

19.11.18

HOSPITAL BUDGET.

Budget is defined as financial or quantitative statement prepared and approved prior to the period of time of the policy to be pursued during that period for purposes of achieving a given objective. The formulation of ideal budget is essential to an optimal development of an organisation.

IDEAL BUDGET:

While formulating a budget there are certain essentials to be given due weightage:

- 1> Identification and clear understanding of the hospital, financial and services goal become important before the formulation of budget.
- 2> Define and accountable organisation with clearly defined responsibilities for each department of the hospitals.
- 3> A system of accounting designed and maintained that would serve as a base for adequate reporting to provide a measure of performance.
- 4> It represents a system of future accounts 'stated in terms of organisation responsibility. Thus there would be an active participation of hospital personnel.
- 5> It reveals the weakness and shortcomings.
- 6> Providing a strong base for co-ordinated working.
- 7> Planning for the future is facilitated.

- 8) It makes the organisation to execute responsible tasks.
- 9) Decentralisation of authority and responsibilities so as to place it as nearly as possible at the point of action.
- 10) A formulation of cash budget for estimating the monetary requirements and sources of funds for the budget period.
- 11) The estimates of operating revenues and expenses for next budget year and for that formulating the operating budget.

FORMULATION OF BUDGET:

The formulation of an effective budget is essential for the sound development of hospitals and the health care organisation. An effective budget cannot be prepared on imagination and hence different types of essential information are to be collected from different departments.

The person who is preparing the budget should have a good knowledge about accounts, calculations and the need of different departments in the hospital. Once the effective budget is prepared it has to be disseminated to all the personnel (head of the departments) personnel of the hospital. Instead the different departments of hospitals would formulate a budget for their own departments. Since we find salaries and wages accounting for atleast 40-50% of the total expenditure, this focuses the attention on the compilation of a master-list of the personnel in each department. Additional staff requirements if necessary are to be mentioned. Other expenses such as

drugs, foods, supplies and expenses are to be projected on the basis of past year's expenses. Normally an increase of 10% in a particular department is considered reasonable but keeping in view the inflationary pressure and other changes, it can fluctuate. Some essentials are to be considered such as any additional equipment such as X-ray, laundry, sterilizer, etc.

MASTER BUDGET:

The budgets formulated by the heads of different departments of hospitals are finally incorporated into a master budget. The formulation of an effective budget is a challenging task because it is based on different types of information to be received from different sources and different departments of hospital.

Preparation of the annual budget is one of the important tasks in the economic operation of the department in the hospital. This important task requires serious consideration by administrators and pharmacists.

The budget is an instrument through which hospital administration can review the hospital services in relation to a prepared plan in financial terms.

A properly developed and useful budget should have defined and ideal goals such as —

- i) Development of standards of presentation.
- ii) Assessment of actual results with standards so that deviations could be identified & determined.
- iii) Subsequent analysis of deviations useful to determine whether they are controllable or uncontrollable.

FUNCTIONS OF BUDGET:

- i) It estimates the cost of completing the objectives identified in the proposal. The responsible person will

use the budget details to determine whether the proposal is economically feasible and realistic.

ii) The budget provides a means to monitor the hospital financial activities. In this way it's possible to determine how closely the actual progress towards achieving the objectives is being made relative to the proposed budget.

Financial budget planning worksheet has proved to be an effective means to maintain a clear and concrete vision about the future of business and its performance in the financial year. Budget planning should be highly effective in controlling cash flow and helps in investing in useful and needful area in right direction.

The budget planning services include -

- Financial budget planning
- Budget planning worksheets.
- Online budget planning and.
- long term financial planning for cashflow.

An ideal investment is required to preparing a realistic financial planning worksheet to help understand the financial implications, management of annual requirement, reduced long purchasing process, reduce storage problem and also help in managing all types of problems.

ADVANTAGES OF BUDGET PLANNING:

- 1) Develops better financial planning.
- 2) Gives a clear focus on decision making to management of the hospital.
- 3) Helps to focus on hospital priorities.
- 4) Helps to prepare for contingencies or unforeseen expenses.

- 5) Helps in taking sound financial strategies and decisions.
- 6) Exposes domains of over expenditure.
- 7) Creates additional resources to invest in core business activities.
- 8) Effectively manage the finances of hospital.
- 9) Make sure that budget is accurate and consistent.
- 10) Enhance efficiency of staff and others.

RESPONSIBILITIES:

General responsibilities of the office of budget and analysis include the following functions -

- 1) Manage all types of small and big requirement of the hospital.
- 2) Prepare the budget on behalf of hospital administration and with the help of chief pharmacist.
- 3) Maintain budget documentation of each financial year.
- 4) Generate monthly analysis of expenditure including all.
- 5) Inform the respective departments in case of line item over expenditures.
- 6) Monitor the budget to ensure compliance.
- 7) Supervise the preparation of the research and maintenance.

The pharmacist must be aware of the political aspects of the process, in order to participate more effectively in the budgetary process. Following factors are to be considered while preparing the budget -

- i) Institutional - philosophical pressures
- ii) Personal considerations.

- 3) Development of confidence among other officials, and
4) Demographic pressures

All these factors affect the power base of a department and consequently, the strength of its bargaining position in the budgetary process. Personal thought, in the form of individual reputations, is important in any political process. An individual who has acquired a standing for having submitted previous budgets that have been thoroughly revised and supported by considerable system. The institutional-philosophical considerations in the budgetary process consist of the goals and objectives of the hospital and its various departments. In many state planning agencies require hospitals to submit the budget for upto 5 years plan with considering the budget of the financial year. Budget preparation is mainly 2 types on the basis tenure-

- a) Short term budget (1-2 years)
- b) Long term budget (5-10 years).

A budget is a short range system for future handling and operations of various activities. It is essential to know the meaning and appropriate application of a budget and must be clearly understood by responsible persons who are working in managerial positions because their participation is required in its preparation and their co-operation. It is essential to management person to first identify the purpose of the unit, establish policies for its operation, and project the hospital's growth. The plan should be economic and attainable. It should not forecast results that are not possible under current and anticipated conditions.

SECTION OF THE BUDGET:

Every budget consists of 3 separate parts:

- A. Revenue accounts
- B. Expense accounts.

C. Capital and Equipment budget.

A. The Revenue account;

In the preparation of budget, total income of hospital is calculated. Either the department of pharmacy or the accounting department maintains a daily, weekly, monthly or annual total of the cost of the pharmaceuticals issued to the different patient services as well as to the special service departments. The true income of the department is the sum of the cost of pharmaceuticals issued to patient and the processing of patient prescriptions and requisitions of the department. In addition, there are other statistics that are of value in assisting management to accurately predict the volume of activity of the department of pharmacy. They are -

- i) Total no. of prescriptions dispensed per pharmacist.
- ii) Total hours of services.
- iii) Prescription volume per hour of service.
- iv) Per day medication cost of per patient.
- v) Average supply cost per requisition.
- vi) Cost of medication per clinic visit.
- vii) Average cost of drug per prescription.
- viii) Average salary cost per prescription.

It is found that the income in the hospital pharmacy is limited to the sale of drugs to in-patients, out patients and departments of the hospital. The total income of hospital depends upon the types of patient and their paying capacity. Generally following types of patients category is in the hospital such as -

- 1) Those who made full payment to the hospital.
- 2) Those who make partial payment.
- 3) Those who make no payment at all.
- 4) Staff of the hospital such as physicians and general employees.

The total income obtained is the summation of the above. It is required to separate income obtained from various parts for accurate appraisal and evaluation.

B. The Expenditure accounts:

The total expenditure of a hospital can be considered in following general categories:

1. Professional care of patients' expenses.
2. Out-patient expenses.
3. Administrative and general expenses.
4. Emergency and miscellaneous expenses.

The department of pharmacy prepares the expenditure accounts detail on the following expenses.

1. Expenses account salary and wages:

This is a recurring expenditure of department. The salaries criteria is not same. The chief pharmacist or other responsible person prepares a breakdown of the personnel in the department of pharmacy into the following categories:

- Expenditure on permanent full-time positions.
- Expenditure on permanent part-time positions.
- Expenditure on temporary positions.
- Expenditure on proposed new positions.
- Expenditure on overtime requested.

The total salary expenditure of financial year is the sum of all types of salaries paid to the staff including administrative, professional and non-professional staff. For detail it may be simple to prepare the data in a tabular form considering -

- all full-time administrative staff.
- Full time professional and non-professional pharmacy staff.
- Part-time employees in each category.

- New positions, if any.
- Overtime - expenditure.

Total of all types of salary and wages represents the actual expenditure of the financial year under this category.

2. Expenses of supplies and material:

The responsible administrator or chief pharmacist should prepare a financial statement considering the requirement of amount in rupees for supplies and material with the help of latest available financial statement. It is also necessary to show the actual cost of materials and supplies. This actual mathematical process estimates what the actual expense will be for the present financial year. If the budgeted figure and the estimated actual figure are same, then the previously prepared budget was well done. On the other hand if these two figures are different, it shows that the calculation is wrong or there was an error in the consideration of expenditure detail. True budget calculation needs investigation and evaluation of all the parameters. If the department is to be interested in an expansion programme of the service, i.e., dispensing to new clinics, opening of a new wing, etc., then the administrator should determine the cost of the materials and supplies to be required for the new program and so provide for it in the new budget. The department of pharmacy is required to maintain the detailed records in order to achieve at the figures requested by the budget.

