

Post Graduate Certificate Course in Health System and management

Module 5

Material Management and Health Economics



2015

**Indian Association of Preventive and Social Medicine
Gujarat Chapter**

Post Graduate Certificate Course in Health System & Management (PGCHSM)

Team –2014

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Preface

Understanding of Health system and acquiring skills of health management are assuming importance in protecting and promoting people's health. Sound epidemiological knowledge and skills are ineffective if it is not complemented with robust Health System and Effective management. Hence it is the high time for every health manager to acquire the managerial understanding and skills.

As a professional body in Public Health; it is our responsibility to act as a catalyst in increasing the quality of health services. This course; Post Graduate Certificate In Health System and Management is an attempt to bridge the gap between technical and managerial worlds for Community Physicians and Public Health experts.

This course is covering key topics on health system, planning, managing human resources, materials and machines. Also health fineness and health economics, monitoring and evaluation, quality in health care are covered. The strength of the course lies in its faculties. Faculties are mixed of experts from the medical colleges and public's health cadres. Also it is envisage that students who are opting the course develop critical and creative thinking, reasoning power and analytical skills in Community Health with vision of applicability.

We have successfully completed two PGCHSM courses during the years 2013 and 2014.

I am sure this is a small step, but it will go a long way in creating culture for learning about health system and health management in the medical expert involved with public health. We are looking forward to your suggestions and support to further enhance the quality of this course.

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: About Module :

Changing role of public health experts from technical jobs to managerial seek demand to know and understand the concept of material management and health economics. It is also desirable to understand the concept of budget, accounting and auditing.

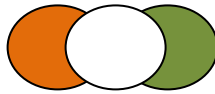
This module has two parts; material management in initial part and health economics in later part.

In **Material management** part various issues regarding inventory are discussed. In the first chapter issues involved with inventory management, Principles of inventory control & some terms involved with inventory management are discussed. The second chapter describes inventory procurement & tendering procedures. The third chapter describes various inventory control methods, ABC, VED analysis, reordering levels etc. Chapter 4 deals with proper storage & codification of inventory.

In **Health economics**, there are five chapters. In first chapter Glossary of selected terms frequently used in Health Economics are shown. In second chapter basic concept of Health Economics is stressed. Financial management for health is written in chapter number three. Challenges and opportunities for financing health care in India is given in chapter four. In fifth chapter, basic concept of budgeting, basic types of accounting and process of account, types of audits and process of audit and lastly medical audit and process of medical audit was briefed.

Hopefully, this module will be a good catalyst to understand and skill building in a key issue of public health such as material management and health economics among Community Physician and Public Health experts and will be a great help in enhancing their role as a successful Health Manager.

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PG Certificate Course in
Health System and
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Module 5: Material Management and Health Economics



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Module 5

Material

Management

Chapter 1:

INVENTORY CONTROL

Learning objectives: At the end of this chapter students will be able to know

1. What is inventory & issues involved with its management
2. Principles of inventory control
3. Some Terms involved with inventory management
4. Reordering system
5. Types of inventory control

Inventory may be defined as *“usable but idle resource having an economic value”*.

It can also be described in financial terms as the sum total value of raw materials; semi processed and finished goods at any given time.

When we deal with tangible (touchable) items such as materials, it is called ‘*stock*’. The literal meaning of word inventory is ‘stock of goods’.

With limited availability of funds, & inventory costing almost 20 to 30% of the total cost of any organisation or system, inventory management assumes considerable importance. With proper inventory control there would be saving of scarce resources which could then be utilised for other important purposes & thus help in providing better services thereby contributing to the development of the organisation/system & ultimately the nation.

The basic issue involved in inventory management is to ensure that adequate amount of raw materials are available to meet the demand of the organisation, while at the same time ensuring that too much inventory is not accumulated and also that there are no ‘stock-outs’ in the organisation. Thus, a well managed organization would necessarily have a higher inventory turn-over rate and lesser cash would be blocked as inventory/stocks. In order to manage any organisation without affecting its outputs, some amount of ‘inventory’ is necessary so that raw materials are available in correct quantity at correct time. Similarly, in a health care establishment some inventory of essential drugs and supplies has to be maintained to ensure that health care to patients does not suffer.

In any hospital, high quantities of inventory in form of large number of costly drugs and supplies would be detrimental to profitability and smooth running of the hospital due to blocking of cash in form of idle stores, requirement of large storage space for medical stores, substantial handling and transportation charges, pilferage and cost of expired medical stores.

The ultimate aim of inventory control in a healthcare setting is to ensure that adequate and optimal essential items are properly stored, controlled, are easily retrievable and distributed to points of uses so that patient care does not suffer due to lack of these essential medical supplies & at the same time simultaneously minimizing the inventory cost.

Principles of Inventory Control:

1. Determination of required items in terms of quality & quantity.
2. Identification of suitable source of procurement of those goods.
3. Ensuring timely supply of these goods.
4. Proper storage of received goods
5. Effective control mechanism of stock through regular record keeping
6. Timely distribution & appropriate usage of stocks
7. Employment of trained personnel for store keeping
8. Determination of re-order point - when should re-ordering be done

Some Important Terms in relation to Inventory Control

- A. **Order Cost:** The cost of placing an order for inventory. It includes advertising costs, salaries of personnel required to determine the inventory, stationary cost. At times, a professional expert may also have to be called from abroad or the manager may be required to visit a foreign country to place an order, in which case the ordering cost would also include the travel cost etc. Amongst all the salaries of persons involved in ordering is maximum & thus persons dealing with purchasing should be kept to a minimum.
- B. **Purchase cost** is the actual cost paid for the purchase of materials & stores, and the aim should be to reduce this as far as possible without compromising on the quality and quantity of items purchased.
- C. **Inventory carrying cost:** are the hidden costs and pertain to maintenance of a large inventory/stock, which lies idle and which blocks the finances of the organisation. Special efforts are required by a manager to identify these carrying costs, since they are often hidden and not easily decipherable (readable, understandable). When we keep some stock, we spend on maintaining it. Some amount is invested. Your capital is blocked. This is more important as drugs are becoming more and more costly. It is not only a matter of interest on blocked or invested capital, it is something more. Of course, interest on invested amount is important. But we must also realize that we could have used available fund in some more productive way. This opportunity is lost by investing in keeping stock of drug.

Some such inventory carrying costs are:

(i) *Cost of borrowed money* which is the interest paid to a financier or the interest lost which could have been earned, had a large amount of money not been used for purchasing the stock presently held as inventory;

(ii) *Cost of space:* which needs to be hired for storage, utilised for storage & which could have been utilised for other activities;

(iii) *Cost of additional manpower:* by incurring additional expenditure on salaries, etc. of manpower required to manage the stocks;

(iv) *Cost of obsolescence* (out of date): All materials, especially hospital supplies, become obsolete, leading to financial loss;

(v) *Cost of deterioration* : Supplies when stored for a very long time tend to deteriorate with time, especially crucial hospital supplies like injections, medicines and intravenous medicines etc; and;

(vi) *Cost of pilferage*: A large and unmanageable inventory is bound to lead to pilferage and loss to the organisation.

(vii) *Cost of insurance*: Expensive inventory also needs insurance against unforeseen conditions

We need to keep a watch on inventory carrying cost and keep it to minimum possible so that we can earn some more profit and keep expenditure by patients to some lower level.

- D. **Shortage costs** are the 'direct' and 'indirect' costs paid by an organisation for not having a particular item in ready stock. The impact of this shortage would depend on the criticality of that item and its importance for functioning of the organisation. In a hospital set up, let us assume that there is a sudden shortage of life saving drugs like Digoxin. The *direct cost of this shortage* would be in form of the expenditure incurred by the hospital in procuring these drugs urgently from the open market at a premium. The *'indirect cost'* would be in the form of adverse publicity, suspended healthcare in form of refusal of admissions and may be a few avoidable deaths due to shortage of those critical drugs.
- E. **Lead Time**: It is the time required between placing an order & receiving the same. The delays are at – administrative level, production level, transportation level & finally inspection & storage of received items.

Lead time is the time lag incurred between placing a demand and getting the supplies ready for use. If we think of a ward which places indent every week on a fix day. They get supplies next day. Lead time for them is one day. But we must not forget that next opportunity for placing demand is one week.

If a hospital wants to purchase some drug, lead time will include time for purchase procedure like inviting quotations, selecting vendor, placing order, time taken by supplier to provide supplies, time for shipment, time for processing after receipt of supplies like taking on stock register, supplying to user unit etc.

If rate contract is made, it provides for some time between placing order and supply of drugs. There is always a clause that supplier should supply order within some time limit. We need to wait till then. This is lead time in this case.

Lead time varies from time to time and place to place and incidence to incidence. We need to calculate average time lag for last few occasions of specific drugs.

Importance of lead time lies in considering when to order. We need to calculate average use during average lead time. we need to have as much stock as to meet with requirement during lead time so that incidence of stock out can be avoided.

Reorder level largely depends on requirement during lead time. Two bins principle says that when you get supply, keep stock requirement for lead time in separate bin and keep it aside. When you complete remaining stock, you need to reindent.

- F. **Buffer Stock:** it is the amount of stock kept in reserve for any unforeseen emergency conditions of variations in demands or supply. It is the difference maximum & average consumption rates per day multiplied by the Lead time for that item.

Hospitals are faced with some emergency situations from time to time. These could be disasters, calamities, mass accidents, epidemic etc. During such time, requirement of medicines and other pharmaceutical supplies rise tremendously. However it is impossible to keep stock for extraordinary disasters for which national or international help may be required, one can and must have stock to meet with mild to moderate calamities. Stock needed for such emergency situation of excessive use of drug is called buffer stock.

As for food grains, government makes buffer stock to meet with possible draught, similarly we keep extra stock of medicines for such emergencies.

- G. **Reorder Level (ROL):** it is the stock at which fresh order has to be issued. It is calculated as average consumption per day multiplied by the lead time plus the buffer stock. This will prevent stock out.

This is a particular stock level at which you need to reorder the drug. This level varies from drug to drug.

Reorder level is calculated on following calculations.

Time interval from placing order to actual supply is “Lead time”. During this time, we need some supply depending upon our use patterns. So we need to calculate average requirement for this time.

It might so happen that due to some unforeseen situation, we might not get supplies in time. We need to have stock for such unforeseen situation. Stock to meet regular requirement for extra time interval is called reserve stock. Some authors call it safety stock.

We might face emergency situation like epidemic or some mass emergency etc. which might call for extraordinary rise in requirement of particular drug. Stock for such extraordinary situation is called buffer stock. This stock is to meet with unforeseen extra requirement.

Sum total of all three of above is our reorder level.

Reordering System: 2 types:

- a. Cyclic system / fixed order interval: the size of the order may fluctuate with demand - malaria drugs. The ordering interval is fixed. It is necessary to see that stocks do not fall between the reviews less than required during the lead time.
- b. Bin system / fixed order quantity: the frequency of ordering varies again determined by demand. E.g. PCM.

The Fixed order size system is more suitable for C & low value B items. The fixed order interval system with frequent & careful reviews is more suitable for A & high value B items.

If there is a risk of stock out the fixed order interval system requires more of safety stock as compared to fixed order size system.

- H. Stock turn-over: It is necessary to see that items are utilised before their expiry or warranty period. So first in first out rule is to be followed.
- I. Economic order quantity: it is that quantity at which the total of annual ordering cost & annual inventory carrying cost are lowest.

How much stock to order is a million dollar question. We know that you get some concession on bulk purchase. More the quantity you order, less will be the cost. So, why not to stock?

There are some points against bulk purchase. We all know that drugs have expiry date. If we cannot use the drug before that date, the remaining stock will become useless. Can we afford this waste? So we can order only as much as we can use during time limit of expiry date.

Purchase procedure also adds on cost. We may float tenders. Such tendering procedure has its own built in cost like that of advertising etc. We may not like to do the same procedure and incur expenditure every now and then. We need to take into consideration this cost in calculating economic order quantity.

Inventory carrying cost, in form of blocked capital, lost opportunity in form of alternative use of capital, expenditure on maintenance, interest on capital etc. should be considered and quantity to be ordered should be calculated like that.

Lost opportunity due to stock out also should be considered. This is loss of business because of non availability of particular drug or vaccine or

pharmaceutical. If this is huge, we need to maintain stock, even if we incur expenditure.

The purpose of inventory is to find the optimal levels of stocks holdings & re-ordering levels along with amount so that total cost is minimized.

Eg: suppose a hospital needs Rs 100000 of certain medicines a year. The ordering cost is Rs 50/order & the inventory carrying cost is 10% of the average inventory.

How to calculate average inventory? If medicines worth Rs 1 L are purchased for a year, the inventory will be near to 100% - 90% in early part of the year & gradually decrease to 10 to 0% by the end of the year. So we can say that the average inventory will be equal to 50% i.e Rs 50,000.

No. of orders /year	Order size (Rs)	Average inventory	Annual carrying cost (10 %)	Annual ordering cost @ Rs 50/order	Total cost
1	100000	50000	5000	50	5050
2	50000	25000	2500	100	2600
5	20000	10000	1000	250	1250
10	10000	5000	500	500	1000
20	5000	2500	250	1000	1250
25	4000	2000	200	1250	1450

Thus from the table it is clear that the hospital should order 10 times in a year for the given inventory to have the total cost of inventory at minimum.

If the annual consumption of an item is high, orders are placed frequently so that the inventory level is low as possible. Items whose annual consumption value is not high & cost is less, sufficient stocks are maintained & orders are placed less frequently.

Types of Inventory Control

Pareto, a German economist found that in any given city, 20% of the people controlled 80% of the income & 80% of the other people controlled only 20% of the finances of the city. This '*Pareto's law*' also forms the basis for inventory control, wherein it is theorized that a few items in the inventory will account for a large proportion of total cost whereas bulk of the items will account for only a small percentage of the cost or importance of total inventory. Thus, basic principle of inventory control is based on the effort to closely control costly / critical items in inventory all the time, while other, less important / less costly items could enjoy less stringent controls.

Various selective inventory control measures are as under:-

(a) ABC: Inventory control based on annual total cost of items and not on unit cost of an item. This type of inventory control is described in detail subsequently.

(b) VED: Based on criticality and importance of consumables, items are classified as Vital (V), Essential (E) and Desirable (D).

(c) HML: Items are classified based on cost of individual item as High cost (H), Medium cost (M) and Low cost (L). This classification does not depend on consumption of items.

(d) SDE system is based on the ease of availability of items and items are classified as Scarce (S), Difficult to obtain (D) and Easy to obtain (E).

(e) GOLF system is based on the source of supply & includes Governmental sources (G), Ordinary (O), Local (L) and Foreign (F).

(f) FSN: Items are classified based on the rate of issue from the stores into Fast- moving (F), Slow moving (S) and Non-moving (N) items.

(g) SOS is the classification of items based on Seasonal (S) and Off-seasonal (OS) availability.

(h) XYZ is the classification based on the value of stocks of items held.

An ideal inventory control mechanism would ensure the optimal quantity of resources at all times at all places where they are required for smooth & unhindered operations and would prevent stock- outs and under-stocking. At the same time, a good inventory control system would also prevent over-stocking and blockage of vital finances in form of idle stocked stores. In a health care setup, a good inventory control systems would improve the service delivery and enhance patient satisfaction, reduce the operating (functional) costs of the hospital, increase efficiency and liquidity (cash availability), thereby improving the return on investment (ROI).

Chapter 2: Inventory Procurement

Learning objectives: At the end of this chapter students will be able to know

1. Various procurement procedures
2. The process of tendering

Any healthcare establishment is heavily dependent on material, equipments and medicines and hence logistics management assumes great importance since availability of the right item, at right time, right place and in the hands of the right person can often make the difference between life and death in a hospital.

Broadly, Logistics and materials management involve a large number of activities, which are more sensitive in a hospital because each activity influences & is influenced by other activities.

These are listed below and are explained subsequently:

- (a) Tendering, procurement & inspection
- (b) Storage, standardization, codification & classification
- (c) Materials accounting & physical distribution
- (d) Transportation
- (e) Security of materials
- (f) Condemnation and disposal of stores

Tendering, procurement & inspection:

Any organisation has to resort to purchasing of goods or services (process of actual buying of materials for services) to ensure an uninterrupted flow of materials, a minimum inventory investment and to buy materials / services at a reasonable cost .

Broadly, the steps involved in purchasing are summarized as follows.

Factors for vendor rating:

- Financial capacity
- Production capacity
- Value of business
- Reputation
- Other customers
- Service facilities
- specifications

Identification of need→selection of the correct sources of supply (vendor rating)→analysis of bids→price negotiations→ issue of purchase order→inventory actions

Concept of Tenders: Tender buying is resorted to by all govt. /public sector organisations wherein enquiries are floated to various short-listed vendors, for purchases to be done. Tenders may be Open tenders (through advertisement in media) Limited tenders (where bids are called for only from reputed / prequalified parties); Simple tenders (where only one firm is asked to submit its rates in writing) and Global tenders (in case of large purchases tenders are often invited from within India and abroad).

All govt and public sector undertakings should follow the following steps in the tendering system while undertaking purchases:

1. Specifications of the item to be purchased are established carefully.
2. A vendor list is identified which should have as many vendors as possible.
3. Competitive bids are invited from vendors through an open advertisement, which should also mention the technical specifications of the item, modalities of payment and any other terms & conditions.
4. Bids received are opened in front of representatives of vendors on a pre-notified date and time.
5. Comparative statement is drawn up of the quality, price & support services of those bids which meet the qualifying requirements.
6. Bids are evaluated. Contract is awarded to lowest responsible bidder, who meets the specifications which are pre-determined.
7. Price negotiation with the selected vendor.
8. Issue of purchase order.
9. Supply of items within the stipulated time frame.
10. Inventory action (including inspection and issue to concerned department)

Types of purchase processes

(1) Rate contract is the purchase system wherein the rate of an item is determined through a tender system, without specifying the quantity to be purchased. Under running contract system, the minimum quantity to be purchased is specified. Followed by all Govt./ PSU through DG S&D, the system reduces the lead time for the organisation, since purchases are made at pre-determined rates (centrally carried out by the DG S&D).

