

# MATERIAL MANAGEMENT





## Material Management

- Material management concerned with planning, organizing and controlling the flow of materials from their initial purchase through internal operations to the service point through distribution
- The material management in the health care system is concerned with providing the drugs, supplies and equipment needed by health personnel to deliver health services..
- It is of great importance that materials of right quality are supplied to the consumers

# DEFINITION

- Material management is concerned with providing the drugs, supplies and equipment needed by health personnel to deliver health services.

# OBJECTIVES OF MATERIAL MANAGEMENT

- To reduce cost of material
- ensure a good support with suppliers(vendors)
- Effective and efficient handling of materials at all stages and in all sections.
- Low purchase price
- Maintaining continuous supply
- Maintaining quality
- cordial relationship with supplier
- low pay low cost
- Development of vendors
- Good evidence
- low storage cost
- Favourable reciprocal relation
- new material & products
- standardization
- product improvement
- Interdepartmental harmony
- Economic forecasting.

# GOALS OF MATERIAL MANAGEMENT

- Optimum materials acquisition
- Good vendor relationship
- Materials cost control
- Effective issue and distribution
- Elimination of losses and pilferage/ wastage



# AIMS OF MATERIAL MANAGEMENT

- To get
  - 1. The right quality
  - 2. Right quantity of supplies
  - 3. At the right time
  - 4. At the right place
  - 5. For the right cost.

# PURPOSE OF MATERIAL MANAGEMENT

- To gain economy in purchasing
- To satisfy the demand during period of replenishment
- To carry reserve stock to avoid stock out.
- To stabilize fluctuations in consumption
- To provide reasonable level of client services
- Increase efficiency of health care systems.
- Develop knowledge and skills of health care
- Provide materials in required quantity and quality as when required.

# BASIC PRINCIPLES OF MATERIAL MANAGEMENT

- Effective management and supervision; it deals on material functions of planning, organizing, staffing, controlling, report and budgeting
- Sound purchasing method
- Skilful and hard poised negotiation
- Effective purchase system
- Should be simple
- Simple inventory control program.



# FUNCTIONS OF MATERIAL MANAGEMENT

- ☐ Material planning & budgeting
- ☐ Purchasing
- ☐ inventory control
- ☐ cost reduction
- ☐ value analysis
- ☐ Receiving & inspection
- ☐ Stocking & distribution
- ☐ Disposal

# PROCEDURE

Good material managers adopt the following procedures:

- ☐ taking inventory regularly and systematically
- ☐ requisitioning at indenting according to actual needs
- ☐ receiving and inspecting incoming items
- ☐ storing and protecting items
- ☐ issuing items for use
- ☐ proper use of items.

# SOME MORE PROCEDURES

- ☐ Identification of need
- ☐ establishment of standards and specification, character, quality with full description
- ☐ Preparation of requisition or indents in the predesigned ☐ selection of the right source that is supplier
- ☐ Determine right price, availability and delivery time
- ☐ Placement of purchase order
- ☐ follow up
- ☐ arranging of receipt, inspection, rejection replacement for defective pieces.
- ☐ Verification of invoices
- ☐ Payment of bills
- ☐ Maintenance of record.



# PROCESS OF MATERIAL MANAGEMENT





# 1) BUDGETING AND MATERIAL PLANNING:

Budgetary control and reduction of material cost is the concept of standardisation.

*Value analysis attempts at addressing the following issues:*

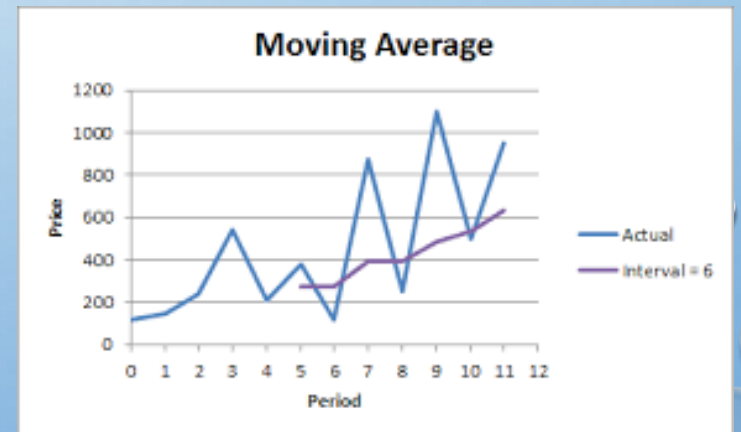
- ☐ what are the item / component?
- ☐ What is it intend to do?
- ☐ What does it cost?
- ☐ What else can do the same job?
- ☐ What does the suggested alternative cost?

e.g.: Introduction of non – disposable, autoclavable, plastic syringes in lieu of easily breakable, more expensive glass syringes is based on the value – analysis principle.