3. Purchase Expenses:

The budget of purchase expenses should include the cost of prescriptions purchased for an outside pharmacy

4. Drugs and Pharmaceuticals:

Many drugs and pharmaceuticals are dispensed by prescription in the hospital pharmacy department. Some drugs and pharmaceuticals used in the outpatient and emergency departments should be charged there and not to this account.

5. Miscellaneous supplies:

Expenses on many materials include labels, bottles, glassware, uniform of pharmacist, stationery, narcotic and alcoholic permit fees, printed forms and reference books, etc. Some parts of budget are required to repair and maintain equipment used by this department and repairs made by outside concerns to such equipment. If required separate sub-budget should be maintained for repairing of equipments.

E. Equipment and construction Budget:

In hospitals where a budget is prepared for depreciation of physical plant and equipment, it is necessary that the actual cash for replacement or remodeling is made readily available. Budget for immediate arrangement for new model of equipment is also required. If proper budget in hospitals is not a policy, then construction and purchase of equipments creates a major financial problem. Equipment and construction of new section or renovation with time is essential for the modern arrangement and techniques. Hence a well planned budget contains initial cost as well as maintenance and repairing expenditure.

IMPLEMENTATION OF BUDGET:

The budget is the important tool of any hospital. The preparation as well as implementation of budget both need.

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The budget is prepared by groups of departments and compiled by one department. The implementation of budget is again a very difficult task, because in this process the money is directly attached with the final cost of product. Implementation is a difficult process and involves following parameters:

- (i) Requirement of different department.
- (ii) Urgent need of different department.
- (iii) Actual fund position.
- (iv) Utility of particular item.
- (v) Cost of products.
- (vi) Quantity of products.
- (vii) List of manufacturers with quality products.
- (viii) Purchasing skill.

The budget is implemented in the hospital on the basis -

- (i) Utilization of budget on individual activity.
- (ii) Utilization of budget on group activity.
- (iii) Centralize utilization of budget.
- (iv) Department wise utilization of budget.
- (v) Need based utilization of budget.
- (vi) Emergency based utilization of budget.
- (vii) Technology based utilization of budget.

Many managerial committees and hospital administrator take decision for proper utilization of fund on the basis of need, requirement, emergency, technology and also consider the economic mode in all conditions.

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HOSPITAL PHARMACY NEWS LETTER:

Definition:

It is a well documented information which includes the recent development regarding drugs, diagnostics (new methods) and any other research carried out in the division of hospital pharmacy.

The news letter is useful in updating the knowledge among health care professionals.

Who is involved in preparing news letter?

Ans: → The hospital pharmacist together with the assistance of pharmacy & Therapeutics committee.

→ The main content is developed by hospital pharmacist and is reviewed by members of PTC. The clinical pharmacist plays a crucial role in editing the news letter.

STEPS INVOLVED IN DESIGN OF NEWS LETTER:

→ Selection of a title.

→ Preparation of contents.

→ Review by PTC members

→ Distribution to various hospitals, colleges.

i) SELECTION OF TITLE:

The title must be specific, short and it should identify the publication and its contents. The title should impart the implication that it is a professional journal.

Examples of good titles - pharmacy bulletin, pharmacy review.

Examples of bad titles - The pill roller news, the mortar and pestle.

ii) PREPARATION OF CONTENTS:

The contents are divided into 5 categories -

- 1) Editorial
- 2) New drug section
- 3) Abstract on the PTC meeting.
- 4) ~~Lead~~ Lead articles by prominent members of medical staff
- 5) The general information.

1) Editorial: • The editorial is prepared by the pharmacist in chief or other interested members of PTC.

- It should be a means by which new procedures ^{ed} relative to ordering, prescribing, storage or administration of drugs within the hospital are introduced.

- It should also help focus attention on established procedures.

2) New Drug Section: • It should contain major data on each drug accepted for use in the hospital by pharmacy committee.

- Major information includes a brief description of drug

- Indications and its range of usefulness, side effects, administration and dosage guidelines

- How the drugs are supplied from the pharmacy.

3) Abstract of mins of meeting: It is a valuable inclusion as it creates the constantly changing trends of therapeutics within the hospital.

- It also allows those members of the staff ^{who} ~~to~~ have

had reason to communicate with PTC for new recommendations on drug usage.

4) Lead articles by: • Each issue should have a lead article by a prominent member of the staff.

- It should not be lengthy and should be restricted to an evaluation of current pharmaceuticals or trends of therapy.

5) General information: • It may include anything the editor feels is of interest to the medical staff, nursing service or laboratory staff.

Ex: - Articles on current situations such as recurrence of swine flu outbreak.

- Abstracts from various journals related to unusual source of poisoning in humans.

- Drug research and warnings.

iii) REVIEW BY PTC members:

Once the contents are prepared by the hospital pharmacist, it can be reviewed by PTC members.

The clinical pharmacist should ensure that there should be an abstract of minutes of meetings.

conducted by PTC committee. The changes can be suggested by any member of PTC. The reviewed and finalized news letters is ready for publication.

Generally the size of pharmacy news letter is 8.5 X 12 inches

iv) DISTRIBUTION:

→ It can be distributed to various pharmacy colleges, medical institutions and other hospitals.

→ By sharing the information to various hospital staff

They will upgrade the knowledge on drugs.

and human research are carried out in an ethical manner in accordance with national and international law.

ETHICAL REVIEW PROCEED:

Biomedical research involving human participants should be cleared by a appropriately constituted institutional ethics committee (IEC). It is also referred as institutional review board [IRB], Ethics review board [ERB], Research ethics board (REB) in other countries to safeguard the welfare and rights of the participants. There are also independent ethics committee functioning outside institution for those researchers who have no institutional attachments or work in institution with no ethics committee.

The main IEC may review proposal submitted by undergraduate or post graduate student or if necessary the committee may be separately constituted for the purpose which will review proposal in the same manner as described above.

RESPONSIBILITIES OF IEC:

- To protect the dignity, rights and well being of potential research participants.
- To ensure that universal ethical values and international

Scientific standards are expressed in terms of local community values and customs.

→ To ascertain the development and the education of research community responsive to local health care requirements.

COMPOSITION:

→ The IEC should be multidisciplinary and multisectorial in composition. Independence and competence are the two hall marks of IEC.

✕. → The no. of persons in an ethics committee should be kept fairly small (8-12) members. It is generally accepted that a minimum of 5 persons is required to form the quorum without which a decision regarding the research should not be taken.

→ The IEC should appoint from among its members a chairman who should be from outside the institution and not head of the same institution to maintain the independence of the committee. The member secretary should be from the same institution and should conduct business of the committee.

→ Other members should be mix of medical / non-medical, scientific / non-scientific including lay person to represent the different point of view.

X4M The composition may be as follows:

Sl. No.	MEMBER OF ETHICS COMMITTEE	DEFINITION / DESCRIPTION.
1.	Chair person / vice chair person (optional) <u>qualification</u> : A well respected person from background with prior experience of having served in an ethics committee	→ The chair person should be non-affiliated person and will have all the powers of taking decision and is elected by all members of EC. → In case of anticipated absence of chair-person, vice chairperson can have all the powers of chair-person. → He or she has to ensure active participation of all members → Handle complaints against researchers, EC members.
2.	Member secretary / alternate member secretary (optional) <u>qualification</u> : Should be a staff member of institution. Should have knowledge of clinical research and ethics to be motivated, have good communication skills.	→ Ensure training of EC secretary and EC members. → Ensure adherence of EC functioning to the SOP (standard operating procedure) → Prepare for and respond to audits and inspections. → Assess the need for expedited review / exemption from review or full review.
3.	Basic medical scientist / affiliated or non affiliated. <u>Qualification</u> : Non medical / medical person with qualification in basic medical science.	→ Scientific & ethical review with special emphasis on intervention, benefit-risk analysis, research design, methodology and statistics, progress and completion report.

<u>S.No.</u>	<u>MEMBER OF ETHICS COMMITTEE</u>	<u>DEFINITION / DESCRIPTION</u>
4.	Clinical expert affiliated / non-affiliated. <u>Qualification</u> : Should be individual recognised medical qualification expertise & training.	→ Scientific review of protocol including review of intervention, benefit risk analysis, research design, methodologies, sample size, site of study, statistics.
5.	Legal expert affiliated / non-affiliated. <u>Qualification</u> : Should have basic degree in law from a recognised university with experience and training in medical law.	→ Ethical review of the proposal, clinical trial agreement regulatory approval, insurance document and other site approvals.
6.	Social scientist / philosopher, ethicist, theologian affiliated or non-affiliated. <u>Qualification</u> : Should be a individual social, behaviour, science, philosophy / religious qualification.	→ Ethical review of the proposal, assess impact of community involved, socio-cultural context, religious or philosophical context.
7.	Scientist affiliated / non-affiliated. <u>Qualification</u> : Having a doctoral degree in other department	→ Same as basic medical scientist
8.	Lay person non-affiliated (lab technician) <u>Qualification</u> : Layperson from the public or committee has not pursued a medical science or health related career in last 5 years.	→ Assess on societal aspects if any, evaluate benefits or risk if any from the participant perspective and ethical review of proposal.