(2) Blanket ordering is a contract with a vendor to periodically supply low cost items only on receipt of an authorized release order from the organisation.

(3) Cash purchases (Imprest purchases) are the purchases made from the open market on strictly need basis and are usually confined to urgently required but low priced items, required in small quantities.

(4) System contracting is a form of purchasing which does not involve maintenance of any stocks and inventory by the organisation and where authorized individuals from the organisation can draw low priced materials needed in high quantity directly from a supplier's store.

(5) Reciprocal purchases involve a policy where two contracting parties purchase their specialized items from each other on a mutual basis.

Types of contract

The Authority uses a variety of contracts. The type of contract depends on the requirement for the goods or service. For example, for a low value, simple procurement, a letter of agreement referring to the Authority's Standard Terms & Conditions can be sufficient. However, for the provision of high value and/or high risk goods or services, a tendering process will usually be used. The varieties of contracts we use include:

1. Purchase orders - a purchase order will usually be issued for any purchase of goods and services. As a general rule the Authority's Standard Terms & Conditions apply to all procurements.

2. One-off contracts - these are contracts which meet a specific need and will generally be short-term to supply goods, services or works. For example:

- A consultancy for a one-off project
- The purchase of a particular piece of equipment
- A one off building project.

3. Call-off or framework contracts - this is where the terms, conditions and prices (or at least the pricing strategy) are agreed with a supplier or a number of suppliers, for the supply of goods and services. Making orders under the umbrella contract is by way of quotation if there is more than one supplier on the framework, or calling off from the single supplier. These contracts are usually longer term, i.e. between three and five years. Examples of this type of contract are:

- Repair work to premises
- Purchase of consumables
- Purchase of IT equipment.

4. Partnership contracts (or partnering contracts) - these are contracts where the Authority is seeking to develop a service or asset, in partnership with a service provider. The service provider will often have a substantial say in how the service (or works) is developed throughout the life of the contract. Where services are concerned, partnership contracts will be long term (often five to seven years). An example of this type of contract is for the design and construction of new buildings, roads.

Contract rules and laws

Public Procurement Regulations

The Authority must be able to demonstrate Best Value in all its procurement, meaning "the optimum combination of whole life costs and benefits to meet the customer's requirements".

There is no need for Compulsory Competitive Tendering (always buying the cheapest product or accepting the lowest tender), although price is still important and forms part of the evaluation criteria. It is necessary to look at quality and price to make sure that the product, service or works being procured is the most suitable whilst providing value for money for the Authority.

These Procurement Directives must be adhered to for any public sector organisation. The effect of the Directives and Regulations is:

- To require the Authority to advertise tenders for all its contracts over the current threshold. The value of a contract is **not** based on the annual value but the amount that the Authority will have to pay to the supplier over the whole life of the contract (including any possible extension)
- To require the Authority to ensure that the specification is not drawn up in such a way as to make it any more difficult for a non-government or international company to bid for the contract.

There are four ways in which procurement can be carried out under the Directives and Regulations. These are:

1. Open Procedure - where the Authority advertises a tender and everyone who is interested is invited to tender

2. Restricted Procedure - where the Authority advertises for expressions of interest and draws up a shortlist of companies to be invited to tender from those expressing an interest

3. Negotiated Procedure - where the procuring body negotiates with the bidder of its own choice. There are only very limited circumstances in which this procedure may be used. They are used mainly in connection with major outsourcing and Private Finance Initiative (PFI) contracts. There is more scope to use a negotiated procedure for service contracts than supply contracts.

4. Competitive Dialogue - where the Authority presents or describes a need and initiates dialogue with suppliers, who will identify and determine the best solution to the need. This method is used in preference to the Negotiated Procedure. Aspects of the contract can be discussed with the chosen candidates during this dialogue. However, the Authority must not reveal any solutions or confidential information to another party.

How we advertise for tender opportunities

All advertisements for contracts will be advertised in the Leading newspapers of the country & institutional websites

Lower value tenders will be advertised in Local/National papers, appropriate trade journals, on our website, or in some cases, through direct contact with suppliers.

The advertisement may:

- Be an 'open' invitation which means that anyone who wants to, can tender for the contract being advertised
- Ask for 'Expressions of Interest' which means that you will have to fill in and return a questionnaire asking for information about your company - this information will be used by the Fire Authority to select a shortlist of companies who will be invited to tender
- Go directly to preferred suppliers (where applicable).

How to respond to an advertisement for tenders

The way in which supplier should respond to an advertisement for a tender, and therefore the information needed to send to the Authority, depends on the type of advertisement issued for a given tender.

Open invitations

All bidder needs to do is to contact the Service employee named in the advertisement and ask for a tender pack for the contract.

Expressions of interest

If the advertisement asks Bidder to express an interest in a tender opportunity he will need to email the named contact and ask for a *Pre Qualification Questionnaire* (PQQ). The type of information requested in the PQQ is:

- Details of incorporation if Bidder are a company
- Financial statement/company trading accounts
- Customer/trade references
- Health and safety policies
- Equal opportunity policies
- Insurances
- Quality/training and environmental systems.

For higher value or more complex contracts Bidders will **also** be asked:

- About relevant experience
- About the staff who will work on the Authority's contract
- For more information about health and safety, environmental and equality policies of the bidders company.

With the PQQ, Bidder will be given more information about the subject matter of the contract.

Bidder will need to complete and return the PQQ to the name and address supplied by the specified return date.

The Authority will use the information in the PQQ to draw up a shortlist of the most suitably qualified organisations to meet the particular requirements of the contract. These companies will then be invited to submit a tender for the contract. Bidder will be informed about the outcome of his PQQ on or around the date specified in the PQQ.

The Authority will set criteria which organisations wanting to do business with the Authority will need to meet. These are in three categories - legal, financial and technical:

Legal

- Bidder must accept the jurisdiction of the Courts
- Bidder must accept our contract conditions (where these are supplied), although minor changes may be agreed if they are in the interests of both parties
- Bidder must have no convictions for serious environmental offences, fraud, corruption or other major breaches of the Companies Act in the last three years or, if Bidder have, Bidder can explain what steps Bidders company has taken to respond to such conviction;
- Bidder have no findings of unlawful discrimination of any kind in the employment field in the last three years or, if present, party can explain what steps they have taken to respond to such findings

Financial

- Bidder must pass a financial check usually based on his companies (preferably audited) accounts/financial statements
- Bidder must provide evidence of an acceptable level of public liability insurance, employers liability insurance, and professional indemnity insurance where required. Very occasionally and dependent upon the subject matter of the contract, we may require additional/alternative specialist insurances.

Technical

- Bidder must meet the technical requirements as set out in the specification
- Bidder must provide references for his company that authority can contact
- Bidder must provide evidence of any quality standards (appropriate to the requirements of the contract) held by his company

- Bidder must provide (as a minimum) a company policy statement covering health and safety, environment and equalities aspects of his business that must meet legislative requirements.

The tendering process

If bidder is short-listed he will be issued with a tender package. This will comprise (at least):

- The Invitation to Tender (ITT)
- Instructions to Tenderers
- Form of Tender
- The Contract Specification
- The Contract Terms and Conditions. Note: Special Terms and Conditions **will** be applied depending on the specific procurement
- Form of Offer
- Canvassing Certificate
- Parent Company Guarantee (if relevant)
- Supplementary information (if applicable).

Contracts are awarded on the basis of lowest price or 'most economically advantageous. The ITT will tell bidder about the basis on which his bid will be evaluated. The evaluation criteria will consider a range of quality and other non-commercial issues that may lawfully be taken into account in addition to the price.

If the contract is a complex, high value or high risk to the Authority, they may ask bidder to come to an interview and/or ask to visit one of his reference sites.

At the end of the evaluation process authority will make decision and select a preferred bidder, and inform both successful and unsuccessful companies of the outcome.

Managing contracts and payment

Managing our contracts

Authority will work with bidder to achieve the best service possible. Where Authority enters into a long-term relationship with bidder Authority expect to work together to achieve a continuously improving service for the Authority and service users.

Authority will monitor bidder performance against any key performance indicators (that have been either specified by the Authority or agreed with bidder and form part of a Service Level Agreement) and for compliance with companies health and safety, equalities and environmental policies as agreed with us.

How will authority pay

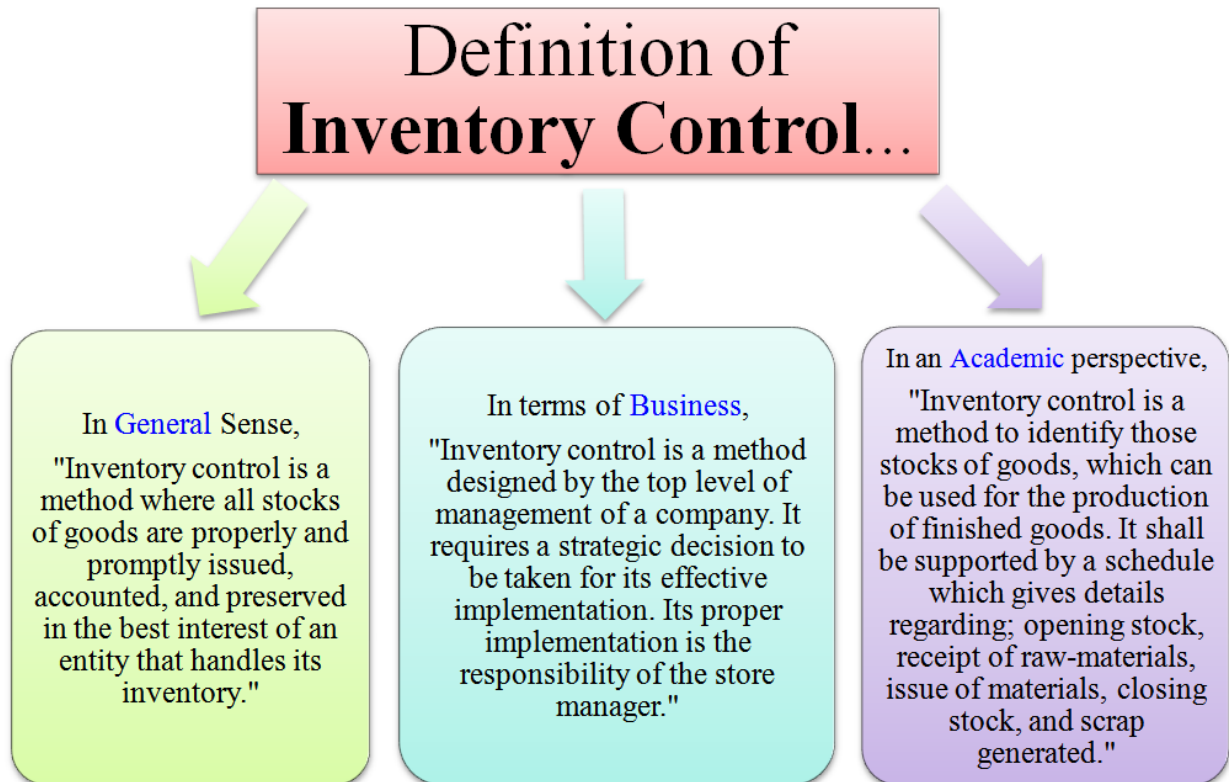
As set out in Financial Standing Orders, authority will pay within xyz days of receipt of invoice as the norm or within any subsequently agreed terms to suppliers via a bank or society account.

Chapter 3

TECHNIQUES OF INVENTORY CONTROL

Learning objectives: At the end of this chapter participants will be able to know:

1. Various inventory control techniques
2. The importance of different inventory control techniques in various situations
3. The pros & cons of various inventory control techniques

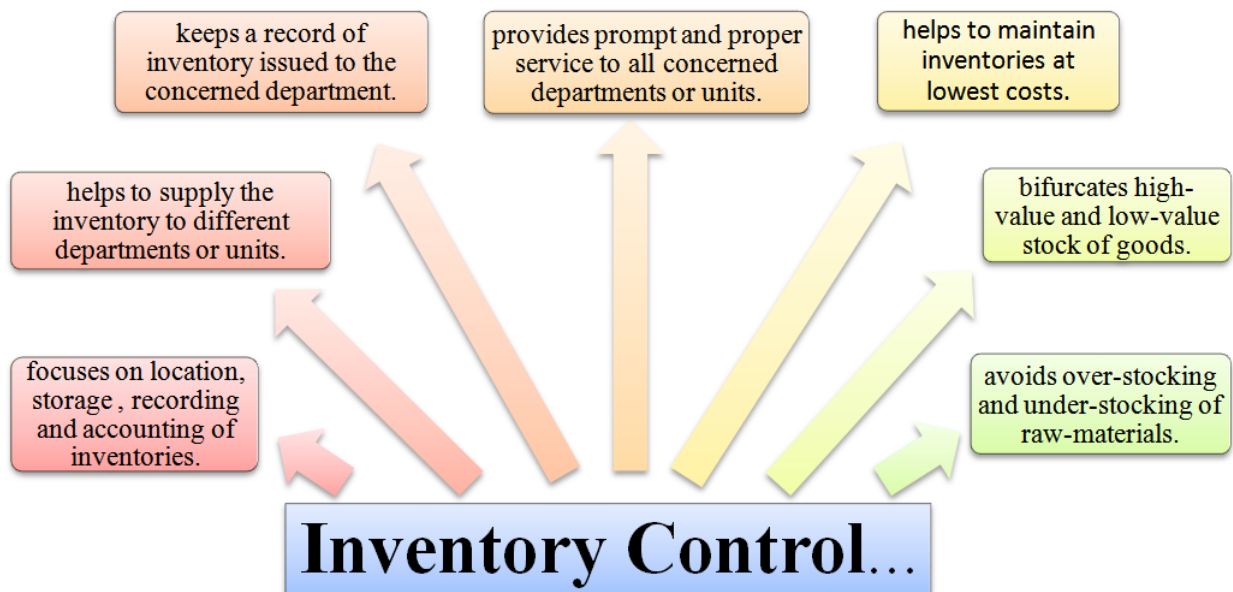


"Inventory Control" focuses on the *process* of movement and accountability of inventory. This consists of *strict policies and processes* in regards to:

1. The physical and systemic movement of materials
2. Physical Inventory and cycle counting
3. Measurement of accuracy and tolerances
4. Good Accounting Practices

"Inventory Management" focuses on inventory as an *asset or an instrument of value creation*. Inventory is managed to maximize value, exposure, and/or profit while minimizing cost and spendings. This consists of:

1. Product smoothing and leveraging
2. Selective product placement
3. Velocity and turns calculation development
4. Inventory reduction and product rationalization
5. Fixing MRP



- The simple meaning of inventory in dictionary is “detailed list of all the goods in stock.”
- In short, inventory can be defined as the “*a stockpile of goods an organization is offering for sale and components that are used in the manufacturing process.*”
It includes:
 - a) Finished goods
 - b) Raw materials (works in process)
 - c) Supplies
- Organizations such as **hospitals** provide the consumer with **finished goods i.e. medicines and drugs**. Inventory is purchased in salable form and used without any further processing.
- Inventory exists because supply and demand are difficult to synchronize perfectly.
- Different types of costs are associated with inventory like *item cost, ordering costs, holding cost and stock-out cost*.

Need for inventory control

- Inventories constitute the most significant part of the current assets, representing as much as **50%-70% of the capital investment**. Therefore it is absolutely imperative to manage inventories effectively and efficiently in order to avoid unnecessary investment in them.
- If a company's inventory level is too low, it risks delays in fulfilling its customers orders.
If the inventory level is too high, it is using up money that can be better used in other areas. It also risks obsolescence and spoilage.
- *In hospital, about **one-third** of the annual expenditure budget is spent on buying medicines (Kant S., et al; 1997). To minimize the inventory investment, the hospital may keep the medicines inventory low, but on the other hand, maximum service to the patients cannot be provided and the lack of medicines for patients in critical condition may cause serious problem.*

Defining inventory control

- Inventory Control is defined as the supervision of supply, storage and accessibility of items in order to ensure an adequate supply without excessive oversupply.
- *The objective of inventory management is to have the appropriate amounts of materials in the right place, at the right time, and at low cost.*

Strike best balance between 'too much and too little'

ABC ANALYSIS (Always Better Control)

- ABC analysis is based on **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.
- ABC analysis is a method for dividing on-hand inventory into *three classifications A, B, C based on annual consumption unit*.
- **“A” items** : money value is highest **70%**, represent only 10% of items
- **“B” items** : money value is medium **20%**, represent about 20% of items
- **“C” items** : money value is lowest **10%**, represent about 70% of items
- **The following steps along with example will explain to you the classification of items into A, B and C categories**

1. Find out the unit cost and the usage of each material over a given year.

Item #	Annual usage (units)	Unit cost (INR)	Annual Value (INR)
1	17	2.5	
2	50	17	
3	15	15	
4	25	17	
5	5	17	
6	50	119	
7	153	5	
8	20	2.125	
9	16	2.656	
10	17	2.5	

2. Multiply the unit cost by the estimated annual usage to obtain the net annual value.

Item #	Annual usage (units)	Unit cost (INR)	Annual Value (INR)
1	17	2.5	42.5
2	50	17	850
3	15	15	225
4	25	17	425
5	5	17	85
6	50	119	5950
7	153	5	765
8	20	2.125	42.5
9	16	2.656	42.5
10	17	2.5	42.5

3. List out all the items and arrange them in the descending value. (Annual Value)

Item #	Annual Value (INR)	Cumulative Annual Value (INR)	Cum. perc of Annual Value %	Category assigned
6	5950			
2	850			
7	765			
4	425			
3	225			
5	85			
8	42.5			
1	42.5			
10	42.5			
9	42.5			

4. Accumulate annual value and calculate cumulative percentage of annual value.

Item #	Annual Value (INR)	Cumulative Annual Value (INR)	Cum. perc of Annual Value %	Category assigned
6	5950	5950	70	A
2	850	6800	80	B
7	765	7565	89	B
4	425	7990	94	C
3	225	8245	97	C
5	85	8330	98	C
8	42.5	8372.5	98.5	C
1	42.5	8415	99	C
10	42.5	8457.5	99.5	C
9	42.5	8500	100	C

5. Categorization and summary

Category	Item #	% of items in inventory	Total money value	% of total money value
A	6	10%	5950	70
B	2, 7	20%	1615	19
C	1, 3, 4,5,8,9,10	70%	935	11
Total	10	100%	8500	100

❑ Management policies for ABC categorization :

- Managing all the inventories in hospital will take personal time and costs money. ABC classification shows that not all the inventories need to be controlled with equal attention.
- ABC analysis for prioritization allows the management to decide which items require most effort in controlling

- **A-items** should have **tight inventory** control under more experienced management. *Re-orders should be more frequent.*
- **B-items** require **medium attention** for control. *An important aspect of class B is the monitoring of potential evolution toward class A or, in the contrary, toward the class C.*
- **C-items** require **minimum attention** and may be kept under simple observation. *Re-ordering is less frequent.*

Class	Degree of control	Types of record	Frequency of review	Safety stock
A	Tight	Accurate and complete	Continuous	Low
B	Moderate	Good	Occasional	Moderate
C	Loose	Simple	Infrequent	large

Let us understand what will happen if items are not categorised as ABC & all stock is ordered once a year or once a quarter same for all items.

