

PowerPoint presentation on inventory control

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INVENTORY CONTROL

- ❑ Webster's has defined Inventory as “The quantity of goods or the materials on hand”
- ❑ Goods or the materials is the essential element of any of the organization right from hospital, industry, private enterprise or the government department.

- ❑ Thus inventory control is the method of maintaining of stock at a level at which purchasing and stocking costs are at the lowest possible without interference with the supply.
- ❑ Thus it plays the vital role in maintaining the balance between the two.
- ❑ If the items like drugs are purchased in the large quantity, the supply can be made easily and immediately.
- ❑ The risk of the **Out-Of-Stock** is avoided.

❑ But the disadvantage is that huge stock amounts to the locking up of the money which would have been spend more gainfully in some other ways.

❑ A large stock will also imply a large storing space and will require a staff to store and handle various items.

❑ There is the danger of the drugs not being utilized before the date of expiry, of pilferage, of the stock lost some sight and not being utilized, better and cheaper substitute available.

- It is generally accepted that total yearly carrying cost on the inventory is 20-25%.
- Thus inventory control has the objective of maintaining optimum stock- neither excessive nor likely to be exhausted.
- Following are the various methods to store the items based on their cost and utility.

A B C ANALYSIS OF THE DRUGS

- This is the system of analysis of store items mainly drugs based on their cost in material management.
- Items can be categorized into three groups based on their annual expenditure incurred on these items.

- ❑ First the list of the drugs showing the expenditure incurred in the previous completed year is prepared
- ❑ Then the drugs are arranged in the descending order of the amount of the expenditure.
- ❑ Then the cumulative cost should be calculated beginning from the first item of list.

- When such cost is found out, about 10% of the items will be seen to consume 70% of the budget, and these are called Group A Items.
- Group B Item form about 20% of the total item and account for the 20% of the budget.
- Group C consists of the remaining 70% of the items consume only 10% of the budget.

- ❑ Thus it can be easily judged that the category A should get high priority and managerial attention because though constituting only small fraction of the total list it amounts for the bulk of the expenditure,
- ❑ Their stock, consumption, purchase should be critically watched and controlled.

V E D ANALYSIS

□ Another method of classification of drugs or materials is grouping them according to criticality in patient care.

□ “V” Items are vital drugs, without alternatives, forming about 10% of the total drugs whose absence cannot be tolerated. Every attempt is to be made, at whatever cost, to avoid the Out-Of-Stock position of these drugs.

- “E” Items are the Essential items that constitute 40% of the items and their absence can be tolerated for the short stretch of time. They could be made available in a day or two or the alternative medicine can be made available.
- “D” items are the desirable items which are the remaining 50% of the drugs and their non-availability can be tolerated for longer period.
- They may be required for chronic and less serious patients.

□ Combination of ABC and VED Analysis can be explained in the following way

	V	E	D	
A	AV	AE	AD	Category I 15% Items
B	BV	BE	BD	Category II 40% Items
C	CV	CE	CD	Category III 45% Items

- ❑ Thus drugs in Category I are either Vital or expensive and should be managed with maximum attention.
- ❑ Consumption and its stock should be continuously monitored and safety stock should be kept at low to reduce the carrying cost.

- Category II consists of drugs, which are essential, and of average cost.
- They can be managed with little less priority and can be managed with middle level managers.
- Category III consists of the drugs which are desirable and inexpensive and thus lowest in the hierarchy of priority. They should be purchased periodically and buffer stocks can be high managed by lower level of management.

H M L ANALYSIS

- The Items are classified according to High Cost, Medium Cost and Low Cost
- Criticality and Cost can be coupled in Coupling Matrix Module.

- | | V | E | D |
|---|-----------------|-----------------|------------------|
| H | Defibrillator | X-ray Machine | Air Curtain |
| M | Ventilator | Electric cautry | USG machine |
| L | Oxygen regulato | Patient trolley | Electronic BP ap |

S D E ANALYSIS

- In situation where scarcity of items is not uncommon SDE Analysis is helpful.
- “S” refers to Scarce items which are known to be in short supply because of the various reasons
- “D” items are of Difficult items which may be difficult to obtain in adequate quantity or quality immediately.