REVIEW PROCESS:

→ The method of review should be stated in the SOP (Standard Operating Procedure) whether the review should be done by all reviewer or primary reviewers in which case brief summary of the project with informed consent and patient information sheet, advertisement or brochure if any should be circulated to all other members. The ethical review should be done in formal meeting & EC should not take decision ^{throughout} ~~from~~ circulation of proposals. The committee should meet regularly and should not keep decision pending for more than 3-6 months which may be defined in the SOP.

PERIODIC REVIEW:

→ The ongoing research may be reviewed at regular interval of 6 months to 1 year as may be specified in SOP of ethics committee.

CONTINUING REVIEW:

→ The IEC has the responsibility to continue reviewing approved projects for continuation, new information, adverse event monitoring, follow up and later after completion if needed.

INTERIM REVIEW:

Each IEC should decide special circumstances and the mechanism when an interim review can be resorted to by a sub-committee instead of waiting for scheduled time of the meeting like reexamination of proposal already examined by IEC. However decision taken should be brought to the notice of the main committee.

MONITORING:

Once IEC gives certificate of approval it is a duty of the IEC to monitor the approved studies. Therefore a oversight mechanism should be in place. Actual site visit can be made especially in reporting of adverse events or violation of human subjects. Additionally periodic status report must be asked for an appropriate interval based on safety concerns and this should be specified in the SOP of the IEC.

SUBMISSION OF APPLICATION:

The researcher should submit application in a prescribed format along with the study protocol. Protocol should include :-

- The title with signature of the principle investigator and co-investigator.
- Clear research objectives and need for the study.
- Recent curriculum of the investigator indicating qualification and experience.
- Participant recruitment procedure and brochure.
- Inclusion and exclusion criteria for human subjects.
- Precise description of methodology of the proposed research include sample size, study design, route of administration, duration of treatment and details of invasive procedure.
- Plan to withdraw or withhold standard therapy in the course of research.
- Plan for statistical analysis of the study.
- Procedure for seeking and obtaining informed consent with sample and patient information sheet with informed consent sheet with local language.
- Safety of proposed intervention, any drug or vaccine to be tested including result of  laboratory animal or human research.

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RECORD KEEPING:

→ All documentation and communication of IEC are to be dated, filed and preserved according to written procedure. Strict confidentiality is to be maintained during access and retrieval procedures. The following records should be maintained for the following -

- i) Constitution and composition of IEC.
- ii) Signed and dated copies of the latest curriculum vitae of all IEC members with records & training if any.
- iii) Standard operating procedure of IEC.
- iv) National and international guidelines.
- v) Copies of protocol submitted for reviews.
- vi) All correspondence with IEC members and investigators regarding application, decision and follow up.
- vii) Agenda of all IEC meetings.
- viii) Minutes of all IEC meetings with signature of chair person.
- ix) Copies of decision communicated to applicants.
- x) Record of all notification issued for premature termination of a study with a summary of reasons.
- xi) Final report of the study including microfilms, CDs, and video recordings.

It is recommended that all records must be safely maintained after completion or termination of study for a period of 3 years if its not possible to maintain the same for more than that due to resource crunch and lack of infrastructure.

DRUG STORE MANAGEMENT

A drug store is defined as a sub-organisation in the hospital where materials, drugs are held in proper storage conditions till the time they are inspected, approved, and stocked. The store should maintain a regular flow of materials and proper storage conditions.

OBJECTIVES

- The main objectives of drug store management are to preserve, stock, to procure & supply drugs of all types
- To store drugs required in research work.
- To maintain records of receipt & issue of drugs.
- To supply drugs to consuming department

LAYOUT

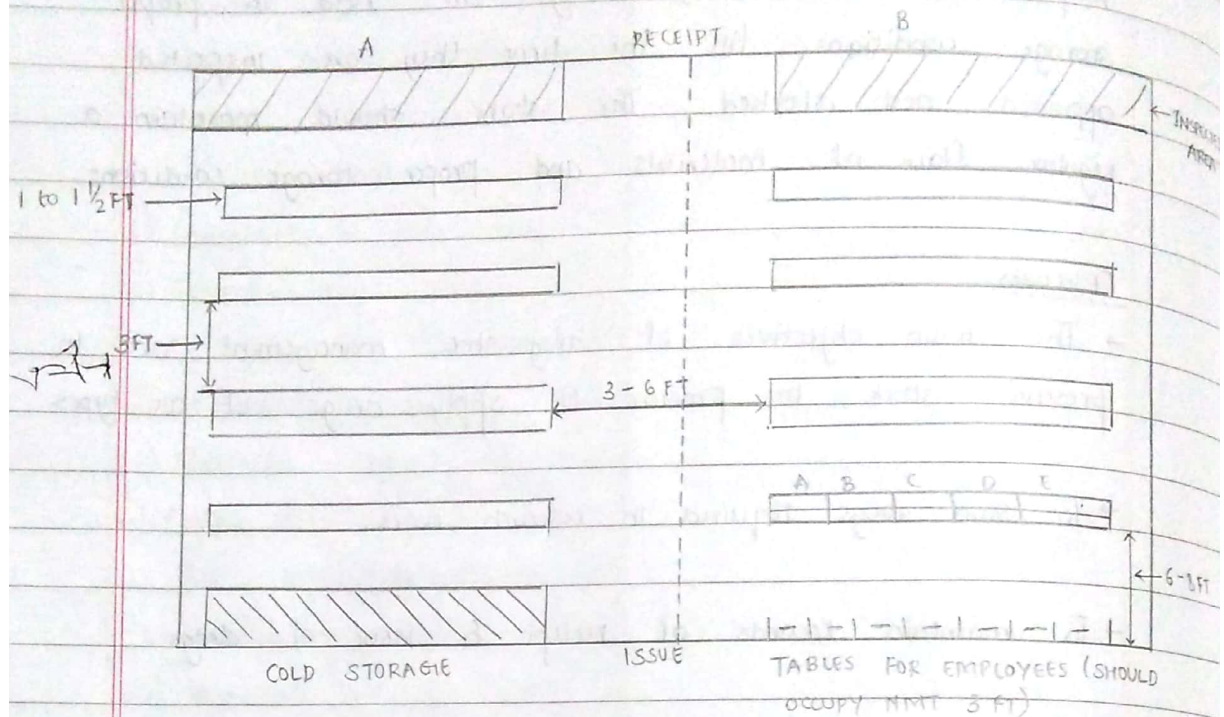
- It must be located on the ground floor and close to the pharmacy in an area of about 600-1000 sq ft. It must have 2 entries, one for receiving and another for issuing of materials.
- Racks are used for storing materials & closed bins for costly items.

Products and drugs are identified on the basis of special codes -

- i) F, S, N - Fast moving, Slow moving, non moving
- ii) H, M, L - Heavy, Medium, light material

Thus the fast moving materials are placed near the exit while the non-moving away from the exit. Heavy items

are placed at the base and light items on the top of racks



TYPES OF MATERIALS STOCKED:

- i) Capsules, tablets, liquid dosage forms and injection etc.
- ii) Alcohol and alcohol containing preparations.
- iii) Poisons are stored in separate closed rack labelled as poison.
- iv) Narcotics and psychotropics substances are stored under lock and key.
- v) Vaccines and other thermolabile drugs are required to be stored at cold temperature ($2-10^{\circ}\text{C}$). Antibiotics, vitamins, liver preparations etc. should be stored at cool temperatures ($15-20^{\circ}\text{C}$). ~~for~~

vi) Costly and Schedule X drugs should be stored separately under lock & key.

vii) Biological preparations, antibiotics are stored properly in refrigerator.

viii) Large bulk items on bottom.

STORAGE CONDITIONS:

→ Drug stores are used to store all kinds of material like capsules, tablets, liquid dosage forms, injections, antibiotics, narcotic & psychotropic substances and poisons.

i) Cold storage ($2-8^{\circ}\text{C}$)

ii) Cool temp ($8-25^{\circ}\text{C}$)

iii) Room temp (temp prevailing in working area)

iv) Warm ($30-40^{\circ}$)

v) Excessive heat ($>40^{\circ}\text{C}$)

Storage at cool temp:

List A: These are the drugs that require storage at $2-8^{\circ}\text{C}$. These include sera, vaccines, whole human blood, normal human plasma, thrombin, thromboplastin, and wiper in solution, oxytocin and vasopressin, insulin preparation, posterior pituitary preparation, human gamma globulin injection.

List B: These are the drugs that require storage at $20-25^{\circ}\text{C}$ which includes antibiotics, blood preparation, hormone vitamin preparations & others.

All drugs should be stored according to conditions described on the label. When specified on the label controls for humidity, light should be maintained. Monitoring is conducted at points representing the extremes of temperature range based on temperature mapping.

Refrigerators and freezers used to store drugs should be well maintained, equipped with alarms, free from frost build up, allowed for adequate air distribution and orderly storage within the chamber.

Have sensors for continuous monitoring and alarms located at the points representing the temperature extremes.