Let us assume that all stocks are ordered quarterly as under:

Category	No. Of orders /year	Annual requirement in Rs	Quantity ordered each time in Rs	Average Inventory in Rs (50% of order value)
A	4	40000	10000	5000
B	4	4000	1000	500
C	4	400	100	50
				5550

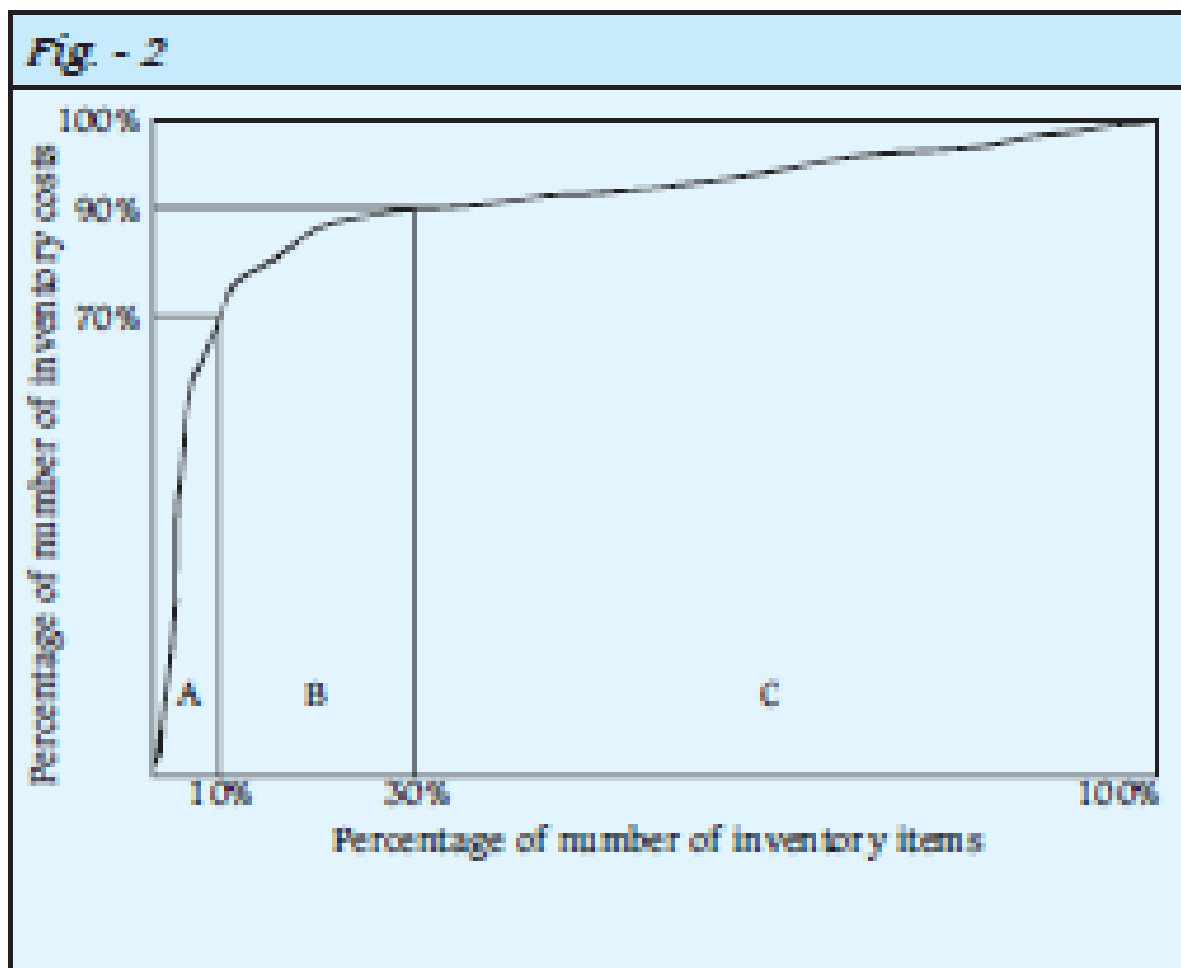
The average total inventory in above case is Rs 5550. Adding 20% of the carrying cost ($555 * 2 = 1110$), the total inventory cost works out to be $1110 + 5550 = 6660$.

Now if we apply ABC analysis in the above situation

Category	No. Of orders /year	Annual requirement in Rs	Quantity ordered each time in Rs	Average Inventory in Rs (50% of order value)
A	10	40000	4000	2000
B	5	4000	800	400
C	1	400	400	200
				2600

The average total inventory in above case is Rs 2600. Adding 20% of the carrying cost ($2600 \times 20 = 520$), the total inventory cost works out to be $2600 + 520 = 3120$.

Thus by applying ABC analysis we have reduced total inventory cost by Rs 3540 in the above case.



It is thus derived that group A items, which are the costliest should be kept under strict control and should be monitored closely for turnover and expiry. If such costly items accumulate in large quantities in a hospital, they would block scarce finances and lead to high cost of operating the hospital. ABC analysis of inventory leads to certain benefits in form of guidance to the manager about level of control for each type of item, which are summarized in Table below.

Activity	Group A	Group B	Group C
Monitoring	Very Strict	Strict	Moderate
Safety stock to be kept	Low	Medium	high
Level of control for issue	Tight	Moderate	Low
Estimates of requirements	Very accurate	Moderately accurate	May be low
Frequency of purchase	Most frequent	Less frequent	Least frequent
Turnover	Maximum	Medium turnover	Least turnover
Management involvement	Top level	Middle level	Lower level

❑ Advantages of ABC analysis :

1. Helps to exercise selective control over such items, which are having a sizable investment.
2. Helps to point out obsolete stocks easily.
3. Provides sound basis for allocation of funds & human resources.
4. It enables the maintenance of high inventory turnover rate.

❑ Disadvantages of ABC analysis :

1. Considers only money value of items & neglects the importance of items for the production process or assembly or functioning.
2. It does not categorize the items based on their critical needs, hence sometimes the purpose of ABC categorization may be defeated.

VED ANALYSIS

- **VED (V-Vital, E-Essential, D-Desirable)** classification is based on the **criticality** of the inventories, in contrast to ABC classification which is based on consumption value.
- **Vital (V):** The medicines that are critically needed for the survival of the patients, which **must be available** in the hospital all the times. *Vital items (V)* are items like Oxygen which are vital for functioning of a health care establishment and whose shortage will have serious adverse effects on routine functioning of the organisation.
- **Essential (E):** Medicines with lower critical need, which **may be available** in the hospital. *Essential items (E)* are the items whose shortage or non-availability can only be afforded for a short time (such as intravenous sets & IV fluids in a hospital) and if their shortage continues for anything more than the shortest time, the functioning would be affected seriously and adversely.
- **Desirable (D):** The remaining medicines with lowest criticality, the absence of which will not be detrimental to the health of the patients. These are items whose shortage would not affect the routine functioning of an organisation even if the shortage is for a long time (such as Vit E capsules or sun screen lotions in a hospital's medical store)
- For V items, a large stock of inventory is generally maintained, while for D items, minimum stock is enough
- However if we only consider VED analysis alone, ideal control can be exercised on the vital or essential category.
- But we found that desirable category also contained in class A of ABC classification, hence it was not possible to ignore the desirable category totally.
- **And hence a matrix was formulated by combining ABC and VED analysis which can be used for prioritization, known as ABC-VED matrix.**

ABC-VED Matrix Analysis

- In hospital inventory management, *ABC analysis (based on net value)* should be coupled with *VED analysis (based on the criticality of an item)* to narrow down the group of medicines requiring greater managerial monitoring.

	V	E	D
A	AV	AE	AD
B	BV	BE	BD
C	CV	CE	CD

- Based on ABC-VED matrix, inventories can be categorized into 3 groups.
 - **Category I** : AV+BV+CV+AE+AD
 - **Category II** : BE+CE+BD
 - **Category III** : CD
- **Category I** is high priority group, requires greatest attention. The management of class I medicines by top management would help in keeping a check on the annual budget and their availability. It contain all the **vital and costly** items, whose shortage may adversely affect the functioning of the hospital or whose over stocking /pilferage may lead to financial loss to the hospital. These items such as Inj Rabipur, Anti snake venom or costly medicines and vaccines should be monitored by a senior manager himself.
- **Category II** is under moderate management and moderate attention is devoted. Here items are **essential but are less costly** and can have lesser stringent controls.
- **Category III** is under simple management and receives loose attention. Here *items* are the stores and medicines which are **desirable but would not affect** the functioning of the hospital even if they are not available for a long time. In addition this category would also include least costly medical stores which need not be kept under strict control.

When & How much to order?

- After the inventory has been classified, the two fundamental questions posed to any inventory system are *how much and when to order* ?
- There are 2 (two) inventory system that can be used to answer these questions.
 1. **Fixed order size system**
 2. **Fixed order interval system**

1. **Fixed order size system (Q-system)**

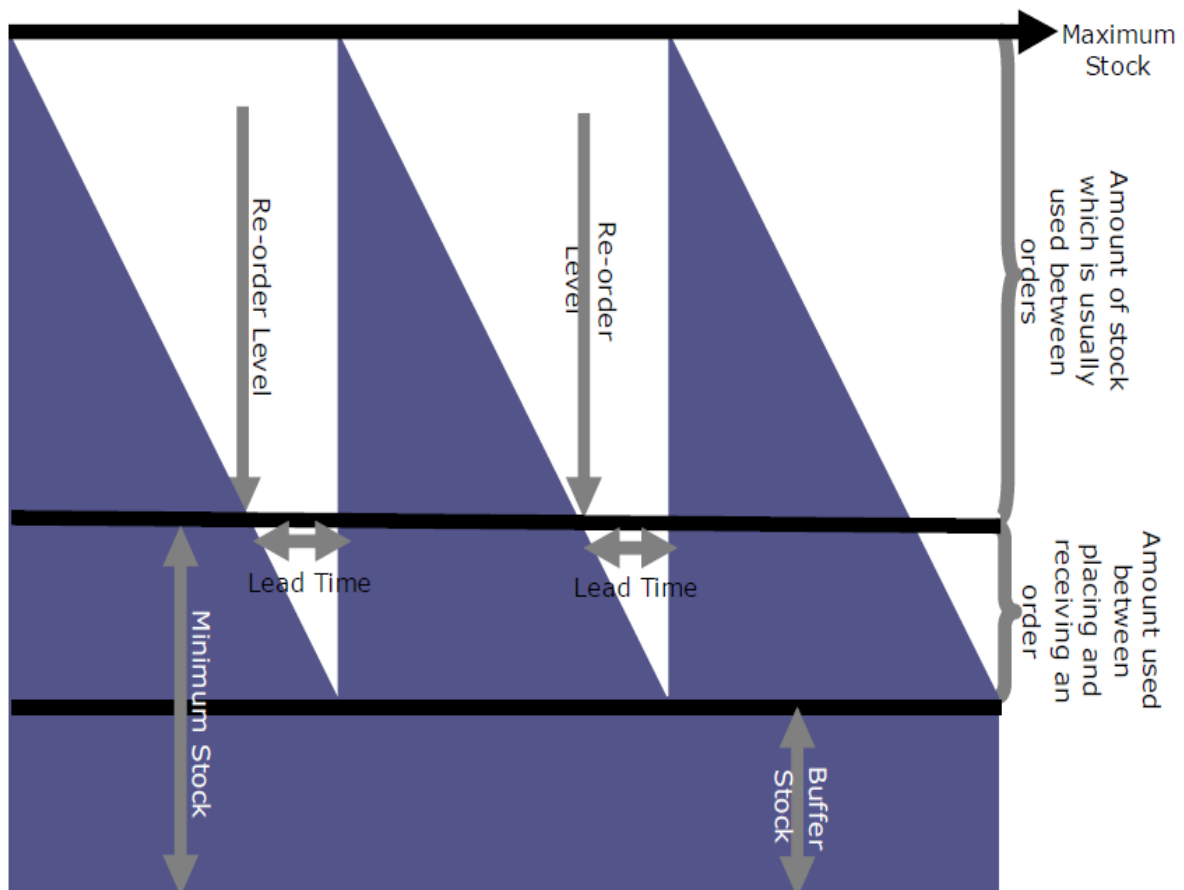
The size of order (Q) is fixed for each replenishment. Time between orders (interval) may vary.

2. **Fixed order interval system (T-system)**

The interval between orders (T) is constant, while size of the order vary depending on the need to reach the maximum stock level.

❖ Example:

- Three most commonly encountered problems in managing logistics of vaccine are **stock-out, inadequate stock and excess stock**.
- These problems can be avoided if a minimum/maximum inventory control system is implemented. This system will ensure that quantity in hand is always between maximum and minimum stock levels.



- For ex; say monthly requirement of DPT vaccine at a PHC is 280 doses and lead time is 1 week.
 - Buffer stock = 70 doses (25% of requirement)
 - Minimum stock (Re-order level) = lead time + buffer stock = 70 + 70 = 140 doses
 - Maximum stock level = minimum stock + stock used between orders (3 weeks stock) = 140 + 210 = 350 doses
- As soon as the stock falls to re-order level, inform the district vaccine stores for replenishment and place and indent to avoid stock-out.

Chapter 4:

MACHINES & MATERIAL MANAGEMENT

Learning objectives: At the end of this unit participants would learn about...

1. Issues involved & Principle of material management
2. Store, repair & maintenance
3. Codification & classification of goods

The quality & delivery of health care depends to a large extent upon the proper management of biomedical equipment. Unfortunately this part has received less attention. Thus the urgent need is proper maintenance of biomedical equipment, over 60% of which are in unserviceable state.

Material (Logistics) Management

DEFINITION:

Logistics management is defined as *“the systematic and scientific process of planning, implementing and controlling the efficient and effective flow and storage of resources (goods & services) from point of origin to the point of consumption in order to meet the customer’s requirements”*.

Logistics management in a health care set up becomes essential to ensure procurement and provisioning of vital medical supplies at the correct cost, consistency in quality, low storage cost and high turnover of items.

In addition, logistics management also ensures proper forecasting & standardization of medical supplies and assists the manager in deciding whether ‘to make’ or ‘to buy’ a facility such as MRI facility to the patients.

One of the important components of logistics management is *materials management* which aims to “coordinate, supervise and execute the tasks of flow of materials to, through and out of an organization”.

It thus ensures a continuous supply of good quality material at the lowest possible price, at the same time keeping the inventory level to minimum so that working capital is not blocked in inventory but without compromising the operations due to shortage of inventory.

Material management is also known as logistics and supply management system. The word logistic has economic connotations. It is defined as the branch of military science concerned with procurement, transportation, warehousing purposes.

To give an analogue, the human body's logistics system is its circulatory system (blood), which provides oxygen and other essential nutrients to all the tissues to the body on round the clock basis. If any interruption/hindrances come in this system, it will have serious adverse effect on the entire human body. Similarly, health and family welfare institutions and hospitals have their own logistics supply system, which should provide all the essential drugs, vaccines, contraceptives and other consumables for effective and efficient delivery of health care. If there is any interruption, it will seriously dislocate the normal functioning of these institutions, besides, adversely affecting the patient care.

According to a survey of the department of electronics, government of India in the nine states of the country, it is revealed that at least 30-40 percent of costly high-tech bio-medical equipment, worth hundreds of crores of rupees is lying idle in hospitals. The main reason of this wastage is identified as lack of policy in the hospitals and health institutions on equipment management, maintenance and repair.

The expansion, modernization and sophistication of the health care delivery system and particularly the hospitals, demand the scientific management of the materials. Materials management is now well accepted as a quantitative technique of operations research and has been successfully employed in the industry. However, its application in the health sector of our country leaves much to be desired.

NIHFW has conducted two important studies in the states of Haryana and Madhya Pradesh, on the logistics and supply system of drugs, vaccines and contraceptives in the district health system. Both these states revealed that a drugs supply to the health institutions in districts follows more of the **PUSH SYSTEM** rather than the **PULL SYSTEM**.

