LEDGER:** - It is kept in the cost accounting department. it is maintained in the form of loose leaf cards because they can be easily removed and inserted.
- **CONTINUOUS STOCK-TAKING:** - under this system only a limited number of items are verified on a day.

The bin card and the store ledger record the balance and their correctness can be verified by means of physical verification. In case of any difference b/w recorded and actual balances. It has to be pointed out to the management.

4. REVIEW OF SLOW AND NON MOVING ITEMS :-

Proper inventory system enforced to detect and control slow moving items, obsolete items and dormant stock.

- **SLOW MOVING:-**are those items which are moving at a slow rate.
- **DORMANT MATERIALS:-**are those items which are moving temporarily because of seasonal production.
- **OBSOLETE ITEMS:** - items are those which have become useless due to change in design, methods of manufacture, production or process etc.

In order to detect non-moving and slow moving items the following steps may be taken :-

- **Periodic report:-**a monthly or quarterly report on the stock of non-moving items is prepared which indicates its purchase, consumptions and balance in hand. These reports are given to the management.
- **Obsolete items:** - many of the non-moving and slow moving items are useless with the passage of time. So a well-designed information system has to be devised to locate such obsolete items, so these can be utilized and their further purchase can be stopped.
- **Moving Ratio:** - in order to isolate slow moving non-moving and obsolete & dormant or dead stocks, moving ratio may be calculated periodically. These ratios show the turnover of these items for presentation to the management.

5. **FIFO-** First in, first out (FIFO) is an asset-management and valuation method in which the assets produced or acquired first are sold, used or disposed of first and may be used by a individual or a corporation.

6. **FEFO-** This term is used in logistics and inventory management to describe a way of dealing with perishable products, or with a specified expiry date. The product with the deadline for the next intake will be the first to be served or removed from stock. Majorly used in Pharmaceutical and Chemical industry where expired dates are calculated based on Batch expired date or Shelf life time.

5. SETTING OF VARIOUS LEVELS :-

In order to maintain inventory control, it is important to decide upon various level of materials. These following :-

- **MAXIMUM STOCK LEVEL:** - it shows upper limit of stock beyond which the quantity of any item is not properly allowed to rise. It depends on following points these are :-

Rate of consumption, storage space available , amount of capital needed and available , nature of materials , market trend , government restrictions , risk of fire and others , lead time from the date of purchasing.

FORMULA FOR MAXIMUM LEVEL =

RE-ORDER LEVEL + RE-ORDER QUANTITY – MINIMUM CONSUMPTION (minimum consumption per week × minimum re-order period)

- **“MINIMUM STOCK LEVEL OR SAFETY STOCK”**:-this is the lower limit below which the stock of any item should not normally be allowed to fall. This is also is known as buffer stock.

Minimum stock = re-order level – {normal consumption per week – avg delivery time}

Lead time = total time consumed b/w the recognition of need of an item, till the time it is received for use.

- **Re-order Level:** -it is fixed b/w the maximum and minimum stock levels.” When stock of an inventory, reaches at this point, the process for purchase of material should be started. The reorder level is slightly more than minimum stock level to guard against.

**RE-ORDER LEVEL: -minimum consumption during the period × max.
Reorder period**

- **Danger Level:-**this is generally below the minimum stock level and should be avoided by taking urgent action to prevent stock out.

6. VED ANALYSIS :-

This is based on the utility of the material. In a drug store, VED analysis is very useful in controlling and maintaining the stock of various types of formulations of a particular group of drugs. The older the brand, the greater will be its requirements. The best way to solve this problem is to classify the different brands of drug formulations into any one of the categories :-

V= vital items

E=essential items

D= desirable items

For example, acetyl salicylic acid is available as aspirin tablets, Anacin tablets, and paracetamol tablets.

There is great demand of aspirin tablets, so these are classified as VITAL ITEMS,

Followed by paracetamol tablets which are covered under ESSENTIAL ITEMS due to its less demands than aspirin tablets.