INFECTION CONTROL COMMITTEE * 5MDefinition:a) Infection control:

The process by which health care facilities develop and implement specific policies and procedures to prevent the spread of infections among health care staff and patients.

b) Nosocomial infections: (Hospital acquired infection)

An infection contracted by a patient or staff member while in a hospital or health care facility.

c) Disinfection:

The process of microbial inactivation that eliminates virtually all recognised pathogenic micro-organisms but not necessarily all microbial forms.

Ex:- Spores

INFECTION CONTROL:

Hospital acquired infections are a common problem and prevalence rate of 9%. Hospital acquired infections lead to over use of anti-microbials and poor infection control practices. It can also increase the cost of health care. In a study conducted by world bank there ~~there~~ was 2/3rd of developing countries, spent more than 50% of their health care budgets on hospitals. Effective infection control programmes are beneficial to decrease spread of nosocomial infections, morbidity, mortality and health care costs.

Poor infection control practices especially in ICU results in cross transmission of antibiotic resistant bacteria. Resistant bacterial prompts even greater antibiotic

use by physicians. Perception of knowledge by physicians of sterilization, disinfection or patient care practices prompts increased antibiotic use.

Ex:- Broad spectrum and prolonged surgical prophylaxis in an effort to prevent infections.

EPIDEMIOLOGY OF NOSOCOMIAL INFECTIONS:

Most common sites for nosocomial infections -

- i) Surgical incisions.
- ii) Urinary tract (catheter related)
- iii) Lower respiratory tract.
- iv) Blood stream

→ Common micro-organisms are -

- Aerobic gram +ve cocci : Ex:- Staphylococcus aureus, Enterococci
- Aerobic gram -ve bacilli : Ex:- Klebsiella pneumoniae, pseudomonas aeruginosa, Enterobacter species, E. coli

MULTIDRUG RESISTANT ORGANISMS:

Ex:- Mycobacterium tuberculosis, Salmonella species, Shigella species

ROUTE CAUSES OF NOSOCOMIAL INFECTION:

- Lack of training in basic infection control
- Infection control infrastructure
- Poor IC practices.
- Inadequate facilities and techniques for hand hygiene.
- Lack of isolation precautions and procedures. Use of advanced and complex treatments without adequate training and supporting infrastructure including:
 - a) Invasive devices and procedures
 - b) Complex surgical procedures.
 - c) Interventional obstetrics practices.

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- d) Urinary catheters
 - e) Mechanical ventilation

INFECTION CONTROL COMMITTEE (ICC)

Members of IC:

- 1) Doctors
 - General physician
 - Surgeon
 - Clinical microbiologist
 - Infectious disease specialist
- 2) Infection control nurse
- 3) Representatives from other relevant departments
 - Laboratory
 - House keeping
 - Pharmacy and central supply
 - Administration

GOAL OF ICC:

- To prevent the spread of infections within the health care facility.

FUNCTIONS:

- Addressing food handling, laundry handling, cleaning procedures, visitation policies and direct patient care practices.
- Obtaining and managing critical bacteriological data and information
- Developing and recommending policies and procedures pertaining to infection control
- Intervention of directly preventable infections
- Educating and training health care workers, patients & non-medical care givers.

CORE STRATEGIES TO REDUCE NOSOCOMIAL INFECTIONS - HAND HYGIENE:

- To ensure appropriate hand washing techniques
 - i) Provide sinks, clean water & soap at convenient locations.
 - ii) Where sinks, clean water and hand washing supplies are unavailable, use alcohol based products which are inexpensive.
 - iii) Monitor compliance.
 - iv) Use gloves where necessary.

ISOLATION AND STANDARD PRECAUTIONS:

- Whenever possible avoid crowding wards.
- Implement specific policies and procedures for patients with communicable diseases
 - a) Private rooms and wards for patients with specific diseases.
 - b) Visitation policies.
 - c) Hand washing and use of gloves.
 - d) Gowns when appropriate.
 - e) Masks, eye protection.
 - f) Precautions with sharp instruments and needles.

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ENSURING A CLEAN ENVIRONMENT:

- i) Establish policies and procedures to prevent food and water contamination.
- ii) Establish a regular schedule of hospital cleaning with appropriate disinfectants in Ex: wards, operating theatres and laundry.
- iii) Disposal of medical wastes safely.

CLEANING, DISINFECTION AND STERILISATION OF INSTRUMENTS AND SUPPLIES:

- i) All objects to be sterilised or disinfected should first be thoroughly cleaned.
- ii) Use quality control techniques where ever essential.
Ex: • Chemical indicators are necessary for chemical sterilization
• Biological indicators should be used to ensure sterilisation
• Monitor and record sterilization parameters, i.e., temp, time, pressure.
- iii) Sterilized items must be stored in enclosed clean areas.
- iv) Items or devices that are manufactured for single use should not be reprocessed. Ex: Disposable syringes and needles.

STERILE INVASIVE PROCEDURES AND IV MEDICATIONS:

INTRAVASCULAR DEVICES:

- Silicon elastomer or polyurethane catheters have lower infection risk than polyvinyl catheters
- Procure IV solutions and IV devices from quality suppliers when issued GMP
- Prepare and administer IV medicines and fluids in a sterile manner

URINARY CATHETERS:

- i) Avoid in-dwelling urinary catheters whenever possible.
- ii) Use closed drainage systems.

- 2M:
- Define ICC
 - Role of ICC in a hospital
 - Members of ICC

RESPIRATORY THERAPY:

- Use suction catheters only once
- Ensure proper handling of inhalation medicals and supplies.

SURGERY AND SURGICAL SITE CARE

EMPLOY HEALTH AND TRAINING PROGRAMME:

- Provide vaccination to decrease infections.
Ex:- Protein vaccinations like hepatitis A & B,
BCG, tetanus and polio.
- Train health workers in infection control procedures, appropriate sterile techniques and use of certain procedures in cleansing the hands and wearing the gloves.

ANTIMICROBIAL USE & MONITORING:

- Establish protocols recommending use of most cost effective agents when treatment is indicated.
- Measure antimicrobial use to identify misuse.
- Implement interventions to improve anti-microbial use.

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PROCUREMENT OF MEDICATIONS/DRUGS (Purchase procedure)

- The basic purpose of purchase is to ensure continuous flow of raw material of right quality, right quantity, right types and from right sources.
- Another objective of purchasing is the avoidance of duplication and wastage with respect to various items purchased.
- Centralised purchase by medical stores procures the drugs on behalf of all the departments and helps in getting quality drugs at cheaper rates. Some important terms explained below:-

i) RIGHT QUALITY:

Right quality means the quality which is available according to the particulars mentioned in terms of grades, brands or trade name, physicochemical characteristics, etc.

The quality must prescribe even the national standards to the extent it is possible.

ii) RIGHT QUANTITY:

Right quantity is an important parameter of purchasing for continuous supply of raw materials. Economic order quantity ~~must~~ ^{or} any other technique may be followed in order to avoid shortage.

iii) RIGHT PRICE:

The term right price means consistent matching with the quality of drug. Generally tender system is followed in hospitals and ~~for~~ ^{the} lowest bidder is chosen for supplying the order.

iv) RIGHT SOURCE:

The supplier should be dependable & capable of supplying as per requirements from time to time. The selection of supplier requires consideration of various factors.

v) RIGHT TIME:

Purchase department should have lead time information for all products. The purchase committee should consider emergency situations like floods, strikes, accidents etc...

PURCHASE PROCEDURE:

Purchase procedure involves different steps for procurement of goods. They are as under —

i) Determination of requirement:-

The materials to be purchased for particular period are well planned for the purpose of their regular and continuous use. The purchase requisition is generally prepared by departmental heads and provides the information mentioned below —

- a) Type of material to be purchased.
- b) Time of requirement.
- c) Quantity to be purchased.

ii) Source of supply:

The PTC sets adequate standards for the purchase of quality drugs. The sources are

- a) Medical store depot.
- b) Directorate general supplies and disposals.
- c) Direct from wholesalers and manufacturers.
- d) By inviting tenders.
- e) Emergency purchases from local market.

a) Medical Store depot (MSP)

This organisation has 6 medical store depots at Mumbai, Chennai, Calcutta, Karnol, Hyderabad, Guwahati. The items purchased by these organisations are subjected to various house tests and the testing units in Chennai and Mumbai. It ~~ea~~ works on no profit and no loss basis.

b) Directorate general supplies and disposals: (DGIS & D)

It calls for tenders and places the order. The payment is made only after the verification of inspection report by the ~~intn~~ indenter on the prescribed ^{pro}forma.

c) Direct purchase from wholesalers or manufacturers:

Direct purchases from wholesalers and manufacturers are done following a proper purchase procedure.

d) By inviting tenders:

Tenders are invited from various suppliers and generally the lowest bidder is chosen for supplying the order. However, price and quality both are considered as well.

e) Emergency drugs from local market:

Drugs not available at MSP, DGIS & D and any emergency drug which is out of stock can be immediately purchased from local market. For this, purchase form is prepared in duplicate. One copy is sent to the department and other copy is retained in the pharmacy.

iii) Purchase order:

After selecting the supplier, chief pharmacist or any other suitable authority prepares the purchase order.

giving detail description, specification, packaging price and quantity needed etc. of the items. Number of copies varies from hospital to hospital.

- Original copy is sent to the supplier.
- One copy for accounts section.
- One copy for purchase department.
- One copy for pharmacy.
- Fifth and sixth copy for concerned receiving department.
- Seventh copy as history copy.