If we analyze the budget of a district health organization or its hospitals, it will be seen that approximately 60-70 per cent of the budget of the expenditure is consumed on salaries and wages and the remaining about 30 per cent is consumed on the materials. So materials consumed nearly 1/3rd of the total expenditure. Most of it is consumed on drugs, vaccines, contraceptives, laboratory reagents and other consumables. The health administrator has to ensure the regular availability of all the vital and essential materials to avoid the stock out situation and hence causing disruption in health care delivery system.

Ordering equipment

Based on the requirement & past experiences equipments are to be ordered. This analysis if not done properly would result in wastage of limited resources. It is necessary to balance the requirements with the resources available so that one can remain within budgetary limits. This process can be facilitated with the help of catalogues, which are easily available & this would avoid the chances of forgetting important items. Finally an requisition form or order is formed.

Storage, Standardization, Codification & Classification

We know that many of the equipments needed in a hospital or health care set-up are either out of order or not available. Consequently this leads to insufficient utilisation of manpower & inefficient health services. Many of the bio-medical equipments used in health care settings are lying unserviced. There is no proper organisation & arrangements for care & maintenance of these costly equipments. At the same time with the development in health care sector newer medical equipment for diagnosis, treatment, prosthesis, life support system, etc have come up. The maintenance & utilisation of these equipments requires specialized knowledge & skills which few of the human resources have. Training of the human resource for this part lags behind the development in medical sciences. Technicians or engineers or staff who can maintain & use the equipment are needed or needs to be trained.

(a) The storage system: The main function of a storage system is to receive material, check it for quality and quantity, prepare the receipt vouchers, accept the inspected and passed material, undertake documentation for payment of bills, store the accepted material properly and safely, issue required material to various departments on requisition from them, prepare issue vouchers and account for them. Broadly any storage system in an organisation consists of the following sub- systems which work together to cater to the existing demands and also the further growth potential of an organisation:

- (i) Receipt system
- (ii) Maintenance & upkeep system
- (iii) Issue system

Controlling & maintaining equipment:

Most of the non-consumable items remain out of order for a long time. So there is a need to sensitise the staff in regular up keep of the equipment. Also immediate action needs to be taken for any mechanical defects identified in the equipment. In some cases it has been observed that the equipment has been intentionally kept in non working state so that patients can be referred to private practitioners.

For this purpose the following steps needs to be taken:

1. Convince staff about importance of cleaning & keeping the equipment in good order
2. Returning the equipment to its correct place after use
3. Use of an inspection check- list & inspection schedule
4. Detection of discrepancies & their causes

(b) Codification of goods: One of the basic requirements of an efficient stocking and logistics management system is an effective and scientific system of coding the items, to ensure quick tracing & retrieval and early identification of dead / duplicate stocks. In a health care setting, this task is more complicated since detailed characteristics and nature of large number of drugs available are required to be known for their coding and classification. Ideally, all health care stores should be classified in broad categories (such as pharmacy, X-rays, chemicals, laboratory items, waste disposal, ancillary items etc) and then grouped and sub-grouped logically according to functions and usage.

Various systems presently in vogue for codification are described as under:

- (i) *Alphabetical system* (Table - 1)

Table - 1

Class	Group	code
Patient bed (PB)	Iron(I), Hydraulic(H)	PB-I-H

- (ii) *Numerical system* (Table - 2)

Table - 2

Class	System	Generic name with strength	Family of drug	Condition
Drug (01)	Musculoskeletal (38)	Ibuprofen IP 400mg (08/4)	Tablet (1)	New (1)

In this example, the Code would be: 01-38-08/4-1-1.

(iii) *Combined alphabetical and numerical system* (Table - 3)

Table - 3

Class	Sub group I	Sub group II	Code
Ibuprofen	IP-400	08/4	IP400-08/4

(iv) *Other Systems*: These include the “*Brisch system*”, which is a complex and detailed system wherein a 7-digit unique number is allotted to each item based on its position and value; “*Kodak system*” which is based on numerical system and grouping done based on purchase category of the particular item, with 10-digits. Thus, the code allotted to an item may be depicted as 301-1234-123.

Accounting of Stores

Accounting of materials: It is essential that in order to demand the optimal material, the stock held with the stores must be accurately known and maintained. This is important to prevent over-ordering of material and is absolutely essential to avoid ‘stock- outs’, both of which are detrimental to functioning of an organisation. Thus, in order to continuously keep a track of the material available in stock, the following systems are adopted :- (i) Bin Cards show the daily receipt, issue and balance in hand in the form of cards attached to each bin / shelf containing the particular item. Bin cards can also be suitably and effectively modified to indicate the maximum / minimum permissible stocks and the re-order levels. (ii) Stock identification cards are identification cards for each item, with details such as material code number, description, ledger folio number etc, kept next to the bin/ rack in order to identify the item completely. (iii) Material requisition slip is a requisition for the type and quantity of material required by any department from issue counter. When maintained properly it accurately indicates the exact quantity and type of material issued to various departments for various purposes.

(iv) *Material received note* is a document through which the material received from a supplier is taken on ledger charge. Subsequently the accounts department, based on this document makes the payment to the suppliers.

(v) *Stores ledger* is a complete record of materials indicating the details such as suppliers’ details, price of the item, invoice / bill number and stock levels.

(vi) *Material return note*: Surplus material lying with various departments are returned to the stores through a ‘material return note’ which enables the stores to take this surplus material on ledger charge once again and to adjust their stock levels.

(vii) *Material transfer note*: Surplus material lying with one department may be transferred directly to another department in need of the same material through such a note, by informing the stores.

Concept of Flow of Goods and Stores Accounting

Flow of goods (issue of stock) is of utmost importance in any health care setup since the problems of obsolete items, expired medicines and old stocks are faced by every store keeper in a hospital. Such avoidable wastages not only increase the cost of managing a hospital but may also occasionally result in a fatality due to issue of expired and out of date medicine to a critical patient.

The following are some of the methods followed for flow of goods and stores accounting :-

(a) First In, First out (FIFO): Material from the oldest stock is issued first with the view to turn over the stock.

(b) Last In, First Out (LIFO): Materials which are received last are issued first in this case, but it usually results in poor inventory management and hence is generally not recommended in health care establishments.

(c) Specific cost method: Provides the most realistic valuation of inventory stock and physical stock-taking of stores can be done any time of the year. Under this method, values of the material charged off / taken on charge are identical to the material issued / received and hence is the most suitable method of maintaining stocks in commercial organisations.

(d) Average cost method: Average cost of each item issued from stores/ received at stores is assessed and this value is taken for maintaining the cost of inventory held by the organisation.

Though easy to follow, this method often leads to inaccurate values of inventory in the organisation.

Module

Health Economics

Module
Health Economics

Learning objectives:

- 1). To know various terminologies used in health economics
- 2). To explain the concept of health economics at various levels.
- 3). To understand Financial management for health
- 4). To enlist challenges and opportunities for health financing in India
- 5). To understand the concept of budgeting, accounting, auditing and medical audit

Chapter 1

Glossary of selected terms used in Health Economics

1. Benefit to cost ratio: The ratio of the present value of benefits to the present value of costs. As an indicator of economic efficiency.
2. Budget (macroeconomics) : Summary of planned financial expenditures and incomes over a specified periods. In a narrower sense, a budget shows the total amount of money allocated for specific purposes during a specified period.
3. Community financing: Direct financing or co-financing of health care by households in villages or communities, either by payments on receipt of care or by pre-payment.
4. Co-payment: An arrangement whereby an insured person pays a particular percentage of any bill for health services received, the insurer paying the remainder.
5. Cost-benefit analysis: A method of comparing the actual and potential costs(Both private and social) of various alternative schemes with the actual and potential benefits(private and social), usually measured in monetary terms and present values, with a view to determining which one maximizes the benefits.
6. Cost containment: Controlling medical care expenditures within a predetermined limit or range by, for example, liming budgets(cash limits), or regulating prices of health services.
7. Cost effective analysis: A method of comparing similar alternative courses of action in order to determine the relative degree to which they will achieve the desired objectives. The costs are expressed in monetary terms but some of the consequences are expressed in physical units, e.g. number of lives saved or cases of disease detected.
8. Cost sharing : Usually refers to a method of financing health care that involves some portion of the expenditure falling directly on the user. The cost is then shared between user and employer, government, donor, taxpayer, insurance agency, etc.
9. Demand : The quantity of goods or services that consumers wish to buy or buy at a given price in a given period.

10. Demand for health : Term used in microeconomics to denote the amount of health chosen as a function of various independent variables, such as price, income, age, distance from facility, time spent obtaining the service, or educational attainment.
11. Gross Domestic product (GDP) : The market value of the total final output of goods and services produced in a country over a specified period of time.
12. Gross National Product (GNP) : Market value of the total domestic and foreign output of a country. It comprises gross domestic product plus income earned by national abroad (individuals and firms), less income earned in the domestic economy accruing to foreign citizens.
13. Health economics: The application of economic theory to phenomena and problems associated with health and health services. Topics include, among others, the meaning and measurement of health status, the production of health and health services, the demand for health and demand for health services, cost effectiveness and cost benefit analysis in the health field, health insurance, the analysis of markets for health services, planning of human resources, the economics of medical supply industries, the determinants of inequalities in health and health care utilization, hospital economics, health care budgeting, territorial resource allocation, and methods of remuneration of medical personnel.
14. Health financing: Provision of funds or credits for a specified purpose in the health sector. The origin of financing may be external (from abroad) or domestic (private or public). Cf. health provision
15. Health insurance: A contract between the insured and the insurer to the effect that in the event of specified events (determined in the insurance contract) occurring the insurer will pay compensation either to the insured person or to the health service provider.
16. Health investment: Expenditure on equipment and human resources used to provide health services and promote health. In a more general sense, the undertaking of any activity that involves a sacrifice (e.g. payment of money), followed by a benefit (e.g. enjoyment of a good).
17. Health provision: Supply of specific types of health services by agencies, organizations, or individuals. Cf. health financing.
18. Human capital: The skills and capabilities generated by investments in education (including on the job training) and health.

19. Macroeconomics: Branch of economics which considers the relationships among broad aggregates, such as national income, volume of investment and consumption, employment, money supply, etc. Macroeconomics looks at the determinants of the magnitude of these aggregates and at their rates of change over time.
20. Microeconomics: Branch of economics which is concerned with individual decision units (households, firms) and the way in which their decisions interact to determine the quantity and the price of goods, services, and factors of production (e.g. labour).
21. Social marketing: Promotion and education techniques intended to stimulate behaviour conducive to good health, for example, the promotion of condom use.
22. Supply: The quantity of goods or services coming onto the market at a given price in a given time period.
23. Users charges: Also, fees, Charges to be paid by the users of a service.

Chapter 2

Concept of Health Economics

Health Economics lies at the interface of economics and medicine and applies the discipline of economics to the topic of health. Why is it important to look at economics in health? There are several reasons. Health resources are finite. A choice must be made about which resources to use for which activities. By choosing to use resources for one activity, the opportunity of using those resources for alternative activities is given up and the benefits associated with the best alternative use of resources is lost. This is called the opportunity cost. The aim of economics is to ensure that the chosen activities have benefits which outweigh their opportunity costs OR the most beneficial activities are chosen within the resources available.

In very simple term, health economics is application of principles of economics in health matters. Economics is concerned with efficiency but health economics is more than just efficiency. Efficiency is not the only objective in choosing how health care resources should be allocated. We also need to think about equity, or the fair distribution of resources and benefits, which is also an objective in health care decision-making. Economics provides an information framework in which the objectives of both efficiency and equity may be pursued. Economics also provides a framework which aims at *maximizing* benefits within available resources.

We need to understand health economics at three different levels

- 1). At national/state level
- 2). Institute/organization level
- 3). Individual level

At national/state level:

At national and state level, Government plans need based health policies and programmes. Govt. Establishes systems and or institutes working for health. For above purpose finance(budget) requires and gov't. Sanction the finance and release it to full fill the objectives concerning health. Govt. Sanctions budget for health in annual national/state budget. Government get money from certain kind of taxes and this money are spent for health matter in one or another way. GDP of any nation and percentage of amount of GDP spent on health is very important for healthier national. WHO recommend all nations to spent 5% of GDP on health. Govt. of India is spending 1% of GDP on health, which is quite low.

One very adverse feature of the India is the excessive dependence on private health expenditure. The total annual expenditure in the national health sector is of the order of 5.1% of the GDP, which is only a little lower than the average for lower and middle-income countries. But, public health expenditure barely reaches 17% of the total health expenditure (i.e. 0.9% of GDP or Rs. 220 per capita); and the more regressive fact is that 68.8% of the total health expenditure is 'out-of-pocket' expenditure (OOP) (year 2001-02). This level of public health expenditure compares extremely unfavorably with an average public health spending of 2.8% of GDP for the low and middle-income countries of the globe

United States spend 15% of GDP on health, which is highest in the world. France, Canada, Germany and Great Britain are spending 11%, 9%, 9% and 7.5% of their GDP for health.

Table no. 1
Health financing in selected countries of Asia in 2005

Country	Govt. expenditure on health as proportion of GDP	Private expenditure on health as proportion of GDP	Total expenditure on health as proportion of GDP	Ratio of Private spending vs. Govt. spending on health	Per person total expenditure on health (PPP International \$)
India	0.9%	4.1%	5%	4.50:1	100
China	1.8%	2.9%	4.7%	1.61:1	315
Pakistan	0.4%	1.7%	2.1%	4.25:1	49
Sri Lanka	1.9%	2.2%	4.1%	1.15:1	189
Thailand	2.2%	1.3%	3.5%	0.59:1	323

Source: National Health Profile 2010, CBHI, India

Table No. 2
Health Expenditure in India (Rs. in crore)

Type of expenditure	2005-06	2006-07	2007-08	2008-09
Public (Govt) expenditure	34,446	40,678	48,685	58,681
Private expenditure	1,15,000	1,27,840	1,42,690	1,57,393
External flow	2,144	2,240	2,653	3,701
Total health expenditure	1,51,591	1,70,759	1,94,023	2,19,776
GDP	35,80,344	41,45,810	47,23,400	53,21,753
Health expenditure as share of GDP %	4.23%	4.12%	4.11%	4.13%
Public (Govt) expenditure as share of GDP %	0.96%	0.98%	1.03%	1.10%

Source: National Health Profile 2010, CBHI, India

Table No. 3
Fund Flow to Health Sector in the year 2004-05

Head	Source of Funds	Expenditure (Rs. In crore)	%
A: Public Funds	Central Govt.	9,066	6.78
	State Govt.	16,017	11.97
	Local Bodies	1,229	0.92
	Total A	26,313	19.67
B: Private Funds	House Holds	95,153	71.13
	Social Insurance funds	1,507	1.13
	Firms	7,664	5.73
	NGOs	87	0.07
	Total B	1,04,413	78.06
C: External Flows	Central Govt.	2,088	1.56
	State Govt.	327	0.24
	NGOs	633	0.47
	Total C	3,049	2.27
GRAND TOTAL		1,33,776	100.0

Source: National Health Profile 2010, CBHI, India

Only few of the Indian states, the public expenditure is significant in comparison to OOP. Though the OOP by itself is not insignificant in quantum, it does not provide any measure of health security. Also, the contribution of central Government is mainly confined to the National Health Programs.

Institute/organization level

Public and private sectors institutes or organization viz. Medical colleges, tertiary care hospitals, corporate hospitals, CHCs, PHCs etc. are catering health and medical services to people. For establishment and also to run such institute finance requires. Govt. spending is based on GDP and its political will to spend on health. While, aim of private sector is earning or profit. So, private sector establishes hospitals or health facilities on the bases of business environment.

Individual level:

When individual patient have some health problem, he/she may get services from public or private institute. In India, there are large number of public health institutes from PHCs to Medical colleges catering free or almost free (with minimal user fee charges) to patients but if same patient get services from private hospitals it may cost nominal amount to a huge amount. Expenditure due to private hospitalization lead a patient and his family in category of poverty. Out of pocket expenditure for poor patients in India also matters. Sometimes due to lack of facilities in govt hospitals in India and also due inability to afford charges of private sectors, many people in India are dying.

Affordability of health care is a serious problem for the vast majority of the population, especially in tertiary care. The lack of extensive and adequately funded public health services pushes large numbers of people to incur heavy out of pocket expenditures on services purchased from the private sector. Out of pocket expenditures arise even in public sector hospitals, since lack of medicines means that patients have to buy them. This results in a very high financial burden on families in case of severe illness. A large fraction of the out of pocket expenditure arises from outpatient care and purchase of medicines, which are mostly not covered even by the existing insurance schemes.

11 % of the population of the country is protected by any type of health security scheme, improvement in quality and accessibility of health services provided by the government is likely to reduce OOP expenditure on health.

Individuals make private expenditure when the family liquidity position permits it, and not in any manner linked to the medical need. After the harvest is in, an individual may spend liberally on even a minor medical condition, while in the lean season, even a dangerous condition may go untreated. Another significant aspect is that the average per capita expenditure is often not funded from current earnings or past savings.

Often the individual may not have funds available at the time of a medical emergency. On such an occasion the funds would have to be obtained by borrowing from the extended family, or even worse, from the informal credit market. In this situation the individual is inevitably sucked into a financial trap. An Indian who is hospitalized spends more than 50% of his annual income on health; 24% of those hospitalized fall

below the poverty line as a result of the financial blow; and, out-of-pocket expenses can push 2.2% of the population below the poverty line in a year in India.

In India, there are social insurances to cover medical expenses. These are i). For employees of central and state govt. ii). For employees of private firms, iii). Govt. health insurance schemes open for all people, iv). Private insurance schemes for all people. People have to pay premiums in Govt. & private medical insurance schemes to get the benefit of medical expenses. Private health insurance protocols are neither scientific nor cost-effective and much of the diagnostic and treatment regimens are profit-driven.