Anacin tablets may be considered as DESIRABLE ITEMS because they are hardly a few prescriptions of it.

So in a drug store there should be maximum stock of aspirin tablets, followed by paracetamol tablets, and then of anacin tablets.

The assessment and analysis in inventory control is done with respect to ABC and VED analysis. ABC analysis is done based on consumption and VED analysis is done based on criticality.

Value of ABC Analysis

It is an extremely powerful tool with uses in selection, procurement, management, distribution, and promotion of rational use of drugs. It can be used to critically review to find out as to which drugs are purchased, how they are utilized, and how funds are spent in a drug system.

ABC analysis measures degree to which actual consumption reflects public health needs. It helps in inventory management by arranging more frequent purchases of smaller quantity of class “A” items preventing blockage of funds. If possible, cheaper alternatives can be found out to reduce the cost. One can also find out if class “A” items are being misused. The shelf life of class “A” items needs to be monitored to avoid wastage. At the same time, there should some control on issue of class “A” items so that wastage, pilferage and theft can be avoided.

Sometimes there are insufficient funds to buy all the desired medicines. The VED system, in which drugs are divided per their health impact into vital, essential and desirable category, is a well-known method to help set priorities for purchasing drugs and keeping stock. Regardless of how well a supply system works, there will always be more opportunities to improve the system. VED class for all drugs is identified from Essential Medicines List only. This system helps the manager to set priorities for the selection, Procurement, and use of drugs per the potential health impact of individual drugs. The main objective is to give priority to essential, lifesaving drugs opposed to expensive, nonessential items.

Applications of Inventory Management In Hospital

1. Provides health system-wide visibility

A centralized system manages inventory among multiple associations across the continuum of care. It,

- Provides a clear visibility of inventory stored
- Puts accurate and real-time information forward of the product, SKUs, counts and locations
- Gives key insights that help eliminating the risk of stock-outs
- Notifies of item utilized throughout the facility
- Minimizes the cost due to rush deliveries during emergencies

2. “Maintains record of every penny associated to inventory”

Inventory management comprise of multiple adjacent processes that are often excluded when the cost of inventory is calculated. A centralized system helps to maintain the record of,

- Inventory unit (medicines, equipment, etc.)
- Ordering
- Storing units
- Carrying units to different facilities

3. “Intelligent demand forecasting and purchasing”

Demand forecast is a very crucial aspect of inventory management. It can leave organizations stranded if they do not have accurate data and evidences to forecast supplies. A centralized system delivers several benefits by helping forecast demand and streamline purchasing.

Need for the Study

Every organization needs inventory for smooth running of its activities. It serves as a link between production and distribution processes. The investment in inventories constitutes the most significant part of current assets/working capital in most of the undertakings. Thus, it is very essential to have proper control and management of inventories. The purpose of inventory management is to ensure availability of materials in sufficient quantity as and when required and also to minimize investment in inventories.

So, in order to understand the nature of inventory management of the organization, so took this Inventory Management as a topic for project, to give findings and suggestions by adopting and analyzing different inventory control techniques.

Review of Literature

Research Paper Title	Objective	Findings /Limitations
“ABC-VED Analysis of a Drug Store in the Department of Community Medicine of a Medical College in Delhi, by T. Anand, G. K. Ingle, J. Kishore, and R Kumar”	To estimate annual consumption and expenditure incurred on each item of pharmacy for the year 2009-10 using inventory control techniques, i.e. ABC, VED	This study concludes that category I drugs are either expensive or vital with annual expenditure 73% of Annual drug expenditure. This study helped to prevent locking up of capital due to these items. Adaptability of ABC Costing System is not suitable for all kind of companies because small companies have not many resources to adapt it and have too many activities but size of transactions is too low.