Purchase Request Form ROHINI HOSPITAL, NEW DELHI.

Ref No. _____

Date _____

Code N. _____

Charge No. _____

Purchase Order No. _____

Date of supply _____

Suggested vendors:

1. _____

2. _____

3. _____

No.	Description of items required, specifications/ Pack Prepackaging	Price per unit	Units required	Total price	Quantity in hand required.

Requested by: _____

Approved by: _____

Date _____
Page _____

iv. Receipt of acknowledgement:

After placing the order to the supplier by sending a copy of purchase order, the supplier inturn sends acknowledgement of the order saying that he will be able to supply the goods with terms and conditions.

v. Receipt of drugs:

On receipt of drugs, there should be a system in the stores where by the supply of drugs received in the medical stores from the manufacturer are properly checked by person, specially assigned for this purpose. Preferably the same person is responsible for reviewing the stocks, date of expiry, description, quantity, batch number as mentioned in the order form.

Random sampling can be done to make sure that products conform to the tendered specifications like date of expiry and any visible sign of deterioration such as change of color, caking, etc... If any such deterioration is observed, the matter should be reported to the medical superintendent and local drug inspector. After thorough examination of drugs the above officer should "give" no objection to accept the supply" in writing on the hospital copies of delivery challans.

vi) Distribution of drugs to wards:

Drugs should be supplied in the original packing of manufacturers. Name and quantity of the drug should be properly labelled. It is always advisable that suitable precautions should be taken to dispose of original empty containers in order to avoid their mis-use.

14.02.19.

10M. X. INVENTORY CONTROL

The actual meaning of word inventory focuses on attention on cataloguing the materials related to stores. It is a list of schedule of articles and is considered to be an ideal source that possesses economic values.

It is nothing but a stock of goods that we maintain to facilitate the continuous production of goods or services. The mismanagement of inventory increases the cost of health care services.

OBJECTIVES OF INVENTORY CONTROL (IC):

→ The main purpose of having inventory control is

- i) To supply the drug in time
- ii) To give maximum customer service
- iii) To reduce or minimize inventory investment
- iv) To maintain planned operation at lowest cost
- v) To avoid stock out and shortages.
- vi) To use capital profitable.
- vii) To avoid wastage.

TECHNIQUES OF INVENTORY CONTROL:

Different techniques commonly used to control the inventory are planning, acquisition, control of material and shortage. The following techniques are commonly used -

- i) ABC analysis
- ii) EOQ analysis (Economic order Quantity)
- iii) VED analysis
- iv) Perpetual inventory system.
- v) Review of slow and non-moving items.
- vi) Setting of various levels.
- vii) Use of material budgeting.
- viii) Establishing an effective purchase procedure.
- ix) Computerisation of inventory control.

x) Buffer stock.

i) ABC ANALYSIS:

ABC analysis is very common tool in drug stores where large inventory items are stocked.

A: Always

B: Better

C: Control.

In this technique materials are divided into 3 groups - A, B & C according to the cost of materials and money value of consumption.

a) Class-A: This group includes some of the costliest items which may not be more than 10-15% of the total items but account for about 70-80% of the total budget of inventories. [50% emergency drugs].

These type of items require proper storage conditions. Only necessary quantities of these inventories are purchased and stocked, over stocking is always avoided.

b) B-CLASS: This class is intermediate between A & C in terms of the cost of the items. The items in class B constitute 20-25% of the total quantity of the inventories while account for 20% of the total expenditure of inventories.

c) C-Class: The items in class-C are relatively cheaper in cost and represents 60-70% of total quantity of the inventories. About 5-10% of the total expenditure of the inventories is spent on these items.

CATEGORY	% OF ITEMS	% OF ANNUAL EXPENDITURE
A	10-15	70-80
B	20-25	15-20
C	60-70	5-15.

ADVANTAGES OF ABC ANALYSIS:

→ Following are the main advantages of ABC analysis -

- Easy to control on costly items.
- Suitable for maintaining safety of total stock value.
- Easy to maintain stock and turnover rate.

ii) ECONOMIC ORDER QUANTITY:

This technique is very useful to ascertain how much of the inventory is to be ordered. The correct quantity to buy is the quantity at which the ordering cost and the inventory carrying cost will be minimum.

The ordering cost consists of the cost of stationary, salary of employee, storage, followup, receiving inspection, packing charges and transportation. This method is useful for avoiding some expenditure which are generally not required.

Mainly 3 methods are used for determination of EOQ:

- Tabular determination of EOQ
- Graphic presentation of EOQ.
- Determination of EOQ by an algebraic formula.

Here EOQ determination is discussed by using the following formula

$$EOQ = \sqrt{\frac{2A \times B}{Cs}}$$

where A = Annual consumption

B = Buying cost for order.



C = cost per unit of material.

S = storage & other inventory carrying cost.

iii) VED ANALYSIS:

It is based on the importance of the item and its effect on the functioning and efficacy of the hospital.

a) Vital Drugs: Such drugs are categorised as vital whose absence (low stock) cannot be tolerated even for a single day. That means their absence would mean the work of hospital or wards / patient care to come to stand still.

b) Essential Drugs: Essential drugs are those drugs without which the hospital can function but may affect the quality of service to some extent but not to a very serious extent. ~~but not to a very serious extent~~

c) Desirable drugs: Desirable drugs are those whose absence will not affect the functioning of hospital / ward / department / patient care and it can be managed at lower level managers

iv) Perpetual inventory system: Maintaining a ^{never changing} perpetual inventory is an ideal method provided the record keeping is up to date. In small pharmacies, at the end of the day, the pharmacist can summarise all drugs, charge slips & make appropriate postings in the perpetual inventory file. One of the methods is called 'peg board' that requires a peg board and requisition forms with holes evenly placed and punched along the top. The perpetual inventory system comprises of 3 parts -

i) Bin card

ii) Stores ledger

iii) Continuous stock-taking

Store ledger is a very useful inventory control system. It contains loose leaf cards for easy removal & insertion. It is used to maintain all costly items.

Description of material :

Bin No.:

Code No :

Normal quantity to order :

Stores ledger folio No. :

Maximum stock level :

Re-order stock level :

Date	Receipt		Issue		Balance
	Sl. R. No.	Quantity	S. R. No.	Quantity	Quantity

5) REVIEW OF SLOW AND NON-MOVING ITEMS: Inventory is an important constituent of total cost and as such a proper system of inventory control. It is divided into 3 parts:-

a) Periodic report: It consists of monthly / quarterly reports of stocks of non-moving items. It shows purchase, consumption & balance in hand of such items.

b) Obsolete items: This list may consists of slow & non-moving items. Its useful to control the purchasing these items.

c) Moving ratios: This shows the turnover of slow moving items, inactive and dead stocks. The moving ratio may be calculated periodically.

6) Setting of various levels: This method is useful to maintain IC to decide upon various levels of materials. These are maximum, minimum & reorder levels. The level of the particular items may be changed on basis of demand.

The level of maximum stock is fixed by considering following points.

- Nature of material.
- Restrictions of Govt.
- Rate of consumption of material.
- Market trend
- Storage space available
- Amount of capital needed
- Amount of capital available
- fashion habits
- Risk involved due to accident.
- lead time from the date of placing order.

Maximum level = Reorder level + Re-order quantity + Minimum consumption.

Minimum consumption = Minimum consumption (per year) X Minimum reorder period.

7. Use of material budgeting: In this method purchase budget of both the whole stock & individual items is prepared. Following factors are to be considered during the preparation of material budget.

- Sales status - increase / decrease in previous month as compared with previous year.

• Management of over buying / under buying during previous month / year.

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8. ESTABLISHING AN EFFECTIVE PURCHASE PROCEDURE: In this method, the procedure starts with recognition of need of an item. The requirement is given in prescribed form in writing. On the basis of items, sources are identified & suppliers are selected. Order is placed with selected supplier & monitored thoroughly. After verification of invoice, payment is made accordingly.

Every business organisation prepares its own purchasing manual, which prescribes the purchase policies and procedures. The purchasing policies differ from company to company. It is true that good purchase policies and IC are interlinked with each other. If applied properly in purchasing these policies are effective in controlling the inventories.

9. MODERN COMPUTERISATION OF INVENTORY CONTROL: These days all types of purchasing & IC are made by computer application. Many software agencies are involved working on the IC system. National informatics centre (NIC) has developed software for maintaining IC throughout the year including day to day facilities. Computerized system is highly useful as compared to other system of IC due to following advantages—

- a) Very fast system
- b) Multiplies the data in shortest period of time.
- c) Minimum investment required.
- d) Minimum space required.
- e) Easy to handle using pen-drive, CD etc...

10. BUFFER STOCK: This is useful in the emergency to meet the unexpected demands. It means to maintain atleast the minimum quantity of a particular item in the stores at all times. Buffer stock requires following factors for consideration.

- Lead time.
- Nature of item.
- Speed of consumption.
- Availability of substitutes.
- Re-order level.
- Stock out cost.

20.02.19.