Chapter 3

Financial Management for Health

There are no two opinions on the issue that without adequate resources, health development would remain only on the paper. Finance is the fuel of health administration as all activities for the development of health need finances directly or indirectly. We know that health is wealth. To get health we need to spend some wealth in sense of finance. Health is basic component of socio-economic development and hence the investment in health is sure to bring rich dividends.

Although health is recognized as a human right to be made available to all the members of the society; however, the fulfilment of this right depends upon the availability of adequate finances. The financing of health services is now a subject of major concern to governments all over the world. The causes are not hard to identify. The world economic crisis has lowered rates of economic growth.

Investment in health is thus of vital significance, especially in the developing countries like India, for enriching the quality of human life which in turn can promote economic development.

We have to ensure adequate finances for development of efficient public health services. Any society should consider that a high quality of life, and happiness of the people, which can only be obtained through a sufficient level of health, is not only a basic need to development but should be the lone objective of development.

1. Allocation of Finance by Union and State Governments.
2. Mobilisation of Financial Resources.
3. Injecting economy through the curtailment of wasteful expenditure.

1. Allocation of finances for health development

Financing of health is very difficult task as the resources in India are limited and the needs are abundant. The Union and State Governments provide health finances under plan and non-plan schemes. In India, for example, the total plan outlay for health in the Sixth Five Year Plan (1980-85) was Rs.1821.00 crore which was only 1.87 per cent of the total outlay of the entire budget. In the Eighth Five Year Plan (1992-97), it increased to Rs. 7582.20 crore and it was only 1.75 per cent of the total outlay of Rs.4,34,100.00 crore. But in real term, it decreased by 0.12 per cent. Again in the Ninth Five Year Plan (1997-2002), the total health outlay was Rs.5,118.19 crore.

Health care expenditure in relation to the Gross National Product (GNP) in India was about 0.98 per cent in the Seventh Five Year.

During the Eleventh Plan funding for health by Central Government has increased to 2.5 times and of States to 2.14 times that in Tenth Plan, to add up to 1.04 per cent of GDP in 2011–12. When broader determinants of health (drinking water ICDS and Mid-Day Meal) are added, the total public spending on health in Eleventh Plan comes to 1.97 per cent of GDP. During 11th Five year plan(2007-12), Rs. 89,576 crore actually spent on Health by Ministry of Health.

Restructuring of the health care infrastructure, redeployment and skill development of the manpower, development of referral network, improvement in the health management information system, development of disease surveillance and response at district level are some of the critical steps that have to be taken up by the State Government in order it improve the functional status and efficiency of the existing health care infrastructure and manpower in the states.

The centrally sponsored disease control programmers and the family welfare programme provide funds for additional critical manpower and equipment; these have to be appropriately utilized to fill critical gaps. Health is one of the priority sector for which funds are provided in the central budget under the head Additional Central Assistance (ACA) for basic minimum services. The States can utilize these funds for meeting essential requirements for oprationalising urban and rural health care.

There is a need to convince the planners, political leaders to allocate more for health services as it comes in priority area. To maintain quantity and quality of health services, adequate allocations in a must.

2. Mobilization of Resources

There are certain ways to get financial resources as mentioned below.

(a) Users Charges:

Most of the developing countries were providing free health services as it was very difficult for the poor to afford payment. However, it is being realized now that people must pay a part of the expenditure incurred in providing services to them. It should not be totally free. The users can pay for diagnostic tests, hospitals admissions, OPD consultations etc. There is now virtually no country in Western Europe which allows free medical care. Besides supplementing health resources, it promotes people's participation. However, user charges should be kept low keeping in view the per capita income of the people. Referred patients may not be charged to encourage referral system.

Though there are, other scopes of health Financing such as taxation, insurance, community financing etc., the feasibility of collecting user charges from patients (except those below the poverty line) may be considered as one of the potential options. With user fees, unnecessary use of public health services can be prevented and necessary services can be provided to those in real medical needs.

The additional revenues generated by cost sharing may not be adequate to cover fully the expenditure in improving quality through better facilities in terms of equipment and drugs. The argument for cost sharing is based on efficiency. If no fee is charged there will be an “excess demand” for services, especially hospital beds.

Patients are coming for very minor and sometime unjustifiable health problems to hospitals because of free services provided. However, most poor and need should get free services or with very nominal fees but graded cost recovery from the non-poor is expected to restrict demand for beds thereby releasing equity; so, the poor may benefit proportionately more than the non-poor.

Charging fees for services may only slightly affect the demand negatively for health services. However, consumers will be more responsive to the quality of care, time cost. Cost sharing will augment resources for the health sector and should, therefore, lead to improvements in supply, both in qualitative and quantitative terms.

When government hospitals had started collecting user fees and asked hospital administrators to use this revenues or to reinvest in the hospitals, but many of hospital administrators fail to reinvest these amount and found using this money for paying the electricity and other bills and not on the repair of the machines or reinvestment for patients.

Most of the states have delegated the powers to the hospital authorities to make use of the user charges for the promotion of quality health care. Under this system, there is a danger of misuse of funds. The better method would be to collect user’s charges from all institutions at the state level and then provide amounts out of these funds as contingency grants to hospital authorities. This would encourage transparency, accountability and good governance.

In conclusion, it can be stated that the user charge has both positive and negative implications in the socio-economic, socio-cultural, political, administrative and management dimensions. Apart from the implications associated with user charges for reducing the financial burden, particularly, in hospitals, user fee can be a powerful option for improving the quality of health care services in the developing countries, including India.

The implementation of user charge requires a strong political will and commitment of the ruling party. The acceptance of user charge will be ensured if the quality of services is improved, in terms of availability and accessibility.

(b) Employer's Liability

Many autonomous institutions provide free medical services to their employees. The central and state Government employees get either fixed medical allowances or free treatment or reimbursement. In industry, there is an ESI scheme, wherein the expenditure on health is shared among employees, employers and government.

Central Government Health Scheme (CGHS): The Centre organizes facilities for health care of its employees and pensioners living in the capital and other major cities through Central Government Health Scheme and Public Hospitals. The objective of CGHS was to provide comprehensive medical care facilities to the Central Government Employees and their family members and to avoid cumbersome system of medical reimbursement.

(c) Private Sector

Private sector possesses immense potentiality to provide decent health care to the people. We are witnessing the mushroom growth of Nursing homes, complex hospitals like Apollo, Cadila, Wockhardt, Sterling etc. They are making a good contribution to health of people. However, we care should be taken that they may not exploit the people. The charges in private hospitals are so high that only selected people can avail of their benefits.

(d) NGO'S Role

There are many institutions run by voluntary organizations. It has been seen that most of the NGOs get the money from Government. Such NGOs should be discouraged and asked to raise their own resources. Only those NGOs should be encouraged, which can raise more than 50% to finances themselves or those are delivering services on the principle of "no profit no loss". We should encourage such organizations like Ramakrishna Mission, which has been providing excellent health services and was awarded by Govt. of India for its dedicated services.

(e) Philanthropy

Charity is one of the oldest and most common in India. Individual donors give donations to hospitals and institutions and business men and industrialist to develop health institutions from their personal assets. Many private individuals are providing health facilities purely from their personal resources.

(f) International (Multi-lateral and Bilateral)

World Health Organization through its South-East Asia Regional Office provide assistance to number of projects in priority areas through expertise, equipment and fellowships. Similarly UNICEF, UNFPA and other agencies are also contributing to health development in one or another ways.

3. Curtailment of wasteful expenditure

Wasteful expenditure, especially in institutions run by government is very high. A serious problem in this area is of inefficient use of allocated resources and non – utilisation of actual and potential resources judiciously and properly. Huge resources are being wasted because of selection of inappropriate technology, inefficient management and unsatisfactory control mechanisms.

It is necessary that public revenue should be raised in an equitable manner and spent economically so that the tax payers may get full value for their money.

Dr. N.S.Deodhar in his article “Potential for Resources Mobilisation for Health Care Financing in India” rightly mentions the following suggestions which merit the attention of government. These are:

- (a) Improving efficiency by laying emphasis on achieving results in real terms of effective services.
- (b) Ensuring total coverage of the unorganized communities, the under – privileged and deprived.
- (c) Replacing the top down health care delivery system by the bottom up health care delivery.
- (d) Emphasis immediate provision of services and purchase of equipments and material rather than the construction of buildings and other physical facilities such as hospital beds.
- (e) Ensuring full utilization of the trained manpower and available equipments.

There are a number of reasons which result into wasteful expenditure. Firstly, the health system is not well organized. Because of inadequate referral system, there is lot of duplication, overlapping and improper use of services resulting into huge costs. Tertiary health care, which is highly costly, is being used for primary health care. This also results in poor manpower utilization.

Secondly, there is mal-distribution of health resources. Most of the health budgets (about 80% in urban areas) are being spent only on a few people (20% in rural areas). This deprives the people living in rural areas and urban slums. Every health system should have financial control mechanism. The objectives of financial control are to ensure: (i) that no wastage of resources occurs; (ii) that public money is not misused; and (iii) that intended results are obtained with the money spent. We can exploit the potential resources through careful planning and management.

The third serious challenge in this field is the rising cost of health services beyond the reach of most of the people inhabiting the developing societies. It is very difficult to afford the costly urban based hospitals using highly sophisticated technology. A huge

amount is being spent on costly buildings and equipments, which the developing countries cannot afford. The only services which can meet the health needs of the people are low cost services, which should be efficient and effective. This is possible if we use methods and equipments appropriate to the socio – economic environment existing in a country.

The fourth problem is the lack of coordination among different agencies financing health care services. This may result in wasteful duplication of efforts. The situation can be improved through proper coordination among such agencies.

Fifthly, a serious problem in health care administration is the absence of cost consciousness among the staff of public health administrations. All over the world, health service staff- even of the highest professional cadre- are taught little about the economics of health services and know little about the costs of the equipment and supplies they use. It is a fashion to prescribe costly drugs. They are also subjected to considerable sales pressure from manufacturing firms.

A cheaper drug or cheaper equipment may give just as good a result for the vast majority of patients. Cost consciousness is not just a matter for central administrators or planners but should be inculcated in all those working in health care.

Sixthly, the problem is the use of hospital services non-judiciously. In the more developed countries, generally the majority of secondary care is given in hospitals. The Larger hospital offers opportunity for a high degree of specialization and for achieving the fullest use of expensive specialized equipment. The larger the hospital and the more specialized its work, the larger catchment area it needs to serve. The higher average transport costs for staff and patients may be justified by the quality of service that a large hospital should be able to provide.

In some Countries, the out-patient department of a regional hospital is used to provide primary care as there is no referral system and time of super specialists is wasted on minor problems, which could be dealt elsewhere. It is suggested that the referral system must be made statutory to screen the patients.

The developing countries give low priority in the allocation of resources to the health care of their people. There is a need to raise the health allocations to improve the quality of life.

Chapter 4

Financing health care for all: challenges and opportunities in India

India's health financing system is a cause of and an exacerbating factor in the challenges of health inequity, inadequate availability and reach, unequal access, and poor-quality and costly health-care services. Low per person spending on health and insufficient public expenditure result in one of the highest proportions of private out-of-pocket expenses in the world. Citizens receive low value for money in the public and the private sectors. Financial protection against medical expenditures is far from universal with only 10-11% of the population having medical insurance.

The Government of India has made a commitment to increase public spending on health from less than 1% to 3% of the GDP during the next few years of 12th Five year plan. Increased public funding combined with flexibility of financial transfers from centre to state can greatly improve the performance of state-operated public systems. Enhanced public spending can be used to introduce universal medical insurance that can help to substantially reduce the burden of private out-of-pocket expenditures on health. Increased public spending can also contribute to quality assurance in the public and private sectors through effective regulation and oversight.

In addition to an increase in public expenditures on health, the Government of India will, however, need to introduce specific methods to contain costs, improve the efficiency of spending, increase accountability, and monitor the effect of expenditures on health.

Well known weaknesses in India's health financing system are the cause of insufficient provision and reach of good-quality health services and inadequate financial protection against ill health for the Indian people. The Indian public receives low value for money in terms of the quantity and quality of health-care services in the public and private sectors. Health services in the public sector that can be accessed free or for a nominal fee are grossly inadequate. As a result, most Indians access private health care that is expensive, unaffordable and unreliable. Good-quality health care in the private sector is also not available, particularly in rural and other remote parts of India. Most private practitioners are not qualified and work in substandard facilities.

The Government of India has made a commitment to increase public spending on health to 3% of GDP during the next few years. A major policy challenge will be to find out how best to invest augmented public funding. In this report, we analyse the patterns of health financing in India; extent of financial protection provided by the present health system; whether the money spent on health is used effectively and efficiently; links between health spending and health outcomes; and whether effective mechanisms exist

for public funding of health by the central and state governments since the state governments are responsible for implementing health programmes.

Public funding can greatly improve the performance of state-operated public systems by enhancing the volume and flexibility of central-to-state government financial coverage for financial protection by supporting the public and the private sectors because universal coverage in India cannot be achieved by either system alone. Most importantly, enhanced public financing can help to greatly reduce private out-of-pocket expenditures on health.

One way is to increase public expenditures on health, but other ways is to contain costs, enhance the efficiency of spending, improve accountability, and assure quality in the public and private sectors through effective regulation and oversight.

Patterns of health financing

At first glance, India seems to spend an adequate amount on health care. In 2005, India's total health expenditure as a proportion of the GDP was less than the global average of about 6% but higher than that for the neighbouring countries such as Thailand, Sri Lanka, and China. The situation, however, changes greatly when per person health expenditures are assessed. At purchasing power parity International \$100 per person, India's health expenditure is only about half that of Sri Lanka's and a third of China's and Thailand's.

Foreign donor financing of targeted campaigns for family planning, immunisation, malaria, and other diseases was substantial in previous decades. Although some foreign funding continues (eg, for eradication of poliovirus), it is about 10% of public expenditures and accounted for only slightly more than 2% of total health expenditures in 2004–05 about the same amount as the contribution to total health expenditures in 2001–02. Moreover, enhanced domestic funding for health that was made available through the National Rural Health Mission since 2005 has further reduced the dependence on external funding.

Low public spending

As a proportion of the GDP, India's public spending on health, after increasing between 1950–51 and 1985–86, stagnated during 1995–2005, was 0.95% of the GDP in 2005, among the lowest in the world, compared with 1.82% in China and 1.89% in Sri Lanka. Despite the steep increase in economic growth and the increase in the per person income and tax collections, a corresponding increase has not occurred in India's total spending on health or on social sectors. Between 1993–94 and 2004–05, for example, compared with a 67% increase in real per person income and an 82% increase in per person tax collections, real per person public health expenditure (at 1993–94 prices) increased from INR84 in 1993–94 to INR125 in 2004–05—an increase of 48%.

High out-of-pocket expenditure In 2005, India's private expenditure of nearly 80% of the total expenditure on health was much higher than that in China, Sri Lanka, and Thailand. Two features of the private out-of-pocket expenditure are noteworthy. First, most of the expenditure (74%) was incurred for outpatient treatment, and not for hospital care; 26% was for inpatient treatment. Second, drugs accounted for 72% of the total private out-of-pocket expenditure. These findings have implications for insurance coverage and cost control.

The costs of medical care have been rising rapidly and, in the absence of adequate medical insurance, contributing to the impoverishment of households. Between 1986 and 2004, the average real expenditure per hospital admission increased three times in government and private hospitals in rural and urban areas. Although in 1993–94, health spending in rural households was 5.4% of the total household consumption, it rose to 6.6% in 2004–05. In urban households, health spending was 4.6% and 5.2% respectively. The sharp increase in the prices of drugs has been the main reason for the rising costs of medical care, which more than tripled between 1993–94 and 2006–07.

Financial protection

According to the National Family Health Survey 2005–06, only 10% of households in India had at least one member covered by medical insurance. India's medical insurance sector remains weak and fragmented despite several medical insurance schemes operated by the central and state governments, public and private insurance companies, and several community-based organisations. The benefits of insurance coverage accrue only to a few privileged individuals. For example, the Central Government Health Scheme, introduced in 1954, which offers comprehensive medical care for outpatient and hospital admission, benefits only the employees of central government (those in service or retired) and their families, members of parliament, and judges in the supreme and high courts. Similarly, the Employees' State Insurance Scheme, established in 1948, provides cash and medical benefits only to a select category of employees in factories in which at least ten people are employed.

Expenditure on social insurance accounted for little more than 1% of total health spending in 2004–05. The absence of financial protection and the rising costs of treatment have been dissuading people from accessing much needed health care. In 2004, 28% of ailments in rural areas went untreated because of financial reasons—up from 15% in 1995–96. Similarly, in urban areas, 20% of ailments were untreated for financial reasons in 2004—up from 10% in 1995–96. 47% of hospital admissions in rural India and 31% in urban India were financed by loans and the sale of assets. Several factors account for the slow increase in medical insurance in India.

According to the National Commission for Enterprises in the Unorganised Sector, only 7% of India's workforce is in the organised sector. The remaining 93% are cultivators, agricultural labourers, fishermen, artisans, and other workers who typically do not have

a regular or assured source of income. The commission has classified 77% of India's population (836 million people in 2004–05) with a per person daily expenditure of up to INR20 (in 2004–05) as poor and vulnerable. Contribution to regular medical insurance premiums is difficult and not easily affordable, and the high cost of collecting small amounts of premium every month from such families adds to this difficulty.

State differentials in financing and outcomes

India shows high variability among its states in health financing, outputs, and outcomes. Generally, the southern states are better than the northern states in all financing, outputs, and outcomes. Although the average per person public expenditure on health for India in 2004–05 was INR268, wide variations exist in public expenditure across states.