“ABC-VED analysis of expendable medical stores at a tertiary care hospital by Kumar S, Chakravarty A”.	To evolve a priority system based on ABC and VED and ABC-VED matrix analysis	ABC-VED matrix analysis of the inventory reveals that only 322 (21%) items out of an inventory of 1536 drugs belonging to category I will require maximum attention. The study was done on the basis of secondary data only
“ABC and VED Analysis in Medical Stores Inventory Control, by R Gupta, KK Gupta (Retd), BR Jain (Retd), and RK Garg”.	To ensure availability of materials in sufficient quantity as and when required and also to minimize investment in inventories	To ensure the availability of medicines in medical stores combination of ABC&VED analysis must be used. The study was restricted to only medical stores
“Recent review article on Pharmaceutical Inventory Models”, by G. Santhi and K.Karthikeyan	To ensure that products are regularly kept in stock based on the needs of the pharmacy and its customers.	This study concluded that Inventory management can make it easy and effective and reduces material handling time and counterfeiting of the pharmaceutical product up to a high rate.

ABC and VED Analysis of the Pharmacy Store of a Tertiary Care Teaching, Research and Referral Healthcare Institute of India	To analyze the annual consumption of items of pharmacy and expenditure incurred.	“The drug formulary of the hospital consisted of 421 items. The total expenditure of the pharmacy on items issued in 2007-08 was Rs. 40,012,612.
Inventory control techniques in medical stores of a tertiary care neuropsychiatry hospital in Delhi, 2013	To identify the item categories requiring greater supervisory monitoring.	Out of 250 drugs, 145 drugs required greater supervisory monitoring. The total annual expenditure of the medicines was Rs. 192,19,594.79. The study was limited to Neuropsychiatry drugs.
ABC-VEN matrix analysis of pharmaceutical inventory management in Tikur Anbessa Specialized Hospital for the years 2009 to 2013, Addis Ababa, Ethiopia	The objective of the study was to assess pharmaceutical inventory management of Tikur Anbessa Specialized Hospital (TASH) for fiscal years 2009-2013.	From ABC-VEN matrix analysis, majority of items were Category I. Most of the Category I pharmaceuticals in turn were Class A and V items which require great attention for their control and availability. The Study was conducted in 818 bedded hospital
Drug Inventory control analysis in a Primary level Health care facility in Rural Tamil Nadu, India by Geetha Mani, Kalaivani Annadurai	To categorise the drugs based on cost and criticality aspects and identify those which require stringent managerial control.	The analysis allowed for categorisation of drugs based on cost and criticality factors and identifies level of managerial control required. The study was limited to Rural Areas of Tamil Nadu

ABC-VED analysis of expendable medical stores at a tertiary care hospital by Maj Sushil Kumar , Brig A. Chakravarty, 2014	To identify the categories of drugs needing focused managerial control.	ABC-VED matrix analysis of the inventory reveals that only 322 (21%) items out of an inventory of 1536 drugs belonging to category I will require maximum attention
ABC and VED Analysis of Medical Materials of a General Military Hospital in Greece,2017	The study was conducted in order to highlight expensive medical products, as a management tool.	ABC analysis revealed 5, 15 and 80 per cent products as A, B and C category products, respectively, accounting for 52, 28 and 20 per cent of annual expenditure. The Study was restricted to Army Hospital
Medicine Inventory Management by ABC-VED Analysis in the Pharmacy Store of Veterinary Hospital, Yogyakarta, Indonesia	The study aimed to analyse the annual medical materials expenditure and consumption using inventory control techniques	The total annual drug expenditure(ADE) incurred on 191 drugs issued in 2016 was Rp. 209,342,860.58
ABC Analysis of Pharmacy Store of an Ayurveda Institute by Seema Ahlawat	To analyze medicine expenditure with the help of Inventory Control management techniques at Ch. Brahma Prakash Ayurved Charak Sansthan.	The report justifies that the Class A items being few but expensive require a close day to day control. With regard to class B and class C, these need a regular and infrequent review respectively.