- ❑ “E” items are items which are easily available and no difficulty is experienced in purchase and procurement.
- ❑ SDE Analysis helps to avoid Out-OF-Stock position of items by management with reference to their free availability.

F S N ANALYSIS

- In this analysis the quantity and rate of consumption is studied and categorized accordingly
- F Items are fast moving items that have large consumption
- S Item are slow moving item
- N Item are non moving items

- ❑ Non moving items which are in stock and not consumed over a long period lock up space and fund and may have to be condemned because of time barred or obsolete.
- ❑ Such items are to be identified and disposed off and care to be taken so that they are not ordered ordinarily.
- ❑ The reason for their non utilization are to be studied
- ❑ Big hospitals notice around 10-15% of items as non moving items.

METHODS OF ORDERING

- There are different systems in use to order items. Some of them are as follows.
- A) Two bin system
- B) Cyclic system

□ 1) Two Bin system:-

in this system orders are not placed at fixed periods but are placed when the stock of the item reaches a certain predetermined level.

For fixing this level the information on following is essential.

- 1) Lead Time:- This is defined as the average interval between placement of order for supply of some item and actual receipt of the material for use. Further classified into two
 - a) Internal lead time:- This is the time gap between the start of the preparation of the demand of material to the time of dispatch of order.
 - b) External lead time:- time from dispatch of the indent to the receipt of the supplies is called ELT
 - c) Total lead time = $ILT + ELT$

- 2) Minimum order level:- This is the quantity of material derived by calculating average daily consumption of the material and multiplied by total lead time
- For example avg daily consumption of the 5% dextrose is 50 bottles and the total Lead Time is 30 days the Minimum Order Level is 1500 bottles. Avg daily consumption* Total Lead Time
- If you have less then that then u are bound to face Stock-Out condition.

- 3) Buffer Stock:- In addition to the minimum order level we need to have something in extra to meet out any extingency. Calculated by the formula
- $BS = (\text{Max daily consumption} - \text{avg daily consumptions}) * \text{Total Lead Time}.$

- 4) Reorder level:- This is the point where we have to place the order for procurement for replenishing the stock derived by the formula
(Minimum Order Level+ Buffer Stock).
- 5) Maximum Order Level:-this is the maximum quantity of the material to be stocked, beyond which the item must not be inventory.

□2) Cyclical System:-In this system stock of various items are checked with certain periodicity to find out the consumption pattern and the balance in hand so as to place order to bring up the stock to the desired level. In this periodic ordering system, the inventories are regulated by quantities ordered each time, the period between the order remain the same.

PROCEDURE OF ISSUE

- ❑ In big institutions the indents are to be made on the basis of the written indents, received from competent personal.
- ❑ In the teaching institutions following methods can be used.
 - ❑ A) direct supply to the wards, OPD and dispensary from the main stores of indents.
 - ❑ B) one more step in distribution is to include a Floor pharmacy or a Sub store.

- “FIFO” Principal i.e. “First In First Out” principal should be followed.
- This means that the store is to be arranged in such a way that the items which are received earlier are to issued out first.
- This method has to be used to prevent the non-use of the earlier stock, which may get time-barred and may have to be condemned.
- A simple method followed is to keep the newly arrived stock on the shelf at the back so that the old stock can be used first.

❑ In case of the contraceptives two type of system or their combination is used for issue.

❑ 1) **Push or Allocation system** :- supplies are allocated down the distribution network from supply depot to the intermediate warehouse to the final outlet. Thus the stock is pushed out

❑ In this system the decision regarding the regulating the flow of contraceptives are done at higher level

❑ It thus do not require much training of the personal at the field level as they are not responsible for ordering their own supplies and thus eliminates the occurrence of unrealistic orders from the periphery.

❑ This however requires the timely reporting from the periphery.