10M.X. DRUG DISTRIBUTION SYSTEM TO INPATIENT SERVICES:

The drug distribution to the inpatient department can be carried out from the out patient dispensing area. The staff handling the distribution of drugs to out patients can carry out the distribution of drugs in inpatient department. If the work load is too much additional personnel may be employed. This system may be economical as extra expenditure on building and staff will be saved. More over this system has additional advantage that the director or chief pharmacist can exert a great degree of control and supervision on the activities of the pharmacist.

Since in the inpatient department a great deal of nursing time is consumed by the frequent trips to the pharmacy to obtain drugs and supplies, it is appropriate and advisable that the hospital pharmacist must assume the responsibility for medications from the time of selection to the time of administration.

~~Drugs on nursing stations can be classified into~~ There are 4 systems for inpatient drug distribution department

- i) Individual prescription order system.
- ii) Complete floor stock system.
- iii) Combination of 1 & 2
- iv) Unit dose dispensing method.

i) INDIVIDUAL PRESCRIPTION ORDER SYSTEM:

This system is in small and private hospitals because of its economic consideration and reduced manpower requirements. This system has the following advantages -

- i) All the medication orders reviewed by the pharmacists so that there are less chances of medication errors.
- ii) It provides closer association among pharmacist, physician, nurse and the patient in medication matters.

iii) It provides closer control of inventory

Disadvantages:

-i) There may be possible delay in obtaining the required medication for administration to the patient.

ii) Increase in cost to the patient.

(ii) COMPLETE FLOOR STOCK SYSTEM:

Under this system the nursing station carries both "charge and non-charge" patient medication. According to this system the drugs are stored at the nursing station and are administered by a nurse according to the chart order of the physician. Only the commonly used drugs in considerable quantities are stocked in floor stock method or in the ward. Rarely used ^{or} costly drugs are not included in the floor stock method or system but dispensed when the order is received for the individual patients. Mainly this system is used in hospitals where the charges are not made to patients.

Since these drugs are used in large quantities they are pre-packed in standard containers. Nursing staff from each floor or wards sends their written demands of drugs according to list provided to each floor and ward, daily to the hospital pharmacy herself or through a messenger and collects the medicines from the pharmacist. This system has the following advantages.

Advantages:

- i) The drugs are readily available for administration.
- ii) Minimum return of drugs.
- iii) Reduced inpatient prescription orders.
- iv) Reduction in the number of pharmacy personnel required.

DISADVANTAGES:

- i) Increase in chances of medication errors, due to lack of review by pharmacist.
- ii) Greater opportunity for misuse of drugs resulting in financial loss.
- iii) Increase in drug inventory.
- iv) Increased chances of drug deterioration, due to lack of proper storage facility.
- v) Increased chances of drug deterioration due to unnoticed drug degradation.
- vi) Increased workload on nurses due to medication activities.

The drugs on the nursing station are known as floor stock drugs they are classified into 2 parts-

- i) Charge floor stock drugs.
- ii) Non-charge floor stock drugs.

i) Charge floor stock drugs:

→ Charge floor stock drugs are those for which the patient is charged for every single dose administered to him. Selections of these drugs in various wards is decided by "PTC".

→ Once the floor stock list is prepared, it becomes the responsibility of the hospital pharmacist to make the drugs available.

→ Charge floor stock drugs are stored at various nursing stations.

→ The patients are charged mostly because of the high cost of such drugs. Such drugs include injections or other units dosage forms.

→ An envelope is used to dispense such drugs at nursing stations.

- Under this system, pre-labelled envelopes are filled with pre-determined quantity of specific drugs and are placed at the disposal of the nursing unit and.
- When the drug is administered, the patients name and room no. is entered on the envelope and sent to pharmacy for record.

ii) Dispensing of Non-Charge floor stock drugs:

Non-charge floor stock drugs are the medicaments that are placed at the nursing station for the use of all patients on the floor. For these drugs, there shall be no direct charge from the patient's account:-

a) Non-charge floor stock drugs consist of a pre-determined list of medication available on every nursing unit of the hospital. The non-charge floor stock drugs are selected on the basis of cost of drug, quantity required, frequency of use etc.,

217. X. b) 'Drug Basket method' is adopted where nurses check the medicines in all rooms and in the refrigerator and prepare a master list for the pharmacy.

c) Nurses fill a requisition form for delivery of drugs at their floor.

d) When there is an empty container, the nurse places it in the drug basket.

e) Once the procedure is completed the drug basket containing the empty containers and requisition for floor stock supplies is then sent to the pharmacy.

f) Immediately in the morning, the pharmacy staff commences to fill each container and dispenses the requested drugs.

g) Once the basket is completed, it is delivered to the floor via messenger service; and

h) Alternatively a Mobile Dispensary unit can be utilised. It is a specially constructed stainless steel truck measuring 60 inches high, 48 inches wide and 25 inches deep. It is mounted on bottom tyres, four of which are swivel type.

iii) COMBINATION OF INDIVIDUAL DRUG ORDER AND FLOOR STOCK DRUGS:

This system is used in hospitals where patients pay for their hospitalisation and the hospitals use individual prescription order system as their primary means of dispensing but have several drugs in the floor stock.

iv) UNIT DOSE DISPENSING:

In unit dose dispensing the multiples of single dose administration of medication are prepared by the pharmacist which are ready for administration to a particular patient by the prescribed route and the prescribed time rather than supplying containers of drugs to nursing unit where the nurse is required to prepare the drug for administration. A single unit package is one which contains one complete pharmaceutical dosage form. Ex:- One tablet, one capsule or 10ml oral liquid etc... liquids are pre-measured, powders are accurately weighed, ⁿparenteral preparations are suitably diluted and accurately measured and into sterile syringe and ready for administration.

Advantages:

- 1) Patients receive improved services round the clock and are charged for only those doses which are administered to them.

ii) All doses of medications required at the nursing station are prepared by the pharmacist, nurse allowing nurses more time for direct patient care.

iii) Medication errors are decreased because of direct check by the pharmacist.

ix) Excessive duplication of orders and paper work at the nursing station and pharmacy are eliminated.

x) Contamination due to handling is eliminated.

vi) It eliminates wastage of drugs and makes the proper utilization of drugs.

vii) More efficient utilization of professional and non-professional are promoted.

viii) More space is available in nursing units by eliminating bulky floor stock.

ix) Extends pharmacy coverage and control throughout the hospital from the time the physician writes the order to the time patient receives the unit dose.

x) Communication of medication orders and ~~delivery~~ delivery systems are improved.

Disadvantages:

i) The cost of medication is increased to the patient due to increased handling charges.

ii) It requires increased number of skilled and lay personnel in the pharmacy.

- iii) It requires more space since packaging material increases the bulk of the dosage forms.

There are 2 methods of dispensing unit doses:

- i) Centralized unit dose drug distribution system.
- ii) Decentralized unit dose drug distribution system

CENTRALISED UNIT DOSE DISPENSING (CUDD)

→ All inpatient drugs are dispensed in unit doses and all the drugs are stored in central area of pharmacy and dispensed at the time the dose is due to be given to the patient.

→ To operate the system as effective delivery systems, various medication carts are used to carry unit doses to the patients and also to send a copy of physicians original medication order to the pharmacy for direct interpretation and filling.

⊕ DECENTRALISED UNIT DOSE DISPENSING (DUDD)

→ This operates through small satellite pharmacies located on each floor of the hospital.

→ The main pharmacy is for procurement, storage, manufacturing and packaging. It serves to all ~~the~~ satellite pharmacies.

→ This type of system is used in a hospital with several buildings.

The following procedure is adopted in a hospital when decentralised unit dose system is adopted —

i) The patient profile card containing full date, disease, diagnosis is prepared.

ii) Prescriptions are sent directly to the pharmacist which are entered in the patient profile card.

iii) Pharmacist checks medication order for allergies, drug interactions, drug laboratory tests etc...

iv) Dosage schedule is made and co-ordinated with nursing personnel.

v) Patient profile card and prescription order is filled by pharmacy technicians.

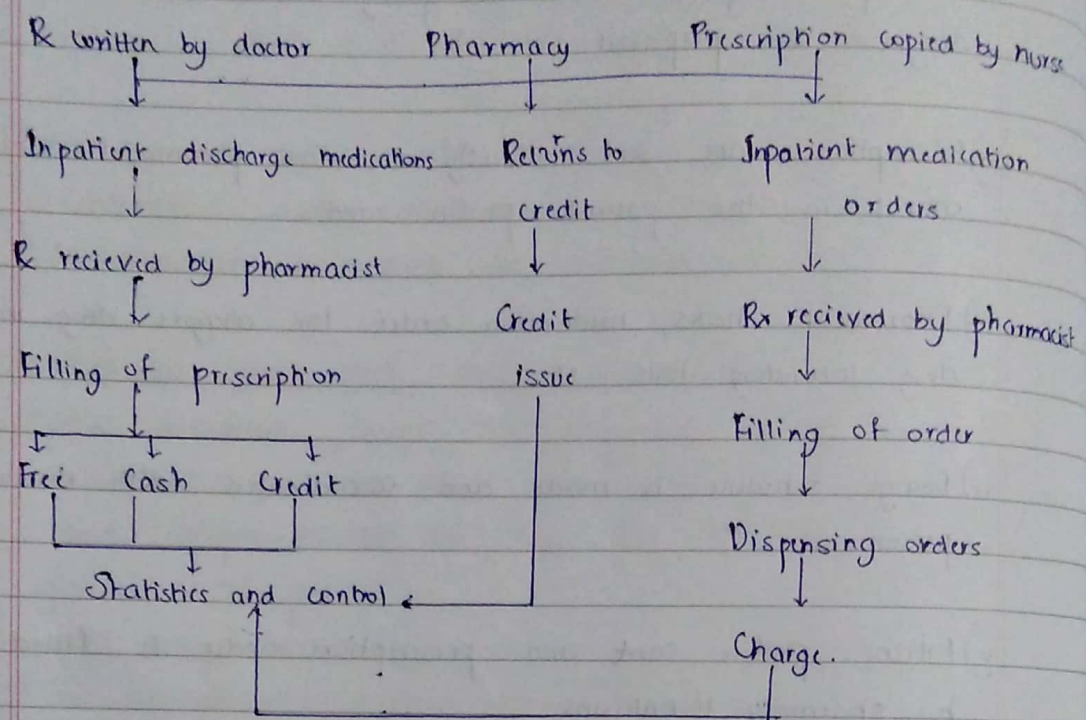
vi) Pharmacist then checks that carts prior to its release.

vii) The nurses administer the drugs and make their entry in their records.

viii) Upon return to the pharmacy the cart is re-checked.