ABC and VED Analysis of the Pharmacy Store of a Tertiary Care, Academic Institute of the Northern India to Identify the Categories of Drugs Needing Strict Management Control by Sukhbir Singh, Anil Kumar Gupta	To conduct ABC, VED and ABC-VED matrix analysis of the pharmacy store of the tertiary care, teaching, research and referral institute of the Northern India to identify the categories of drugs needing strict management control.	The drug formulary consisted of 416 items The total annual drug expenditure (ADE) on items was Rs 6.04 crores ABC analysis of pharmacy stor revealed 11.23%, 24.60% and 75.4% items as A, B and C category items, respectively
ABC-VED analysis of the pharmacy of an urban health centre by Dr. Rochak Saxena, Dr. Chinmay Gokhale	To evaluate the drug usage and identify the categories of drugs which need stringent management control in an urban health Centre	VED analysis was done in consultation with the clinicians and the centre in charge. A total of 145 drugs were analysed. The Annual Drug Expenditure [ADE] was Rs.10, 58,046. The percentage of drugs in Category A, B and C were 15.2%, 23.4% and 61.4% respectively.
Inventory Management of Drugs at a Secondary Level Hospital Associated with Ballabgarh HDSS- An Experience from North India Shashi Kant, Partha Haldar, Arvind Singh , Ankita Kankaria	Objective of this study was to explore the optimal drug inventory management technique suitable for a secondary care hospital.	Using ABC-VED matrix could achieve both time saving and assured availability of needed drugs by closely supervising category I that comprised 40% of all drugs.

OBJECTIVE OF THE STUDY

To evaluate present status of demand, consumption, pattern and position of pharmaceutical product in medical stores in order to plan a strategy for optimum utilization of resources.

RESEARCH METHODOLOGY

1. **Research Type** – Descriptive Study. It is the research done primarily to determine and describe the data and the subject of the study.
2. **Data Collection-** Secondary Data
3. **Tools Used-**
 - ABC Analysis- In this materials are divided in three groups A, B,C according to the cost of the materials and money value of the consumptions .
 - VED Analysis- This is based on the utility of the material
4. **Sampling Unit-** Material Planning- Deputy Managers
5. **Sampling Technique** – Purposive. It is a non-probability sample that is selected based on characteristics of a population and the objective of the study.
6. **Duration-** 3 Months
7. **Medicines Category-** Anti Allergics, Antibiotics, Nutrition, Ayurveda
8. **Analysis of Data-** Microsoft Excel

Data Analysis

ABC Analysis - For ABC analysis consumption of the drugs were recorded and then percentage consumption was calculated. Percentage Consumption was arranged in descending order and then categorization was done on the basis of percentage consumption and then the medicines was classified according to therapeutic classes.

VED Analysis – The VED criticality analysis of all the listed items was performed by classifying the items into vital (V), essential (E) and desirable (D) categories. The items critically needed for the survival of the patients and those that must be available at all times were included in the V category. The items with a lower criticality need and those that may be available in the hospital were included in the E group. The remaining items with lowest criticality, the shortage of which would not be detrimental to the health of the patients, were included in the D group.

ABC-VED matrix analysis- The ABC-VED matrix was formulated by cross-tabulating the ABC and VED analysis. From the resultant combination, three categories were classified (I, II and III). Category I was constituted by items belonging to AV, AE, AD, BV and CV subcategories. The BE, CE and BD subcategories constituted category II, and the remaining items in the CD subcategory constituted category III. In these subcategories, the first alphabet denotes its place in the ABC analysis, while the second alphabet stands for its place in the VED analysis.