For example, the amounts for Kerala and Bihar differ by three times. These differences are also shown in the health outputs and the capability of the health infrastructure. People living in Kerala and Bihar have a difference of 8.3 years in life expectancy. In Kerala, almost all babies are born in medical facilities and 75% of children are fully immunised, whereas in Bihar less than a third of the babies are born in medical institutions and about a third of children are fully immunised. Kerala has roughly one public hospital bed per 1000 population, whereas Bihar has nearly one per 29 000 population. Large differences exist between Kerala and Bihar's primary health centres having at least 60% of the mandated staff and equipment.

Similarly, a comparison of Tamil Nadu (a state with good health) and Madhya Pradesh (a state with poor health) shows that the amount and the composition of health expenditure affect both the efficiency and effectiveness of health spending. On the one hand, the public spending on health in Tamil Nadu is much higher than in Madhya Pradesh. The provision, reach, and use of public health services are much better in Tamil Nadu than in Madhya Pradesh. On the other hand, the differences in the composition of spending are substantial between the two states.

Typically a large proportion of public health expenditure is paid as salaries. As a result, most poor states have insufficient funds to maintain and provide quality health-care services. In Madhya Pradesh, salaries account for the overwhelming proportion of public expenditure, leaving 17% for all complementary health inputs. By contrast, the proportion of the non-salary component in Tamil Nadu is 28%, which enables the state to spend more on drugs and other supplies than in Madhya Pradesh. In 2004–05, per person spending on drugs in Tamil Nadu was more than twice that in Madhya Pradesh. Also, as a result, a larger proportion of people receive free surgery (96.5% vs 61.5%) and drugs (79.7% vs 7.7%) in the government hospitals of Tamil Nadu than in Madhya Pradesh.

In 2004–05, Tamil Nadu spent an average of INR17 per person on medical education, training, and research—more than five times that reported by Madhya Pradesh (INR3 per person).

At the same time, many factors other than amounts and patterns of health financing (such as social determinants and investments in non-health sectors) affect the effectiveness and outcomes of health expenditures. Tamil Nadu, for instance, has higher amounts of per person incomes, lower poverty, higher education among women (leading to improved health-seeking behaviour), and better physical infrastructures than does Madhya Pradesh.

The Government of Tamil Nadu has also shown a stronger commitment to invest in sectors that are complementary to health such as nutrition, water and sanitation, education, and basic infrastructure. Other factors distinct to Tamil Nadu are a strong political backing for health and social development by the state's two major political parties, the problem-solving approach of the health bureaucracy, a commitment to universal coverage rather than targeted schemes in health and other welfare programmes, and the special attention paid to overcoming social barriers and bridging social distances.

Centre–state financing of health

Insights for potential solutions to the problem of low public expenditure in the states that have a poor performance must begin with the Indian Constitution, which assigns health as a state subject. The state governments are primarily responsible for the funding and delivery of health services. Yet, the amount and type of public financing is jointly determined by both the centre and the state.

The state government bears 64% of the total government health expenditure, whereas the centre accounts for the remaining third. Even though the centre's financial contribution is small, the central government's influence can be substantial.

Many state governments do not give high priority to health. Analyses of public expenditures show that in all Indian states, with the exception of Gujarat and Uttar Pradesh—and to a very small extent Bihar—the proportion of government development expenditures allocated to health decreased or stayed the same between 2001–02 and 2007–08.

Apart from the lack of sufficient political commitment to make health a priority and the limitations of public administration, states with low public health expenditure typically find themselves fiscally constrained by two factors.

First, the centre's distribution of revenues across the states does not off set the fiscal deficits of the states that are poor. Second, the fiscal space for development spending in

the poor states is small, and these incur a large share of the obligatory expenditures (including salaries, wages, pensions, and interest payments). For example, in Bihar, the public spending on health is unlikely to increase from INR93 per person in 2004–05 to reach the national average of INR268 soon with its government's fiscal deficit of 3% of the gross state domestic product even in 2006–07.

With the weak health financing by the states, transfers from the centre have a crucial part to play in increasing the amount of, reducing the inequality in, and enhancing the efficiency of health expenditure across states. The incomplete equalisation grants (up to 30% of the deficit between the state's per person health expenditure and the average per person health expenditure) for health introduced for 2005–10 by the Twelfth Finance Commission could be seen as an important method to help with central transfers in seven low-income, poor health, and fiscally constrained states—Assam, Bihar, Jharkhand, Madhya Pradesh, Orissa, Uttar Pradesh, and Uttarakhand.

Financing initiatives

Flow of funds

The Government of India has, since 2005, introduced many new initiatives to address the challenges of health financing, including low public spending, high out-of-pocket expenditures, little financial protection, inflexible financial arrangements with state governments, poor efficiency, and rising costs of health care. Started in 2005, the National Rural Health Mission attempts to induce state governments to join a centrally sponsored scheme that seeks to quickly increase the delivery of good-quality health care to the people, especially the people living in rural areas who are poor.

Although too early to systematically assess the effect of the National Rural Health Mission, this initiative is a key effort to increase public funding and enhance the efficiency of the state health systems. Preliminary data from the National Rural Health Mission indicate improvements across many dimensions of rural health-care delivery. Also, expenditures supervised by the National Rural Health Mission form a substantial proportion of public health spending in India's states. Estimates of funding given by the National Rural Health Mission to the state governments in 2007–08 indicate that the share of expenditure by this mission in per person health spending varies between 13% and 36% in the states.

Mechanisms of fiscal transfer

The National Rural Health Mission has struggled not only with the amount of funding, but also with the mechanisms of fiscal transfers to enhance the efficiency of the health system. The inherent problems in the conditionality of fiscal transfers from the centre to the states are well known. The usual pattern is that the resources of the central government are directed towards the improvement of facilities and priority programmes for the control of specific diseases and family planning, leaving the state to

support the recurring costs of prevention, primary care, and general health services. This situation has often led to states accepting the central funds for health infrastructure, but neglecting or being unable to allocate additional complementary funds for the recurring expenditures of new staff and operations that are in progress.

The National Rural Health Mission has addressed this constraint in several ways. First, the state governments are able to use central resources to fill gaps identified by them in the health infrastructure, human resources, equipment, and service outcome guarantees to ensure conformity with the Indian Public Health Standards.

Second, the National Rural Health Mission directly releases flexible funds to supplement the operations and maintenance budget of government health facilities. Another major change has been that the funds from the central government are routed directly to newly formed state health societies (government-sponsored legal entities with the authority to take financial decisions), which have increased autonomy and decision-making authority to spend the resources. Although this system of direct transfers results in immediate benefits, its continuation will need to be assessed against the efforts to transfer funds directly to locally elected governments (panchayats) for the delivery and management of basic social services including health care.

Innovative cash transfers

If public investments in health are to have a positive effect, enhanced flexibility of centre-to-state transfers will be necessary. An example of the flexibility introduced by the National Rural Health Mission is Janani Suraksha Yojana, an innovative scheme to provide conditional cash assistance to pregnant women who give birth in institutions, and also to the health workers who motivate, assist, and accompany the pregnant women to the health facility. Funded entirely by the central government, this intervention is expected to reduce maternal and neonatal mortality rates, and health risks associated with pregnancy by promoting deliveries in institutions; reduce private out-of-pocket expenditures; prevent individuals, particularly those who are poor, from seeking care from unqualified private providers; and revitalise the public sector.

Recent data indicate an increase in the all-India proportion of births in institutions since the introduction of Janani Suraksha Yojana from 41% in 2002–04 (before National Rural Health Mission) to 47% in 2007–08. However, the progress has differed between states during this period. Whereas the proportion of births in institutions increased by more than 15 percentage points in Madhya Pradesh, Rajasthan, and Orissa, an increase of 3 percentage points or less was recorded in Uttar Pradesh, Kerala, and West Bengal. A concurrent assessment of Janani Suraksha Yojana in 2008, although indicating the need to create increased capacity in the health systems and for strengthening the management of this scheme, attributes the large increase in deliveries in institutions in the states that did not do very well to the popularity of Janani Suraksha Yojana.

Prices of drugs

Aware of the rising costs of drugs and the financial burden they impose, the central government has introduced fiscal and other methods during the past decade to reduce the costs of drugs and ensure availability of good-quality drugs at affordable prices. These include price control of essential drugs, standardised tax of 4% on drugs, and reduction of the excise duty from 16% to 4%.

The Government of India is opening Jan Aushadhi—a countrywide chain of medical stores to make generic and other drugs available at reasonable prices. Though only a few stores have been opened so far in Andhra Pradesh, Delhi, Haryana, Orissa, Punjab, Rajasthan, and Uttarakhand, the differences in prices are quite substantial. For instance, ciprofloxacin (250 mg) is available in these stores at a fifth the average market price, and cough syrups at a third the price. Some state governments have started retail outlets for drugs to ensure that people get reliable, good-quality drugs at affordable prices. Some state governments such as Tamil Nadu have streamlined the procedures for drug procurement to reap benefits from the reduced costs of drugs in the public sector.

Medical insurance schemes

Since 2003, the central and some state governments have launched new medical insurance schemes, all with different features, to extend coverage to workers in the informal sector, particularly those who are poor. Most of the schemes, however, are still in an experimental phase. The largest is the central government's Rashtriya Swasthya Bima Yojana, a national medical insurance programme announced in 2007 and launched on April 1, 2008.

Pre-existing illnesses are covered from the first day and there is no age restriction. Coverage applies to five members of the family, including the head of household, spouse, and up to three dependants. This scheme, implemented by the Ministry of Labour and Employment, gives poor families the freedom to choose from 981 public hospitals and 3146 private hospitals. By April, 2010, 14.45 million smart cards had been issued to 29.76 million families below the poverty line in 172 districts of India.

The financial protection offered by this scheme and other medical insurance schemes, however, remains insufficient. Many schemes target only poor families; they are not universal in coverage. Most schemes cover treatment costs of hospital admission or serious illnesses, and not outpatient care. Also, many of the schemes do not reimburse costs of drugs—a major out of pocket expenditure.

Conclusion:

India has set a target of increasing public spending on health from 0.94% in 2004–05 to 3% of the GDP in future years.

First, attention needs to be paid to centre–state financial flows. Under the National Rural Health Mission, the central and state governments are expected to share the additional health expenditures in the ratio of 85:15 during 2007–12. After 2012, the ratio is expected to change to 75:25. This arrangement needs to be assessed on a state by- state basis. In the past, state governments have used central government funds for the creation of health infrastructure. The finance departments of most states are reluctant to increase the workforce on a recurring basis, even for the provision of improved health care.

As a result, many of the facilities are underused, or states do not recruit more members of staff other than what is possible with funds from the central government. The central government might have to specify conditions for reciprocity for the allocation of its resources to state governments. Appropriate incentive systems will be needed to ensure that states are rewarded financially for improved use of public funds and also for recording improved health outcomes. Similarly, a more effective method of equalisation of public health expenditures will be needed to ensure that states with low per person public spending do not have to wait a long time to generate additional resources to achieve a nationally accepted threshold.

Second, for a low-middle-income country like India, with millions of self-employed and underemployed people working in a large informal sector, taxation is the only viable option for mobilisation of resources to achieve the target of public spending on health of 3% GDP. The conditions needed for other methods of financing such as payroll or social security contributions to generate sufficient revenues (large formal sector employment, substantial payroll or social security contribution, and strong tax collections) are not present in India.

Taxes are easier to collect than are payroll contributions—a reason why Spain, for example, changed from social security contributions to general taxation. Taxation is also a better financing option, because of the large recurrent expenses, which can only be expected to rise with population aging and the shift towards chronic diseases. The state could specifically consider raising taxes on products that harm public health such as all tobacco products, alcohol, high calorie foods of little or no nutritional value, and energy inefficient and polluting vehicles.

This increase in taxes will give additional health benefits through reduced consumption of these products. Although user fees can potentially contribute to enhancing accountability of public services and deter unnecessary overuse of the health facilities,

they have not proven to be an effective source of resource mobilisation. Imposition of user fees in many low-income and middle-income countries has increased inequalities in access to health care.

Even in India, although some evidence suggests improvement in quality of health facilities with the introduction of user fees, other evidence indicates an increase in inequalities in favour of rich individuals in specific health facilities.

Third, increased spending on health alone is insufficient to improve the health status of Indian people. Simultaneous steps are needed to improve performance, efficiency, and accountability in the public and private sectors. Introduction and reinforcement of health management information systems, third-party assessments of service guarantee and quality, community supervision, public disclosure, social audits, and accreditation of facilities could help to improve effectiveness and accountability. Mechanisms are also needed to help with the flow of public funds, minimise unspent balances, enhance the absorption capacity of the public health system, and ensure improved monitoring and assessment. Also important is to build adequate capacity at different tiers of administration, introduce flexibility, and set up mechanisms for the enforcement of quality standards in the delivery of health care.

Fourth, policy and legislative changes will be needed to contain the rising costs of medical care and to ensure quality of care. The government would need to fill gaps and deficiencies in drug policies, registration of health practitioners, and guidelines for health-care interventions including use of pharmaceutical drugs and biotechnologies. The coverage of price regulation of commonly used drugs would need to be strengthened and increased. Standardised protocols and costs of various treatments would have to be developed and monitored, particularly when private providers are called on to provide services to fill gaps in public provisioning. This development ought to be effectively associated with a well designed medical insurance system. The central and state governments would need to introduce more effective ways of ensuring consumer protection and information disclosure about quality, pricing, equity, and efficiency of health services provided in the public and private sectors.

Fifth, risk pooling would need to be greatly increased as a prerequisite for the introduction of any viable system of financial protection. The country's demographics and rising per person income make it feasible to do so. The possibility of average risks increasing as large numbers of low-income households with higher rates of morbidity join an insurance programme are likely to be offset by the large proportion of India's young population. Risk pooling can also be improved by an increase in the duration of the coverage, preferably to lifelong insurance.

Inter-temporal risk pooling would then take place by any member of an insured group during the lifespan of that person—low incidence of disease at young age is offset by high incidence at old age. Risk pooling for different types of illness will be beneficial. Insurance should cover low-cost and frequent outpatient illnesses, medium-cost and low-occurrence illnesses requiring treatment in hospital, and the expensive but infrequent life threatening illnesses. Households would then have a high incentive to adopt medical insurance to safeguard against serious illnesses. They would decide to move from complete self-financing to at least part insurance against health contingencies that are less likely but involve increased expenses.

Sixth, universal financial protection is necessary to guarantee health as a right of all citizens. Financial protection should be offered to all citizens, not just those who are poor, against inpatient and outpatient care. Although several lessons remain to be learned from the experiences of other countries, no single solution exists. On the basis of evidence, it is recommended a single-payer system for India that is known to have several advantages. In such a system, the government would collect and pool revenues to purchase health-care services for the entire population from the public and private sectors.

The state would enlist public and private providers of allopathic and non-allopathic systems of medicine, establish uniform national standards for payment, and regulate quality and cost by use of appropriate information technologies. If well managed, countries with single-payer systems have been able to deal with delays and shortages that are often encountered. They have been better able to manage competition, contain and decrease costs, negotiate reduced prices with private providers, ensure adequate funding for preventive and primary care that reduces costs of curative care, build incentives for physicians to improve quality and performance, and introduce management systems (such as uniform electronic payment) to improve efficiency of service delivery.

Such a medical insurance scheme for health care could be supported by public financing from a combination of tax revenues, private insurance (mandatory for all employers), and income-indexed compulsory personal insurance payments integrated to provide funds for a universal health-care fund. Existing government sponsored insurance schemes will, however, need to be integrated into the universal medical insurance scheme for health care.

Seventh, effective regulation and oversight are needed to ensure that increased health spending by the government and private households results in improved access to good-quality health care. This outcome will require enforcement of existing norms to contain costs and assure quality, and introduction of new legislation to ensure compliance in the public and private sectors. Methods to ensure compliance with the Indian Public Health Standards specified by the National Rural Health Mission will need

to be specified. Appropriate systems of national reporting and record keeping will need to be developed. Registration of private providers with an appropriate authority would be necessary to monitor standards. Such a system of empanelment of private providers would be essential particularly for those who wish to participate in a national public health system and insurance plan.

Last, the value for the money spent on health that an individual gets will depend on the organisation, management, and productivity of health-care services in different states. The extraordinary performance spread within the public and private sectors makes use of additional public expenditures for galvanising a judicious mix of public and private providers for the delivery of health care by India imperative.

Additional financial and human resources are needed to ensure better returns on investments already made in the public sector. Increased public investments will be needed to strengthen the provision of primary health care, which is largely the domain of the public sector.

Public financing of health care could ensure that affordability does not become a barrier to access of needed health care that draws on the strengths and complementarities of India's public, private, and voluntary sectors. Whatever happens to medical insurance and private financing of health care, India's national health goals cannot be achieved without greatly expanding public financing in the health sector.

In view of the very low level of public financing, greater public investments are thought to be necessary albeit insufficient for India to achieve its national health goals. The amount of public financing and the strategies followed will affect the overall performance of the health systems, including public and private providers and facilities, and will also affect the extent of national medical insurance cover for all people in India.

Chapter 5

Budgeting, Accounting, Auditing, Medical Audit

(i). Budgeting

The budget is a blue print of the projected plan of action expressed in financial terms for specified period of time. It is a plan expressed in terms of money. It serves as a valuable aid to the management through policy-making, planning, co-ordination and control.

The purpose of budget is generally:

- (a) To aid in financing the enterprises,
- (b) To clarify the operations of a programme.
- (c) To help in future planning, and
- (d) To measure efficiency.

Budgets are generally prepared with an emphasis on the subjects of expenditure constituting the primary units of appropriation such as pay of officers, pay of establishment, allowances and honoraria etc. It lays more emphasis on the cost aspects without any indication of the results. It is prepared and approved prior to the budget period and may show income, expenditure, and the capital to be employed.