This process requires the availability of pharmacist for consultation by doctors and nursing chart.

18.03.19. GENERAL FLOW CHART FOR INPATIENTS



DRUG DISTRIBUTION SYSTEM TO OUTPATIENTS:

Outpatient refers to patients not occupying beds in a hospital or in clinics, health care centres and other places. The drug distribution to outpatients can be described in 3 categories -

- i) Emergency
- ii) Tertiary care
- iii) Primary care.

I EMERGENCY

i) A person given emergency or accidental care for conditions which require immediate medical attention.

ii) Emergency patients suffer from serious health condition or illness

II TERTIARY CARE [Referred outpatient]

i) He is referred directly to outpatient department by his attending medical / dental practitioner for specific

treatment other than emergency department.

III PRIMARY CARE:

The primary care is majority care. It describes a range of services adequate for meeting the great majority of daily personal health needs. This majority includes the need for prevention, health maintenance and for evaluation and management of various symptoms, problems and chronic aspects of disease.

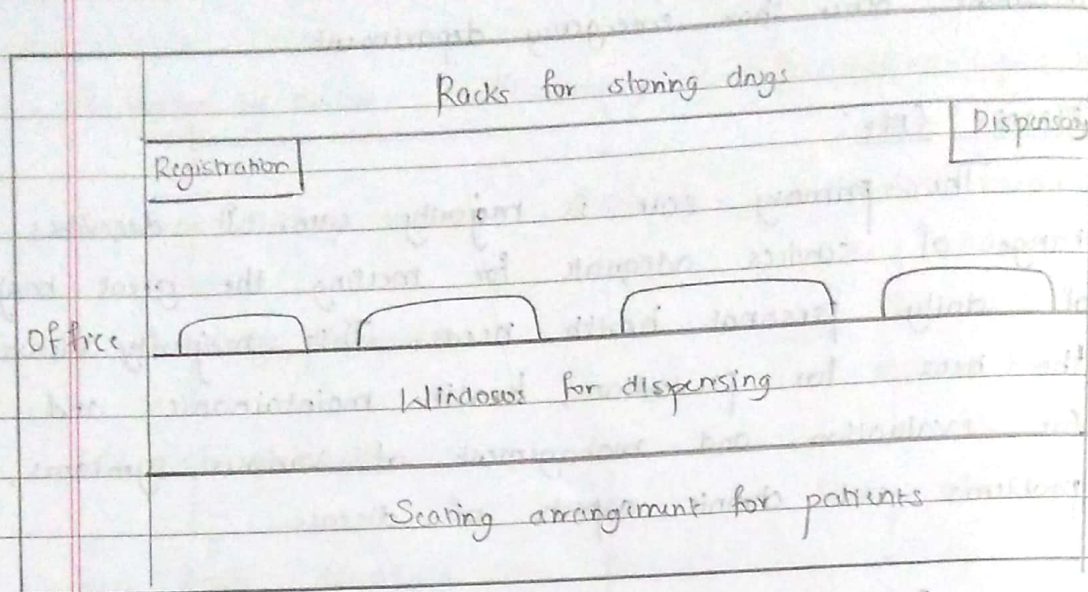
In short form the outpatient department is known as O.P.D. A patient with minor or common illness go to OPD for consultation to the physician. After examining the patient if the physician feels that there is no need of admitting the patient to the hospital ward, he prescribes the medicine and the patient is required to get prescribed medicines from the hospital pharmacy.

The prescription written by the physician is brought to the pharmacist for compounding and dispensing.

* 5M LOCATION OF OUTPATIENT DISPENSING:

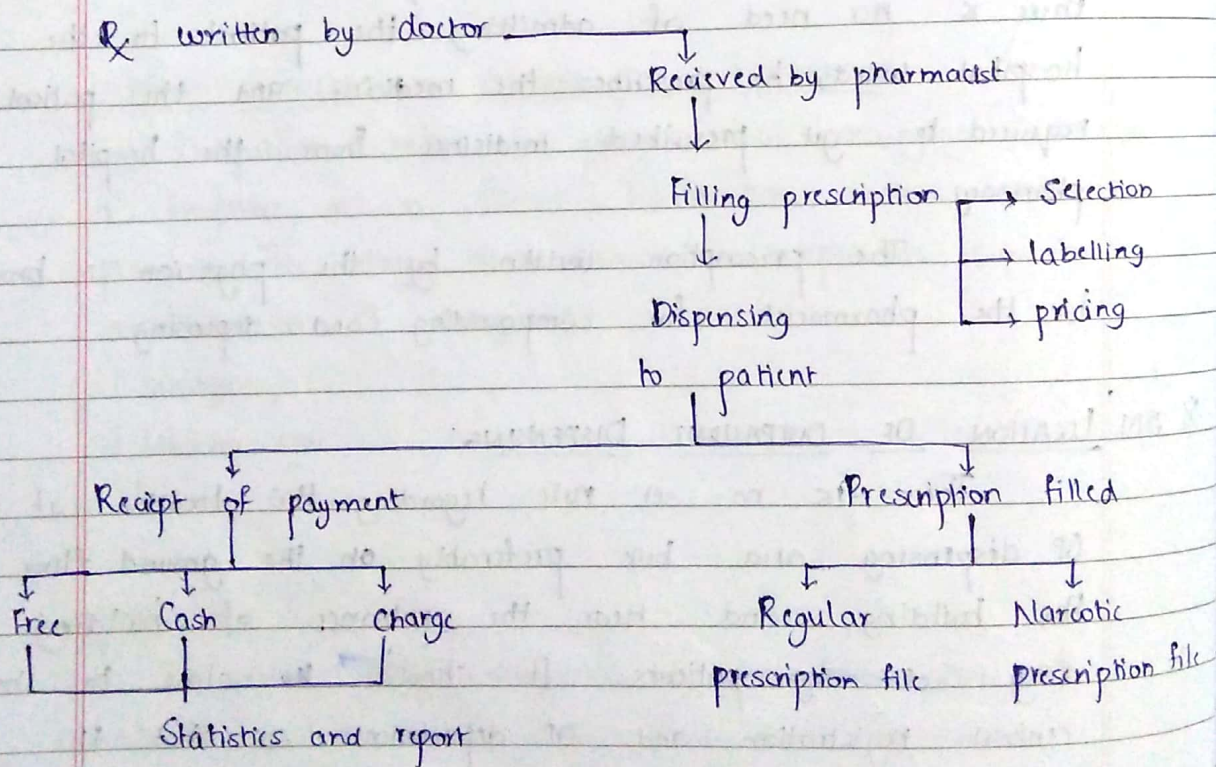
There is no set rule regarding the location of OP dispensing area but preferably on the ground floor of the building and near the entrance of building for easy access by patients. It should be close to the central registration and OP departments so that the patient does not find any difficulty in its location.

The outpatient dispensing area should be provided with proper seating area so that if long time is needed for filling the prescription, the patient can wait till the prescription is filled.



TYPICAL LAYOUT OF OPD

OUTPATIENT ACTIVITY CHART:



2Mx: DISPENSING OF DRUGS TO AMBULATORY PATIENTS:

An ambulatory patient is able to walk and since OP receive 1^o health care and walk off, they are wrongly called ambulatory patients. However majority of OP are ambulatory.

Definition:

STEPS INVOLVED IN DISPENSING:

- i) After the registration is over, the patients are directed for a particular department. ii) Physician then diagnoses the disease and then writes the prescription bearing name, age, gender, reg no. medication schedule and disease.
- iii) Patient produces the sample prescription to the pharmacist for dispensing.
- iv) While dispensing a prescription, pharmacist should take every precaution. To eliminate errors he should not make any facial expressions. The prescription should be received without raising any doubts in the mind of patient.
- v) In case pharmacist needs any clarification about the prescription, he should contact physician without the knowledge of patient.
- vi) Pharmacist checks the ingredients & collects materials for compounding & dispensing. Most of ingredients are liquid, tablets or capsules.
- vii) The compounded prescription is filled in a container and

labelled with detail instructions including name, age, gender, reg. no. and directions for use & storage.

viii) The pharmacist shall maintain a register for the purpose of accounting. Usually mixture, lotion, ointments, and powders are not recorded. But costly drugs Ex:- Injections, antibiotics etc... are issued should be recorded.

ix) Prescription is given back to the patient so that the same should can be produced by during his next visit.

x) Prescription related to schedule G, H and X are to be written and dealt with the provision of drugs and cosmetic act.