FINDINGS

ABC Analysis

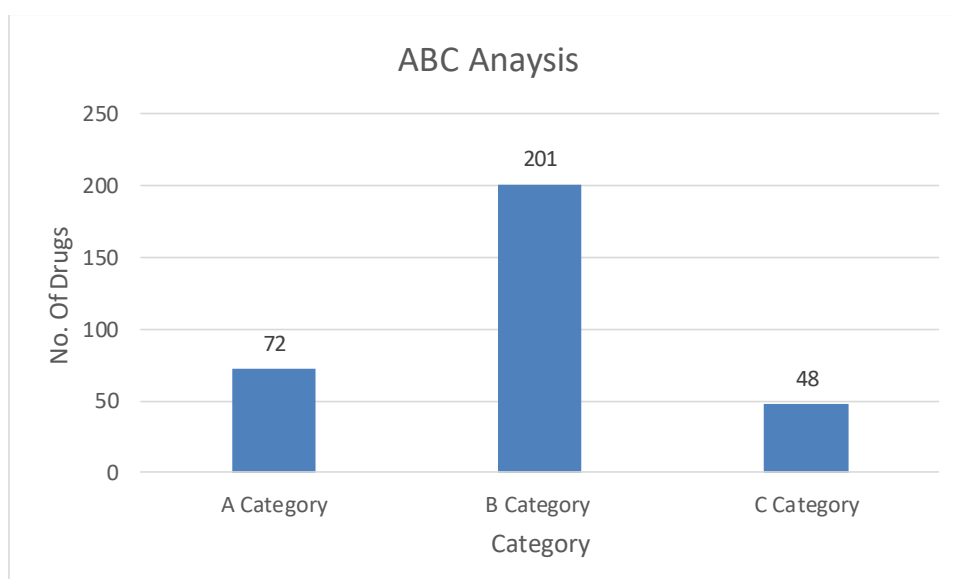
CATEGORY	NUMBER OF ITEM
A	72
B	201
C	48

On ABC analysis,

Category A =72 (22.42%), which includes Anti Allergics, Psychiatry, GIT, Muscle Relaxants, Narcotics drugs

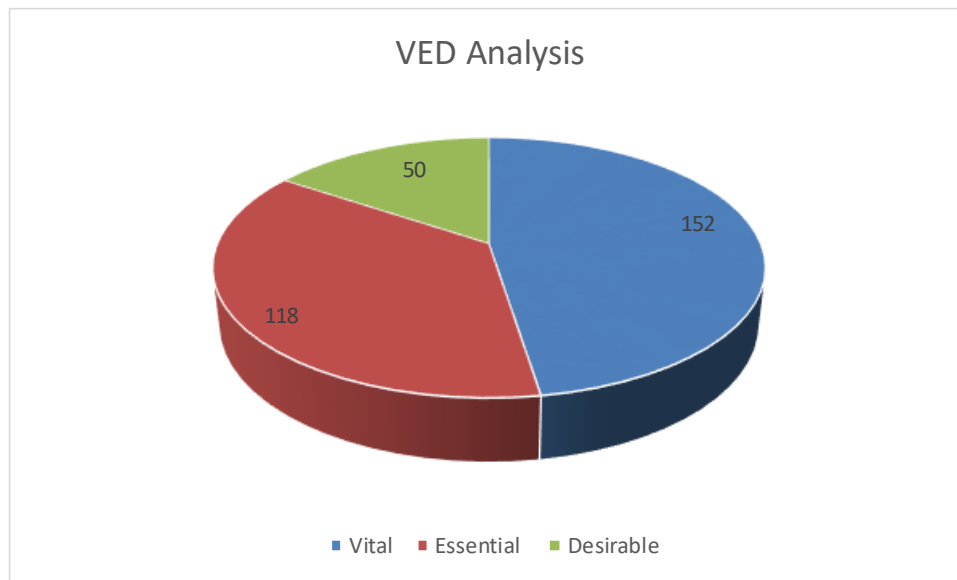
Category B = 201 (62.62%) , which includes Ayurveda, Gynaecology, oncology, Cardiovascular drugs.

Category C = 48 (14.95%), which includes CNS, Endocrine, Respiratory drugs.