A budget can be defined as a quantitative expression of the operational plans of an organization for a future accounting period. Budget is both, a plan of action and control medium. As a plan, it stipulates target for achievement in terms of output, stocks, cash, etc. which the responsible manager translates into action. As a control medium, it is used to compare with actual performance for the purpose of assessing the need to take corrective action. A good budget is the fundamental tool that is needed for financial management. It is a financial plan that quantifies the organization's programmatic goals and objectives by guiding the allocation of financial and human resources.

In any organization, there are number of activities that have to be performed to achieve the purpose for which the organization has been set up. Performing these activities needs resources like men, materials, and in some cases machinery. For procuring these resources you need money. Estimating the requirements of money to perform the activities during any particular period is budgeting. One can use the budget together with periodic expenditure reports, to review expected costs against actual spending, to identify which programmers are more or less cost-effective, to predict cash needs, to determine where cost must be cut, and as input into difficult decisions such as which programmes to discontinue.

Thus budgeting in simple term is stating in financial terms the physical activities that have to be performed during any future period, to achieve the objectives/purpose of the organization.

Plan and Non Plan Budget

The Government budget is classified as Plan and Non-Plan Budget. The plan funds are utilized for developmental expenditure, such as, schemes/project, which are included or are part of the Five Year Plans. These schemes are mainly of capital nature like setting up of new hospitals, new CHCs, modernization/expansion of existing hospitals, setting up of new specialty units, PHCs and SCs, etc.

Projects/schemes have been initiated in a Five Year Plan. If a project/scheme has been found to be useful, it may be transferred to Non-Plan budget on successful completion of five years.

Non-Plan funds are utilized to maintain and operate the facilities already established in the previous Plan periods. A very general statement could be that the revenue budgets are wholly financed from Non –Plan funds and most of the capital budgets from funds.

Process of Budgeting

The budget is prepared for a period of one financial year i.e. April to March of the following year, which is a fiscal or financial year.

Under National Rural Health Mission bottom up approach has been adopted. The District Health Action plan is the main instrument for planning, inter-sectoral convergence, implementation and monitoring of activities under the Mission which seeks to integrate all the related initiatives at the village, block and district levels.

The head of the district (estimating officer) calls for a meeting of the doctors working in the district and invites their suggestions for any new requirement/new activities / need of any major replacements. He then asks his Accounts Officer/Accountant to prepare the requirements for the salaries, allowances, etc. for new activities/initiatives.

Model Conventional Budget

In a conventional budget, the main emphasis is on objects of expenditure viz. pay of officers, pay of establishment, allowances, other expenditures, etc.

1. Wages and Salaries
2. Dearness Allowances
3. Other Allowances
4. Travelling Allowances
5. Office Expenses
6. Telephone Expenses
7. Rent, Taxes, etc.

8. Maintenance of vehicles including P.O.L.
9. Maintenance of Machines/other equipment
10. Medicine and Supplies
11. Contingencies

For capital and new items of work, the budget will be somewhat along these lines:

Name of activities/work: e.g. setting up a training unit

1. Land acquisition
2. Building
3. Equipment
4. Transport Vehicles
5. Furniture, etc.
6. Telephones and Internet
7. Wages and Salaries to staff
8. Stationary and Contingency

Guidelines to Prepare Budget

Before preparing a budget, one should get himself acquainted with the instructions contained in the Budget Manual of the State. Some of the important instructions are as follows:

- I. The budget estimates should be prepared on realistic basis under relevant heads.
- II. In preparing the budget estimates, the average of the actual of the past three years, as also the revised estimates for the current year should be kept in mind.
- III. Obsolete items should be omitted.

Advantages of Budget

The principal advantages of preparing a budget are:

- I. It cultivates in the management the habit of planning – making careful study of the problems being faced by the organization and taking decisions.
- II. It provides a clear opportunity to make budget provision as per objectives of the organization.
- III. It assists in delegation of authority.
- IV. It is a tool for control over the activities of the organization.
- V. Wastages and losses of all types can be curtailed and avoided.

At the organization level, the chief would like to have the answers to the following questions:

- I. What is the cost of providing different types of services and what are the components on which these costs are incurred? (Cost determination)

- II. If expenditure is to be controlled what costs are to be/can be controlled? Are there any wastage?(Cost control)
- III. If the level of activities of the service providing centre is to be increased/decreased, how will the expenditure increase/decrease?(Budgeting and Budgetary control)

Cost Accounting

Public resources are scarce, but the demand for health care is increasing steadily, therefore cost information is essential to improve the economic efficiency of health care in the developing countries. Cost Accounting describes the aspect of accounting, which collects, allocates, and controls the cost of producing a service.

Cost is intended as the value of resources used to produce something. A distinction has to be made between financial and economic costs. Financial cost “measures of loss of monetary value once a resource is acquired or consumed” in order to carry out an activity. They represent, therefore, how much money was paid for the inputs used to provide a services. Economic Costs instead express the “full cost borne by the society”.

Financial costs of a service can be classified as direct, indirect and overheads.

- **Direct costs** : It refers to resources directly consumed in the service production e.g. for drugs, staff salary etc.
- **Indirect cost**: It refers to resources used for providing services by support units e.g. Radiology, laboratory
- **Overhead costs**: These refer to the resources that are used to support the overall health facility, without providing direct care, such as management, security etc.

If we see these costs in economic terms then they are valued differently, as per their different meaning:

- **Direct costs**: These are related to the direct provision and use of health services.
- **Indirect Costs**: It refers to loss of productivity of patients and caretakers due to medical treatment.
- **Intangible costs**: These costs cannot be valued: they refer to pain, suffering, social stigma, etc.

Financial costs mainly use for accounting and management purposes, whereas, economic cost are preferred for economic evaluation, planning and resource allocation.

Costs are also classified on the basis of the working life of the inputs required for carrying out an activity:

- **Capital cost:** They are defined as costs for those resources that last more than one year (e.g. buildings, vehicles, computers, lab equipments, etc.).
- **Recurrent costs:** It refers to the costs of inputs that last less than an year, and are regularly purchased (e.g. salaries, drugs, fuel, electricity etc.)

For Example: In an immunization programme at institutional level, the following costs are involved:

Total Cost : The cost of all resources (common and specific to the programme) utilized for the delivery of immunization services.

Indirect Cost: Cost of staff, transport, training and IEC material, etc. are included under this cost.

Direct Cost : Cost of inputs exclusively utilized for the delivery of immunization services. Cost of cold chain equipment, immunization equipment and supplies, vaccines, transportation of vaccines to various points, etc. are included under this cost.

Unit Cost : It is the cost per immunization provided by the institution and is estimated by dividing the total cost of services by the total number of immunization of different antigens administered.

Costing Methods

Various steps in the costing include:

1. Identify the activity having cost and for what purpose.
2. Identify all resources used in carrying out the project and whether capital or recurrent, by year.
3. Translate the resources into money terms.
4. Add contingency.
5. Adjust for inflation.

No standard costing method/technique has been evolved for calculating the cost of health care services provided. One of the popular costing techniques, to health care sector, is activity-based costing.

Activity Based Costing (ABC) : It assesses the cost associated with specific activities and resources and links those costs to specific. Costs per patient day of in-patient and so on.

Developing Cost Budgets

Cost control means ensuring that the costs incurred on the total activity is as per predetermined plans/budgets/standards and that the quality and quantity of activities are also maintained up to the expected levels.

Conventional budget vs. Performance budget

The conventional (traditional) budget:

- Emphasis on the items of expenditure without any corresponding indication of the results to be achieved;
- Did not indicate the economics of operations.
- Failed to provide an adequate link between the finances provided and spent, and the physical targets actually achieved.

The traditional budget reveals what Government purchases but not what the Government does. In short, the traditional budgeting fails to provide adequate link between the financial outlays and physical targets. Because of this shortcoming, the conventional budget has not been able to help the management either in planning or in control. It is to meet these shortcomings that performance budgeting was introduced by the Government.

Performance budgeting as is generally known is essentially a technique of presenting government operations in terms of functions, programmes, activities and projects. Through such a meaningful classification of transactions governmental activities are sought to be identified in the budget in the financial and physical terms so that a proper relationship between inputs and outputs could be established and performance assessed in relation to costs.

Significance/purpose:

The main purpose sought to be served by performance budgeting are:

- (a) to correlate the physical and financial aspects of every programme/activity;
- (b) to improve budget formulation, review and decision-making at all levels of management in the government machinery;
- (c) to facilitate better appreciation and review by the legislature;
- (d) to make possible more effective performance audit;
- (e) to measure progress towards long-term objectives as envisaged in the plan;
- (f) to bring annual budgets and development plans closely together through a common language.

Process of performance budgeting:

The process of performance budgeting includes the following:

- (a) Establishment of goal, objectives and targets.

- (b) Formulation of, programmes and activities of a given function.
- (c) Setting up of norms and standards.
- (d) Designing of control and evolution system.
- (e) Delegation of financial powers.

At this stage, the top management must answer these questions. What is to be achieved? Why it is to be achieved? When it is to be achieved?

It may be clearly understood that there is no single yardstick for determining performance standards. The fixation of standards should be tentative and flexible. It should be based on a thorough understanding of the nature of the work allowing for deviation within tolerable limits.

Performance budget requires periodic assessment of physical and financial progress of Governmental activities to ensure timely implementation of programmes.

Delegation of adequate financial powers commensurate with the functions and duties entrusted to various levels of operating officials. This is necessary for the accomplishment of targets at various operational levels of performance. The delegation of powers to the operating officials should be the maximum possible and not the minimum necessary in order to enable them to fulfil their assignment without frequent reference to the higher authorities.

The reporting system with regard to capital projects is based on 'Control Schedules' prepared in connection with the projects. The techniques may be the Critical Path Method (CPM) or Project Evaluation and Review Technique (PERT). There are two types of Report and Cost Reports.

Structure of Performance Budget

As a measure of control over the Government the expenditure, on a recommendation from the Administrative Reform Commission in its report titled 'Finance, Accounts and Audit', starting with the 1969-1970 budget, the Government of India decided that performance budgeting should be introduced in all departments and organizations of the Government which were in direct charge of developmental programmes. Performance budgeting seeks to achieve mainly the following objectives.

- a. To present more clearly the purpose and objectives for which the funds are sought.
- b. To improve the formulation of the budget and to facilitate the process of decision making at all levels of Government;
- c. To enhance the accountability of the management and at the same time to provide an additional tool for management control of financial operations; and
- d. To render performance audit more purposeful and effective.

Performance budget has three parts

Part I gives the details of the structure of the organization, the purpose and objectives of the organization, what has been achieved so far, work that needs to be done in future and more specifically during the budget year. This part is to give briefly the idea of the origin, set up, scope of organization concerned so as to get an insight into the functioning of the department.

Part II gives the financial requirement under two different types of classification:

- I. Programme/activity classification with financial requirements.
- II. Items of expenditure with financial requirements and heads of account.

This part deals with preparing the budget according to functions, programmes and activities as well as terms of the objects of expenditure. This part should also indicate the sources of financing the activities and programmes

Part III gives an explanation for the financial requirements given in Part II. In this part, the programme of action and the physical targets under each activity are indicated so that a relationship between the financial requirements and physical targets is available for control purposes.

For example, under the immunization programme, what are the activities to be performed and how many individuals are expected to be covered has to be included. A performance budget becomes meaningful and useful to management only if this part is taken care properly.

Zero Base Budgeting

Zero base budgeting is nothing conceptually new and is not a budgeting process. It is a management approach to the planning process. While preparing budgets should not take earlier year's expenditure for granted and should start on a clean slate. While framing the budget for ensuring year an organization should start from ground "Zero". The concept of ZBB requires that activities of an organization should be viewed afresh.

Outcome Budgeting

An outcome budget measures the development outcomes of all government programmes. The concept has developed in many democracies to make budgets more cost effective.

Difference between Performance-based Budget and Outcome Budget

The system of performance budgeting by Central Ministries started way back in 1969. But, it was merged with the outcome budget. The concept of outcome budget was introduced by the Union Government in 2005-2006. It was aimed at capturing the

effectiveness of the financial allocations made in the budget and not just in terms of their physical output.

Again, the real objective of outcome budget was not achieved in 2005-2006 & 2006-07, it was largely because the Government continued to bring out performance budget documents even though they did not establish any clear correlation between the financial outlay on programme and how the expenditure incurred helped the Government to achieve its goals for which the funds were allocated.

Gender Budgeting

Gender Budgeting looks at the Government budget from gender perspective to assess how it addresses the needs of women in the areas like health, education, employment, etc. It does not seek to create a separate budget but seeks affirmative action to address specific needs of women.

(ii). Accounting

When you are spending the money owned by someone else, you are answerable to the owner as to:

- 1). On what items have you spent the money
- 2). How much you have spent on each of these items
- 3). Details about the balance

Definitions:

Accounting:

Accounting means recording of the financial transactions that take place in a proper manner, classifying them periodically under pre-determined budget heads and at the end of a given period aiding and collecting the information on how much has been received or spent under specific heads.

Financing sources:

Financing sources are institutions or entities that provide funds for the health care system. The financing institutions in India are central/state/local governments, NGOs, external agencies, firms and households.

Single entry system:

It is a simple way of maintaining accounts without any hard and fast rules and does not reflect the financial health in terms of balances and dues.

Double entry system:

In double entry system every transaction has two accounting entries, one on debit side and other on credit side and therefore, at any given time the financial status of the organization can be ascertained. It also facilitates preparation of trial balance at any point of time.

Financial statement:

The primary financial statement includes balance sheet, income statement and receipts and payments statement.

Cash book:

Cash book is the most important document of the accounting process. The cash book shows the cash receipt and cash disbursement and is the primary book of entry after a voucher is prepared for a particular transaction. The cash book is meant to record all transactions in which cash/bank receipts and payments are involved. It is a record

through which control can be kept over cash and bank balances at any given time. The cash book must be checked and tallied on daily basis.

Drawing and disbursing officer:

The drawing and disbursing officer in an organization is an officer who is responsible for maintenance of all financial accounts and registers head wise/sub head wise. He is also responsible for maintenance of the cash book and supervises the work of the cashier.

Trial Balance:

Trial balance for a particular period is prepared to assess the overall financial status of an organization in terms of assets, receipts, cash in hand and liabilities. It is prepared on the basis of Cash Book.

Journal:

Journal is an accounting record in which information from the source documents first enters the accounting system. It is also called the book of original entry. It provides a permanent and chronological record of business events. The entry in journal shows which ledger accounts have increased as a result of the transaction, and which has decreased.

Concept of Accounting:

The American institute of certified public accountants has defined “Accounting is the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of a financial character, and interpreting the results thereof.

Accounting means the maintenance of proper accounts. It helps in:

- Finding out the actual receipts and disbursements made by an authorized organizations in any given period.
- Know how much of these receipts and disbursements relate to the different activities based on the classification of the transactions into different heads and sub-heads.
- Ensuring that the actual receipts/disbursements relating to the different heads/sub-heads are as planned/budgeted, for control purposes and planning for future.
- Analyzing the efficiency with which the operations are being performed in financial terms and
- Maintaining a record of the capital assets purchased or acquired during the period and the total of all such available capital assets with the unit/department at the end of the period.

For purpose of accounting, the financial year starts from the 1st April and ends on the 31st March of the next year.

Systems of Accounting:

There are two systems for recording transactions- viz. Single Entry System and Double Entry System. Single entry system sounds simple as it has no hard and fast rules. In this system of accounting, only personal accounts are maintained. This is essential because, without personal accounts, it would be difficult to know the balance and the dues. It is not possible to know what total purchases or sales are. Completeness of records which is possible under the double entry system, is absent under single entry system.

The single entry system of accounting is followed mainly in government establishments and small firms. Lately, under NRHM, the union government has insisted all states to follow double entry system. Only the double entry system is a proper system of keeping accounts.

In the double entry system, every transaction has two accounting entries, one on debit side and other on credit side of an account. Transactions are recorded as they occur in the form of a bill/voucher. A voucher is any documentary evidence in support of a transaction. Based on these evidences Journal, Cash book, Ledger, Stock Registers and other financial records are maintained.

Example of Double entry system of an accounting:

A.A Shah & Sons commenced a business on 1st April 2014. The following were his transactions for the first three days.

Year 2014	Particulars of transactions	Rs.
April 1	Commenced business with Bought goods from Harisons & Co. Ltd. Purchased furniture, paid by cheque	6,00,000 1,00,000 40,000
April 3	Sold goods to Ramkumar Installed telephone with annual scheme, paid by cheque Paid for office stationery in cash	23,000 4,800 680
April 4	Received cheque from Ramkumar (discount allowed Rs. 500/-)	22,500

Journal Entries

Date	Particulars	Ledger folio	Debit Amount Rs.	Credit Amount Rs.
April 1	Cash A/C To A A Shah & Sons A/c (Being deposited of capital by A A Shah & Sons)		6,00,000	6,00,000
April 1	Goods A/C To M/S Harisons & Co. Ltd (Being the purchase of goods on credit)		1,00,000	1,00,000
April 1	Furniture A/C..... To bank A/C (Being the purchase of furniture)		40,000	40,000
April 3	M/s Ramkumar A/c To goods A/c (being the sale of goods to Ramkumar on credit)		23,000	23,000
April 3	Telephone A/c..... To Bank A/c (being the installation of telephone)		4,800	4,800
April 3	Stationery A/c..... To cash A/c (being purchase of stationery on cash)		680	680
April 5	Bank A/c Discount A/c..... To M/s Ramkumar A/c (being cheque received from M/s Ramkumar and allowed him discount Rs. 500/-)		22,500 500	23,000

Ledger Accounts- samples

Bank Account

Debit				Credit			
Date	Particular	LF	Amount (Rs.)	Date	Particular	LF	Amount (Rs.)

M/s Harisons & Co. Ltd A/c

Debit				Credit			
Date	Particular	LF	Amount (Rs.)	Date	Particular	LF	Amount (Rs.)