## 2) DEMAND FORECASTING:

- Estimation of right amount of each material is the most crucial factor for maximising availability with minimum wastage
- Methods of forecasting:
- demand estimation or forecasting is done by various methods which includes
  - 1. Last period demand
  - 2. Arithmetic average
  - 3. Moving average



### 3) PROCUREMENT:

- An effective procurement system aims at purchasing of items of acceptable quality, in appropriate quantities, at the minimum price and within the available time.
- Centralised purchasing has the advantages in that quantity discounts are possible because of standardisation and bulk orders
- Purchasing cost is decreased because of the consolidation and non duplicate orders.
- There is better management control as all aspects of purchase can be screened by the administration
- A group of hospitals having common interest (e.g. Locates in the same region), may also get together and constitute an agency to effect bulk purchases on their behalf

# METHODS IN PROCUREMENT PROCESS AND NEGOTIATION STRATEGIES

- A) open tender : public bidding/ auction, resulting in low prices ,
  - Published in newspapers
  - Quotations
  - “Two packets or two bins” system
- B) restricted or limited tender
- C) negotiated procurement
- D) direct procurement
- E) rate contract
- F) spot purchase
- H) many suppliers strategy
- I) few suppliers strategy

# METHODS IN PROCUREMENT PROCESS AND NEGOTIATION STRATEGIES

- J) stockless purchasing
- K. Just in time purchasing: reduction of waste, and delay
  - 1. JIT tries to reduce all non-value-added activities. : select more reliable vendors
  - 2. Elimination of in-plant inventory. : Material should be delivered in small lots directly to the using department as needed
  - 3. Elimination of in-transit inventory : In-transit inventory is the inventory flowing between the plant and material suppliers
  - 4. Quality and reliability improvement: Vendors and purchasers must have mutual understanding and trust





# CONTRACTUAL SERVICES FOLLOWED BY HEALTH INSTITUTIONS

- A) fixed quantity contract: supply a definite quantity of stores by a specified date
- B) running contract: supply of an approximate quantity of stores at a specified price during a certain period of time
- c) rate contract: most common contracts in health care institutions, in which firms are asked to supply stores at specific rates during the period covered by the contract. No fixed quantity is mentioned.



# POINTS TO BE NOTED BEFORE PURCHASE OF AN EQUIPMENT:

- Latest technology
- Availability of maintenance and repair facility, with minimum down time & post warranty
- Repair at reasonable cost
- Upgradeability
- reputed manufacturer
- availability of consumables
- low operating costs
- Proper installation as per guidelines



# STEPS IN PURCHASING:

- ☐ Draw up specifications;
- ☐ invite quotations
- ☐ Make a comparison of offers (based on basic price, insurance charges, taxes and levels, quantity and payment discounts, payment terms, delivery period, guaranty, vendor reputation,)
- ☐ shortlist offers
- ☐ negotiate for better terms,
- ☐ issue purchase orders,
- ☐ Taking care to list out all requirement of the institution,
- ☐ seek an order
- ☐ acknowledgement and follow-up for early supply.

## 4. RECEIPT, INSPECTION, ACCEPTANCE AND PAYMENT

- ☐ While taking delivery from the road transporters, railways, customs, check containers for deficiency and damages
- ☐ If packing is damaged, insist on “open” delivery, checking quantity of packages, individual items, weights, etc. Against packing slip / challan.
- ☐ Any damage / loss should be registered immediately through a “claims” statement.
- ☐ Cross check with purchase order
- ☐ on receipt of the hospital checks supplies quantity, quality, product specifications etc.
- ☐ Record shortages, incorrect damaged material, out dated supply and take action accordingly.
- ☐ All supplies should be inspected and certified by the purchase / stores department.
- ☐ Carry out all necessary documentation, day book of receipt, goods inward note, stock purchase register and bin card.
- ☐ Notify indenters of special purchase requisition regarding arrival of materials.