FINDINGS FOR VED ANALYSIS

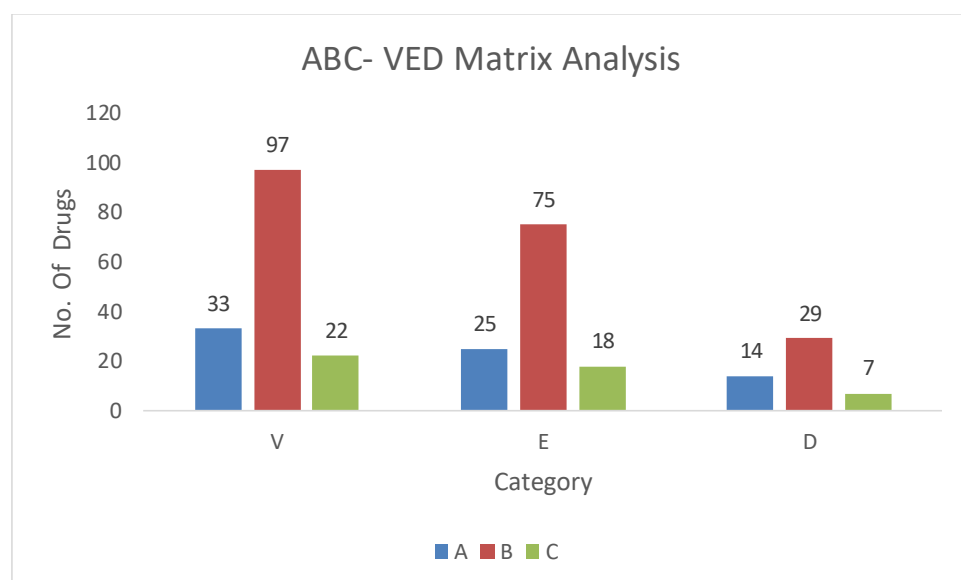
CATEGORY	NUMBER OF ITEM
V	152
E	118
D	50



The findings of the VED analysis of the present study were 152 (47.5%), 118 (36.87%) and 50 (15.62%) items were found to be V, E and D category items, respectively

ABC-VED Matrix Analysis

ABC-VED Matrix			
	V	E	D
A	33	25	14
B	97	75	29
C	22	18	7



In ABC-VED matrix analysis nine different subcategories (AV, AE, AD, BV, BE, BD, CV, CE and CD) were studied using this analysis. These nine were further grouped into three main categories, categories I, II and III. There were 191 (59.68%) items in category I, 122 (38.12%) items in category II and 7 (2.18%) items in category III

ABC-VED matrix analysis of the inventory reveals that only **191 (59.68%)** items out of an inventory of 320 drugs belonging to category -I will require maximum attention.

CONCLUSION

The drug inventory analysis enabled classification of pharmaceutical products into categories based on their priority and assignment to appropriate managerial levels. This analysis is hoped to promote effective management of drug inventory with minimal monetary resources while maintaining required safety stocks of high priority drugs and reduce frequency of drug supply shortage. An efficient inventory management system at a health care level will contribute to provision of uncompromised patient care. Inventory is the physical asset of the organization that create problem of shortages or supply, inventory constantly changing as quantities are sold or replenished.

Hence it can understood that positive inventory control can take the organization to new heights otherwise it ruin it.

The study of inventory management in Moolchand Medicity, Delhi is all about forecasting for future inventory and it is predicted that sales in future have to be achieved and inventory level have to be maintained. This necessitates 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. ABC and VED analysis identifies the drugs requiring stringent control for optimal use of funds and elimination of out-of-stock situations in the pharmacy.

LIMITATIONS OF THE STUDY

- It consumes lots of time and needed expenditure and also it needed more time to do this study.
- It is based on secondary data only.
- The Quality of the inventory is not compared in analysis.
- The analysis is based on the internal data which is provided by the organization.

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