M/s Ramkumar A/c

Debit				Credit			
Date	Particular	LF	Amount (Rs.)	Date	Particular	LF	Amount (Rs.)

Furniture A/c

Debit				Credit			
Date	Particular	LF	Amount (Rs.)	Date	Particular	LF	Amount (Rs.)

Stationery A/c

Debit				Credit			
Date	Particular	LF	Amount (Rs.)	Date	Particular	LF	Amount (Rs.)

Telephone A/c

Debit				Credit			
Date	Particular	LF	Amount (Rs.)	Date	Particular	LF	Amount (Rs.)

All the journal entries should be posted in ledger A/Cs under different heads in debit/cridt, sale/purchase return book as per principles of Double Entry system. Therefore, all the account of Ledger should be balanced and Trail Balance can be drawn

The accounting process:

The accounting process is a set of activities that begins with recording a transaction and ends with the closing of the books. Because this process is repeated in every reporting period, it is referred to as the accounting cycle. To record a transaction, the following steps need to be followed.

Step 1:

Identify the transactions or other recognizable event that has a financial impact on the entity.

Step 2:

Generate the transaction's source document such as a purchase invoice, cash receipt etc. this captures the key data of the transaction. The source document is the first input of the accounting process. The source document describes the basic facts of the transaction such as the date, purpose, and amount. Some examples of source documents are:

- Cash receipt
- Cheque issued
- Invoice received
- Credit memo for a refund

To facilitate referencing, each source document should have a unique identification, usually a number or alphanumeric code. Pre-numbering of commonly used forms helps to enforce numbering, to classify transactions and to identify and locate missing source documents. The source document may be created in either paper or electronic format. For example, automated accounting systems may generate the source document electronically or allow paper source documents to be scanned and converted into electronic images.

Step 3:

Record the transaction by making entries in the general journal, in chronological order. The journal is the accounting record in which information from the source document first enters the accounting system; therefore it is also called as the book of original entry.

Transactions are recorded in journal to provide a permanent and chronological record of business events. The entry in the journal shows which ledger accounts have increased as a result of the transaction, and which have decreased.

The journal format provides the benefit that all of the transactions are listed in chronological order and all parts (debits and credits) of each transaction are listed together. To improve the efficiency and organization of the accounting process, specific types of transactions are grouped into their own special journals such as – purchase journal or a cashbook. The cashbook shows the cash receipts and cash disbursements and is the primary book of entry after a voucher is prepared for a particular transaction.

The cashbook is meant to record all transactions in which cash/bank receipts and payments are involved. This is a record through which control can be kept over cash & bank balances at any given time. The cashbook must be checked and tallied on a daily basis. Physical verification must be done of cash on hand at the end of each day by the accountant.

Denomination of closing balance must be recorded on weekly basis and verified. By journal entry and ledger entry and after checking for errors a Trial Balance can be prepared in terms of assets, receipts, cash in hand, liabilities and profit/loss.

(iii). Financial Auditing

Introduction

The practice of auditing accounts originated from the necessity of applying some system of checks upon persons whose business was to record the receipts and disbursements of moneys on behalf of others. Though the system was first introduced in charitable and government accounts, people soon realized its usefulness for their business accounts.

In public sector audit plays a significant role as public money is involved and it should be seen that this money is utilized effectively and efficiently. Also, it is the duty of the auditor to check any cases of wasteful expenditure that could have been avoided.

Test audit:

Test audit is conducted by the auditor to find out any shortcomings or errors in the accounts of an organization for carrying out detailed in depth audit.

Internal Audit

The internal audit is a method that exist within the organization to ensure adequacy and propriety of transactions, the extent to which assets have been accounted for and safeguarded and level of compliance with the financial norms and procedures.

External or Statutory Audit

The statutory audit is compulsorily entrusted to the Comptroller and Auditor General of India who is the apex audit body and to the Director General of Audit at the state level.

Principles of Auditing:

Audit is carried out, based on certain principles:

1. The auditor should be independent from the organization being audited.
2. The subject matter of an audit is susceptible to verification by evidence.

Audit can be External as well as Internal. External audit is statutory audit conducted by the CAG or its representatives, in order to ensure that an organization confirms to the standard principles of financial propriety. On the other hand internal audit is done at the discretion of the organization. Internal Audit/management audit has been reorganized as an aid to the higher management for monitoring the financial performance and effectiveness of various programs/activities in the organization.

The audit of government accounts, both central and state is compulsory entrusted to Comptroller and Auditor General of India/Direct General of Audit of respective State, which is independent of the agencies who incur the expenditure. The accounts are compiled by the respective Government department and audited by the Government Auditors. However, in case of business establishments and NGOs the annual accounts

are sometimes if required compiled and audited by the professional Chartered Accountants.

Auditing purposes:

The board objects of auditing are:

1. Verification of accounts and financial records.
2. Detection of errors and frauds.
3. Prevention of error and frauds.

The knowledge of the fact, that the accounts will be audited, will prevent the clients/staff so inclined, from committing frauds and they will be more cautious while preparing accounts. The Companies Act requires an auditor to certify the books of accounts kept are adequate to give a true and fair view of State of affairs of the company and to explain its transactions.

Towards achieving this aim, an auditor has to ensure:

- i. Establishment of the accuracy of the books and transactions recorded therein;
- ii. There is provision of funds for the expenditure authorized by the competent authority;
- iii. Verification of the title and physical existence of the assets and their proper valuation;
- iv. Investigation in the genuineness of the liabilities;
- v. The receipts and expenditure are properly classified and recorded.
- vi. Ensuring that the books of accounts of business have been maintained in accordance with provision of law and prescribed format.
- vii. Reviewing the adequacy and efficiency of system of internal check and the method of recording the transactions.

Types of Audit:

Auditing of the following types is carried out:

- 1) Audit regarding rules and orders
- 2) Audit regarding provision of funds
- 3) Audit of revenue receipts
- 4) Audit of sanctions
- 5) Audit of expenditure
- 6) Audit of stores and stock

1). Audit Regarding Rules and Orders

As the audit of expenditure is to be conducted against the financial rules, regulations and orders, it is essential that these regulations and orders themselves are subjected to examination.

The examination consists in seeing:

- 1) That the rules, regulations and orders are not inconsistent with the provisions of the constitution or policy of the government/funding agency.
- 2) That they are consistent with the financial and other rules formulated by the government and the comptroller and auditor general.
- 3) That they are not in conflict with the orders or rules made by higher authorities.

2). Audit Regarding Provision of Funds

One of the main functions of the audit is that all the expenditure incurred has the necessary sanction of the legislature (i.e.) necessary funds have been provided for and accepted under the relevant Head for that item of work.

3). Audit of Revenue Receipts

All revenue receipts are correctly and promptly assessed, realized and credited to the government account. Role of audit is to aid, assist and ensure that adequate systems and procedures exist, that these are being followed and to bring to the notice of the departmental authorities and the government any shortcomings, scope for improvement or suggestions for increasing the productivity of the resources.

4). Audit of Sanctions

In conducting the audit of expenditure, one of the requirements was to see that the expenditure is covered by a sanction, either general or special, and that the sanction itself is given by an authority competent to do so or one who is empowered to sanction by the relevant rules. This check is known as the audit of sanctions.

The sanctioning authority authorized to sanction expenditures may be;

- Vested with full powers in respect of certain classes of expenditure.
- Vested with powers which may be exercised if certain criteria are fulfilled.
- Vested with powers specific to certain schemes, situations or instances.

All sanctions of expenditure granted during a financial year are collected and kept in relevant files duly numbered so that the audit of sanctions could be conducted. In some places a register of sanctions of expenditure is also to be maintained.

5). Audit of Expenditure

Every payment of money of government account involves three principal processes:

- a) The submission of a claim;
- b) The scrutiny of the claim disbursement of the money claimed; and
- c) The classification of the transaction in the accounts under the relevant head of account.

While incurring any expenditure out of the government funds, the essential conditions to be observed are:

- a) That there should exist a 'sanction ' either special or general, accorded by a competent authority;
- b) That there should be 'provision of funds' authorized by competent authority fixing the limits/provisions under the respective head of account;
- c) That the expenditure incurred should be in accordance with the financial rules and regulations framed by competent authority; and
- d) That the expenditure is incurred observing the broad and general principle of financial propriety.

Before payment, in case of purchase of store, stock entry should be made for each item and a certificate that the goods received is in good condition and as per the required specifications.

Vouching is the essence of auditing and most important duty of the auditor. The term vouching means a careful examination of the original documentary evidence such as invoices, receipts, statements, correspondences, minutes, contracts, bank reconciliation statement etc.

Along with the 'expenditure audit', the auditor also performs two other audits: 'efficiency audit' and 'proprietary audit'.

In 'efficiency audit' the auditor examines whether the activities are being performed economically, whether the resources are being used properly and fully, whether there are any avoided and wasteful expenditure, losses etc.

'Proprietary audit' falls in the area of high public financial morality and safeguarding the financial interests of the government. Proprietary audit refers to an audit in which the various decisions and actions are examined to find out whether they are in public interest and whether they meet the standards of conduct. For instance there is over stocking of certain categories of medicines.

6). Audit of Stores and Stock

The audit of stores and stock held by a Government organization is conducted basically to ascertain that the departmental regulations governing purchased, receipts and issues, custody, condemnation, sale and stock-taking of all the items of stores and stock are carried out properly. The audit also brings out deficiencies in quantities held and any major system defects.

As regards purchases of stores, Audit will see that the purchases are properly sanctioned by the competent authority, are made economically; in purchases from open market, the system of competitive tendering is adopted and reasons for not accepting the lowest tender recorded whenever necessary as per rules prescribed.

Audit should ascertain that proper stores accounts of receipts of stores(both purchased or otherwise obtained), issues and balances are correctly maintained.

Audit Process

The auditors as soon as they come to an organization ask for the basic documents like cashbook, accounting registers, budget documents, rules and regulations etc. Having acquainted themselves with the organization, they start the audit with receipts and expenditure through sample or test audit.

They may take random samples of the transactions and examine them. Depending on the outcome of the random sample audit, they may feel satisfied or may feel the need for some more in depth examination or may feel the need for hundred per cent audit. During the test audit they are likely to ask questions to the accounting staff and concerned Officers and other staff.

The audit team after examining the basic records, test checking the transactions, formulates audit queries, which are given to the organization for furnishing the replies. Based on these replies, a major part of the queries may be dropped and a draft audit report is prepared of the remaining queries. The draft audit report is once again sent to the organization for replies and is also discussed with the head of the organization by the leader of the audit team. Quite a number of objections might be dropped at this stage having been satisfied by the clarification or by the documentary evidence provide.

The next stage is that the Accountant General/Director General of Audit finalizes the audit report for the departmental consolidating the various reports for the different organizations within the department and is discussed at the Department Head level. Thus, every opportunity is given to understand the organization's view point before an audit objection is finalized.

The limitations in Audited Accounts

The report of auditor only provides a reasonable assurance that the accounts may be relied upon. It is not an absolute guarantee on the truth and fairness of the financial statements. It also does not reflect impact of programme/activities.

(iv). Medical Audit (Clinical Audit)

Clinical audit or medical audit is comparatively a new topic but the principles and methodology is like general audit done in accounting. Basically it is a systematic and scientific way to improve the quality of medical care in an health care institute.

Definition of clinical audit

It is a systematic critical analysis of the quality of care provided and is defined as: “A quality improvement process that seeks to improve patient care and outcomes by the systematic review of care against explicit criteria and the implementation of changes. Aspects of the processes and outcomes of care are selected and systematically evaluated against explicit criteria. Where indicated, changes are implemented at an individual, team or service level, and further monitoring is used to confirm improvements in health care delivery.”

Features of clinical audit

- a) Fairly new approach not yet widely applied.
- b) Powerful way to improve care.
- c) Focuses on narrow topic.
- d) Deficiencies in care revealed & changes needed identified.
- e) Type and quality of care compared to criteria and also to target (quantity and quality)
- f) Usually carried out at individual health facility level.
- g) Continuous cyclical process till target met then new topic chosen.

Clinical audit cycle

Clinical audit is a cyclical process and can be performed as per the below mentioned step by step process.

1. Set up the audit process
2. Establish criteria of good practice and define cases
3. Measure current practice
4. Feedback of the findings and set local targets
5. Implement changes in practice where indicated
6. Re-evaluate practice and feedback

1. Set up the audit process:

Head of clinical service to initiate audit. He has to identify Multi professional audit team. Actual data collection/analysis should be done by non-medical auditor. At least one committed clinical staff to guide auditor and to present the result. Selection of topic (OPD care, Indoor care, Operated patients, deaths, case reviews, structure-facility, manpower-expert can be audited.

2. Establish criteria of good practice

National guidelines-standards and International standards published by agencies like WHO. May be adapted using local expert panel. Systematic review of evidence on the audit topic may be available sometimes and if it is available and audit should be followed accordingly. Specify category of complication or process to be audited and for what period to be decided. Most serious or common to be addressed first. For a particular topic/aspect that is going to be decided to be audited, then working definition for cases (essential features, additional features) to be prepared. Criteria for audit to be formulated that are essential rather than optional, for which sound research evidence exists, and that can be audited.

3. Measure current practice (process of audit)

Medical audit is a process having following steps to measure a practice

- a) Draft audit form (pre-tested and modified)
- b) Train the personnel to extract data.
- c) Specify sources to identify case (admission/discharge log, delivery/OT/registers, mortuary records)
- d) Check that cases agree with definitions.
- e) Strict confidentiality to be maintained.
- f) Initial training, refresher course for audit assistant for quality control of data collection process
- g) Analyze data (manual/database)
- h) Questionnaire survey of staff practices and knowledge (deficiency in care or skill, lack of knowledge or lack of application of knowledge.)

4. Feedback and set local targets for improvement

Once the audit is completed and then report is prepared. At first the reported should be review for key findings in detail with senior professionals and administrative staff. Summary of key findings should be share to all concerned staff at hospital meetings. And in the same meeting, a consensus on the proportion of areas that should be met and set realistic targets to be achieved by the next round of audit. Hospital team should agree to make affordable and achievable changes that might help to meet the targets. Outside experts may be invited to participate in this step of the process.

5. Implement changes in practice where indicated

Audit team should identify the reasons for the deficiencies. For example: the medical care is deficient for....., knowledge is inadequate in, Skills inadequate inprocess or among persons...., Attitudes inappropriate for..... etc.

From the above kind of observations, the changes and actions needed to meet the targets will be specific to the reasons should be identified and following kind of changes are desired to improve the quality medical care.

- * Writing clinical protocols,
- * Conducting staff training sessions,
- * Ensuring implementation of protocols

6. Re-evaluate practice and feedback

Above mentioned steps 1-5 are repeated if the target set for the audit topic is not met. New topic selected once the target is met. This kind of cycles are repeated till desired quality medical services are not met.

Advantages of clinical audit:

- a) Involving local staff is an effective mechanism for bringing about improvements in quality of care.
- b) Staff development of multidisciplinary local protocols on the topics audited. These protocols often incorporate the criteria of good practice.
- c) In countries where resources allow, the outcomes of countrywide audits may lead to national clinical guideline development.

Disadvantages

- a) Limited to the clinical care in the health facility in which it is carried out and cannot be used to investigate issues in the community.
- b) Audit assistants (such as records staff) should ideally be available to find patient records and undertake the extraction of information.
- c) Additional financial burden initially

Conclusion: Such an evidence-based medical practice promotes the identification and implementation of good practice in clinical settings. When conducting clinical audit, it is more helpful to focus on one or more detailed aspects of practice rather than trying to do everything at once. Improvements in quality care can be made step by step that begin with most relevant area.

Modules & Chapters

Post Graduate Certificate Course in Health System and Management

Module 4 : Basics of Human Resource Management	
1	An Introduction To Human Resources In Health
2	Human Resources Development
3	Organisation
4	Team Building
5	Motivation
6	Manager As A Leader
7	Performance Appraisal
8	Conflict Management
9	Communication, Co-Ordination And Control In Health
Module 5 : Material Management and Health Economics	
1.A	Inventory Control
1.B	Inventory Procurement
1.C	Techniques of Inventory Control
1.D	Machines & Material Management
2.A	Glossary of selected terms used in Health Economics
2.B	Concept of Health Economics
2.C	Financial Management for Health
2.D	Financing health care for all: challenges and opportunities in India
2.E	Budgeting, Accounting, Auditing, Medical Audit
Module 6 : Monitoring & Evaluation and Quality in Healthcare	
1	Monitoring & Evaluation
2	Quality in Healthcare
3	Information Technology in Public Health
4	Drug Logistics Information Management System (DLIMS)

POST GRADUATE CERTIFICATE COURSE IN HEALTH SYSTEM AND MANAGEMENT

Aim

PGCHSM is aiming to develop comprehensive knowledge and skills in the Health System and Management.

Objective

1. To equip students with an overall perspective on health system
2. To improve leadership skills in public health and create good health managers
3. To inculcate interdisciplinary approach to problem solving skills in public health

About Course

Module 1: Introduction to Public Health

Module 2: Basics of Health System and Health Care Delivery

Module 3: Basic of Management and Planning

Module 4: Organization and Human Resource Management

Module 5: Material Management in Health

Module 6: Monitoring and Evaluation in Health System & Health Economics

Student Speaks

We learned many of the newer knowledge and skills about Health System & Management.

- Dr. Snehal Vaghela

Sessions of Resource Persons who had worked in the field were very interesting. We came to know about field realities and practical solutions.

- Dr. Kanan Desai

Contact sessions were interactive and we got maximum insights and understanding about Health System & Management during these sessions.

- Dr. Jaimin Patel

Assignments were framed in completely different ways. They require more thought process and field understanding than mere book knowledge.

- Dr. Ankit Sheth