# PROCEDURE FOR PAYMENT:

- On accepting the goods and certifying correctness, send the bills to the accounts department for payment. Before releasing payment, the account department should ensure that the bills bears proof of receipts of goods, certification of acceptance and completion of purchase documentation.



## 5. STORAGE

- Storage and preservation are an important part of the storekeeping function.
- 1. Store must be of adequate space.
- 2. Divide the store in to homogenous sections with separate areas mark for different groups of items e.g. Stationary, furniture etc
- 3. No material should be stocked on the floor as it may be affected by dampness, white ants etc.
- 4. Categorize items in a group based on their generic name/ application, store similar items contiguously.
- 5. Keep heavy items as low and as near to the door as possible for easy retrieval. Light items may be placed on top shelves
- 6. Daily and periodical cleaning should be carried out.
- 7. Daily and periodical verification of stock should be carried out to ensure correctness of stock.
- 8. Proper method of handling should be followed to avoid damages to the materials.



# STORAGE

- 9. Preservation materials should be applied to protect the items.
- 10. Hazardous materials should be segregated and stocked in a separate store house away from other store houses.
- 11. Safety precautions should be taken and safety appliances should be provided.
- 12. First-in, first-out principle to be followed
- 13. Follow two bin or double shelf system, to avoid stock outs
- 14. Reserve bin should contain stock that will cover lead time and a small safety stock
- Maintain stock register

## 6. INVENTORY CONTROL

- It is the process of having the necessary equipment and supplies available at the appropriate time. It means stocking adequate number and kind of stores, so that the materials are available whenever required and wherever required. Scientific inventory control results in optimal balance

# FUNCTIONS OF INVENTORY CONTROL

- To provide maximum supply service, consistent with maximum efficiency and optimum investment.
- To provide cushion between forecasted and actual demand for a material

# CONCEPTS RELEVANT IN CONTROL OF INVENTORY COST

- a) cyclic system: this is a periodic inventory system where the physical stock position is reviewed at periodic fixed intervals and orders are placed depending on the stock on hand and rate of conception
- b) Two bin System: in which when the first bin is used up, an order is made out for replenishment. The second bin contains enough quantity of the item to last until the ordered quantity arrives.
  - In cyclic system the ordering interval is fixed. But the quantity order varies each time. In contrast in the two bin system the order quantity is fixed but the time for placing orders is not at definite intervals.
- Lead time: This is the time required to obtain the supply once the need is determined
- d) Minimum stock or safety stock or buffer stock: This amount of stock should be kept in reserve to avoid a stock-out in case of conception increases unexpectedly or in case the lead time turns out to be longer than normal.



# CONCEPTS RELEVANT IN CONTROL OF INVENTORY COST

- E) Re order point / level: is the pre determined stock at which an item is to be reordered for replenishing the stock
- f) Maximum stock: This is the pre determined limit beyond which the stock of an item should not be allowed to go in normal course
- g) Turnover of inventory: Inventory turnover is the qualitative measurement of the number of times that the total inventory value is issued and replaced.
- h) Physical inventory: This involves a physical verification of inventory for comparison of the actual stock units on hand versus the number documented in the records.



# METHODS OF INVENTORY CONTROL

1. Economic order quantity: It is the quantity at which the cost of ordering the annual requirement of an item and the inventory carrying cost are equal
2. ABC analysis: obtain the consumption value and the items are then ranked in order of their annual consumption value.
3. vital essential or desirable: Items may be classified as VED based on their criticality
4. Fast moving, slow moving, non moving [FSN ANALYSIS]:
  - Fast moving items are used at a rapid rate, items which have moved at least once in a year.
  - Slow moving items are used consistently but at a slow rate, items which have moved at least once in a period of one or two years.
  - Non moving items should be reviewed periodically to prevent date expiry, obsolescence and damage in storage. It may remain in the stock for several months

- INVENTORY CONTROL REGISTER:

<b>Name Of The Material</b>	<b>Code No.</b>	<b>Max. Level</b>	<b>Min Level</b>	<b>Re-Order Level</b>	<b>EOQ/Lot size</b>	<b>Units</b>	<b>Location</b>

- MONTHLY CONSUMPTION REGISTER:

<b>Date</b>	<b>Doc Ref</b>	<b>IN</b>	<b>OUT</b>	<b>Bal</b>	<b>Remark</b>

## 7. ISSUE / DISTRIBUTION:

- Items held in inventory by the stores may be issued through indents to user department on a periodical basis or as and when necessary.
  - A) requisition or drug basket system:
  - B) par level or topping up systems:
  - C) exchange cart systems:

## 8] USAGE

Every effort must be made at all levels in the organisation to utilize supplies in order to avoid any form of wastage. Monitoring of consumption should be effected through monthly supply usage reports to work which summarize items consumed department wise. Material cost can also be decreased by appropriate selection of materials, cheaper substitutes and standardization of supplies.



# 9] MAINTENANCE

Proper maintenance of equipment, furniture, and fixtures not only ensure their almost continuous availability for use but also an extended life and productivity for the items, thus resulting in lower material costs

- A] durability
- B] periodical disinfections
- C] repair ability
- D] spare parts availability
- E] operation and service manuals
- F] service contracts
- G] stand by units

# PREVENTIVE MAINTENANCE

- Purchase with warranty & spares.
  - Safeguard the electronic equipments with: (as per guidelines)
  - voltage stabilizer, UPS
- automatic switch over generator
- requirement of electricity, water, space, atmospheric conditions, etc. Must be taken into consideration
- well equipped maintenance cell must be available
- all equipment must be operated as per instructions with trained staff
- monitoring annual maintenance contracts. (Amc)
- maintenance cell
- communications between maintenance cell & suppliers of the equipment.
- Follow-up of maintenance & repair services
- repair of equipment
  - • Outside agencies
  - • In-house facility

## 10] DISPOSAL/ CONDEMNATION

- THE NURSING SUPERVISORS SHOULD PERIODICALLY INSPECT THE STOCKS ATTACHED TO EACH WARD AND ARRANGE FOR RETURN OF EXCESS STOCK/EQUIPMENT TO AVOID UNOFFICIAL INVENTORY BUILDS UP IN WARDS
- EACH HOSPITAL SHOULD ALSO HAVE A CONDEMNATION TO REVIEW USED MATERIALS THAT ARE TO BE DISPOSED OFF. AT TIMES IT IS POSSIBLE TO RECYCLE OR REUSE MATERIALS OR FIND SOME OTHER USE FOR THE ITEM. IF NO FURTHER USE CAN BE FOUND FOR DISPOSABLES, USED CONSUMABLES AND DAMAGED EQUIPMENTS, IT MAY STILL HAVE VALUE AS SCRAP.

# CRITERIA FOR CONDEMNATION:

- The equipment has become:
  1. Non-functional & beyond economical repair
  2. Non-functional & obsolete
  3. Functional, but obsolete
  4. Functional, but hazardous
  5. Functional, but no longer required



# PROCEDURE FOR CONDEMNATION

- 1. Verify records.
- 2. Preparation of history sheet of equipment
- 3. Log book of maintenance & repairs
- 4. Performance record of equipment
- 5. Put up in proper form & to the proper authority

# DISPOSAL

- 1. Circulate to other units, where it is needed
- 2. Return to the vendor, if willing to accept
- 3. Sell to agencies, scrap dealers, etc
- 4. Auction
- 5. Local destruction

# 11] COLLUSION

Frauds involving buyer vendor collusion can account for a significant percentage of avoidable materials costs. For commission either in cash or kind purchase personnel may compromise the interests of the hospital. The vendor finances such payment by infiltrating the price, overstating the quantity or through fraudulent payments. Such frauds can be prevented by intensive internal audit and by involving two or more departments or persons in purchase transactions. It is for this purchase that many hospitals set up separate departments for purchase and for stores

## 12] PILFERAGE

- Theft is not common. Items may be pilfered by the transporters, receiver, stores personnel or the users. Control of hospital theft is possible with intensive vigilance