- ❑ **In Pull or Requisition system** :- The demand and indent from the peripheral outlet draws supplies from the Central stores.
- ❑ It requires much training of the personal at field level and there is a chance of occurrence of unrealistic stock order. It also requires the timely reporting from the periphery
- ❑ The mixed system is also useful where the intermediate warehouse will Indent or Pull the stock from the Central store and further down it will Allocate or Push the stock to the outlet.

MAINTANANCE, REPAIR AND CONDEMNATION

- ❑ The preventive maintenance of the equipment including the transport equipment is a must.
- ❑ In most states a separate State Health Transport Organization (SHTO) is functional to take care of the vehicle belonging to the public health system.
- ❑ The objective of prime importance is to keep the maximum proportion of the vehicles roadworthy at any point of time. Lack of mobility of the health team interferes very seriously with effective health care.

- ❑ Preventive maintenance of the health equipment including the sophisticated expensive equipment is must and should get the due care it deserves.
- ❑ Logbook to indicate the utilization of the equipment should be maintained.
- ❑ Repairs of the medical equipment should be done in time.
- ❑ Arrangement for storing the spare parts is to be made.

- ❑ Process for condemnation of the unserviceable articles are to be laid down.
- ❑ This procedure may require the constitution of a Condemnation Committee or an officer may inspect and certify for condemnation.
- ❑ Generally an officer competent to purchase an equipment in terms of financial power is competent to condemn it.
- ❑ Depreciation value of the equipment is to be calculated by applying the rates of depreciation to the various categories of items.
- ❑ Replacement can be purchased from the depreciation fund

- ❑ If the process of condemnation is not streamlined, unserviceable have to be stored for a long time occupying the precious space.
- ❑ Unless an article is condemned the process for its replacement by using the depreciation fund or the other fund do not start.

INFORMATION SYSTEM

- ❑ As advocated ~~“What goes to the court is accepted as the truth what is written on the paper”~~.
- ❑ Records of the total procedure followed for processing purchase have to be meticulously maintained. This is very important in case of defending a claim made against the competent officer.
- ❑ A Bin Card which is a record of receipt, issue and stock at hand, should be prepared and maintained separately for each item.
- ❑ No difference should be found in the stock as shown in the Bin Card and physically available on verification.

- ❑ The responsibility of maintaining the Bin Card is to rest on the Officer I/C of the store.
- ❑ Stock verification is to be made periodically else the discrepancies will go unnoticed.
- ❑ In addition to the yearly stock checking the Spot-Checking can also be done to help detect discrepancies and give an indication of Pilferage especially of expensive equipments.
- ❑ Records should be available for showing the stock turnover with reference to items with expiry dates.
- ❑ For the items getting time barred, action can be taken to ensure timely utilization of the stock

JIT TECHNIQUE

- ❑ Taichi Ohno of Toyota is considered as the father of JIT Technique (Just In Time Technique).
- ❑ The JIT emphasizes that the inventories are a result of faulty technique used at various levels and we have to analyze these faults and treat the same.
- ❑ The causes of faulty inventories are :
 - Faulty sales forecasting
 - Rigid production batch quantities
 - Bureaucratic time consuming purchase procedure
 - Order on unreliable suppliers

- Long lead time
- Wrong transportation methods
- Poor coordination between different units
- Vested interest of the purchase department
- Release of the budget at the end of the year particularly in the public sector.

- JIT philosophy promotes that instead of acquiring inventories; there should be perfect coordination among the different subsystem of material management like that from the level of demand estimation to the distributors to the level of users.
- Every subsystem must have got beforehand information that which item at what quantity is required, where it is required and when it is required.
- Exactly at the time of requirement it is supplied to the user unit without delay.

- This is possible only when there is fool proof system of Material Requirement Planning (MRP) and effective use of the computers and information technology supports the JIT.
- The reduction in the production cost achieved by many such practices along with the technical excellence has placed the TOYOTA MOTORS at the Second position of supplier in the Automobile market of USA in 2007.

THANK YOU