DISPENSING OF CONTROLLED SUBSTANCES / DRUGS:

In large hospitals dangerous drugs like opium derivatives, morphine and pethidine are used for various purposes. Barbiturates and non-barbiturates are also used as CNS depressants. To exercise control on use of these drugs, narcotic and psychotropic substances act in 1985 was passed and such substances are entered in schedule X of drugs and cosmetics act (1940).

While maintaining stock of these drugs, they should be kept under lock and key and must be accurately received and issued. A separate register should be maintained to record them and a controlled procedure is used to issue or receive these drugs.

STEPS INVOLVED IN DISPENSING:

i) Medical superintendent is overall responsible for handling of controlled drugs. Chief pharmacist, provides

stores and is responsible for proper dispensing of drugs within hospital.

ii) Prescription for narcotic drugs under narcotic and psychotropic substances act 1985 must include following information-

- Name (Pt's name full)
- Address
- Date
- Name and strength of drug
- Quantity of drug
- Signature of prescriber
- Dose and route of administration

DAILY CONTROLLED DRUG ADMINISTRATION

SAGAR HOSPITAL PHARMACY				
Patient's full name:		Age:	Gender:	
Address:				
Name of drug	Specific description of drug	No. of tablets/ Capsules	Strength used	Duration

Physician's sign

Pharmacist's sign

iii) If the required drug is not in stock, the controlled drug prescription must be written on the hospital prescription blank form by registered medical practitioner and then it is signed and sent to hospital pharmacy.

- iv) The delivery of narcotic drugs from the pharmacy to wards and nurse's station must be carried out through some reliable persons.
- v) Charges for narcotic and psychotropic substances depends upon policy of hospital. It could be like the charges may be made for individual dose or flat charges for all narcotics and hypnotics.
- vi) After the dispensing of narcotic drugs by the pharmacy nurses resume the responsibility for administration, control and auditing of the inventory. Nurses on duty count physically narcotics on each nursing station to check the records.
- vii) While administering a dose if patient refuses or doctor cancels any dose it is the duty of nurse to destroy the drug into the sink and record "refused by the patient" or "order cancelled by the doctor". Nurses should always maintain a proper record in case of wastage / destruction / contamination.

CENTRAL STERILE SERVICES DEPARTMENT: (CSSD)

The central sterile services department (CSSD) also called also called sterile processing department (SPD) or central supply department (CSD) is an integrated place in hospitals and other health care facilities that performs sterilization and other actions on medical devices, equipment and consumables for subsequent use by health workers in the OT of hospital and also for other aseptic procedures.

Ex:- Sterilization of surgical instruments for the purpose of medical, surgical, maternity or paediatric ward.

OBJECTIVES AND FUNCTIONS:

The CSSD is divided into 5 major areas:-

- i) Decontamination.
- ii) Assembly and processing.
- iii) Sterilizing
- iv) Sterile storage.
- v) Distribution.

The objectives of CSSD include the following:-

- To provide better patient care by prompt and accurate services
- To provide sterilization instruments for the purpose of sterilization.
- To maintain an adequate inventory of supplies and equipment.
- To strive for uniformity and simplicity in the trays and sets that the department provides
- To operate efficiently to reduce overhead expenses
- To provide consulting services to other departments in all areas of sterile processing and distribution including education programs, review policies and procedures

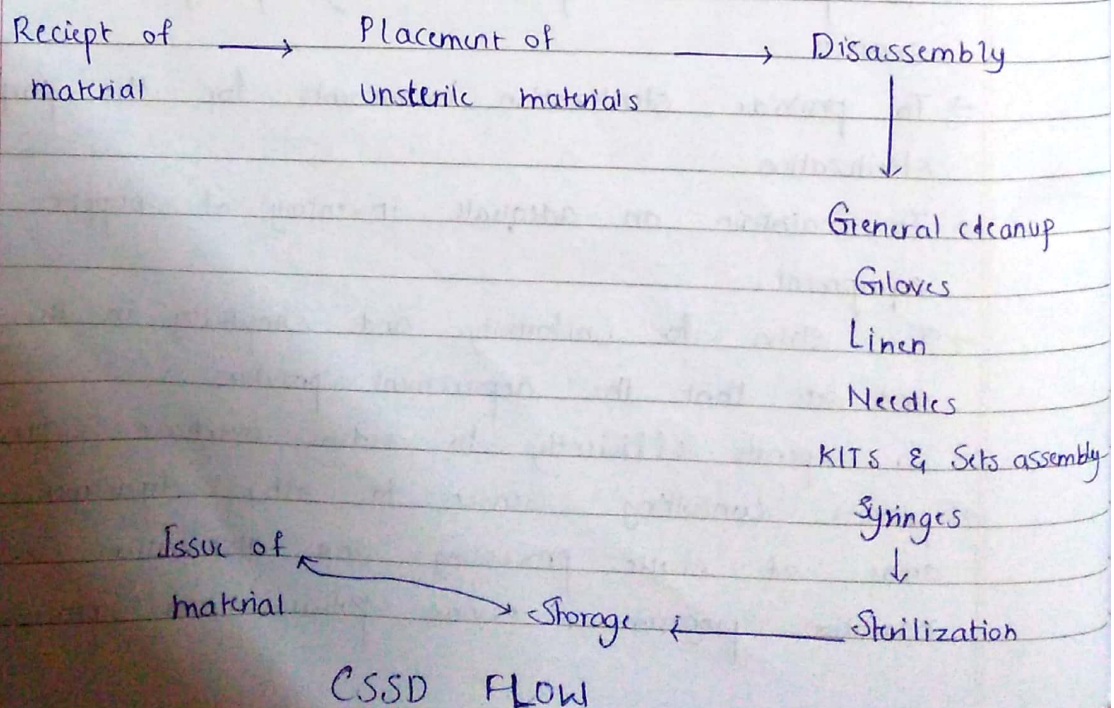
- and also implementation of new processes
- To monitor and enforce controls necessary to prevent cross infection according to infection control policies.
 - To implement changes as needed to stay ^{with} current new regulations and recommended practices.

CSD IN A HOSPITAL ORGANISATION:

- In many hospitals CSD is a subdepartment run by the nursing supervisor
- In some hospitals the pharmacist heads the manufacturing unit, manufacturing parenteral formulations and operating sterilization techniques. Thus in some hospitals CSD will be under the control of pharmacy and nursing departments.

STAFF:

- Persons who are trained up in the methods of sterilization, working and maintenance of surgical equipments and also biological testing are recruited to the CSD.



ii) A multidisciplinary team approach is central to the role of sterile services management in preventing the spread of hospital acquired infection. The following team members are actively involved in the CSSD-

- Team leaders
- Supervisor
- A deputy manager
- Manager
- House keeping incharge.

iii) Each member of the staff has their job description. Most of the members of a team are experienced personnel who have worked in the department for 4-5 years. There are policies and procedures for the collection, transportation, delivery, sorting, dismantling, cleaning, manual and automated washing, decontamination, inspection, packaging and sterilization of all instruments and pieces of equipment that are processed through sterile services department.

PROTECTING STAFF:

- Staff are encouraged to ~~choose~~ use gloves, protective clothing, eye protection and appropriate uniform while working in decontamination area.
- Infection control hazards and health and safety issues are identified and documented
- Incidents are reported and documented. The relevant department should be contacted and informed of the incident
- For recurring incidents from a particular area, management of the CSSD will go to the offending department and discuss the issue with the person in charge
- Sharp objects found in instruments are dealt with very seriously.
- Health and safety, infection control and occupational health staff are asked to collectively deal with the incidences and departments cultured.

SUPPLY OF STERILIZED INSTRUMENTS: (Main func of CSSD)

- i) The main aim of CSSD is to provide operating theatres, wards and department with whom supply arrangements have been agreed, with all equipments and materials required for clean and sterile procedures.
- ii) Records are kept that show the competence of ultrasonic washer, disinfection solutions and sterilizers to perform their task efficiently.

- iii) Records related to packs and instrument trays issued by the department to the patients to confirm to all national and European legislation governing the use of above equipment.
- iv) Instruments that are supplied to theatres can be traced back to the sterilizer in which they were processed giving time, date, batch no., sterilizer number and identity of the instrument.
- v) All instruments are checked before they are dispatched to theatres. If a fault occurs in the sterilizer all instruments from that batch are reprocessed.
- vi) In recent years with the appearance of creutzfeld - jakob disease (CJD) and other infectious diseases a greater emphasis has been placed on decontamination of all instruments and equipment to ensure that all processes are validated to an agreed standard.
- vii) Instruments sent for repair ^{are} accompanied by a "decontamination certificate" as all surgical instruments being used for special procedures.

EDUCATION AND COMMUNICATION:

The infection control team gives lectures to the CSSD staff and they are requested to adhere to infection control protocols. Staff are also offered Hepatitis B and tetanus vaccine on employment. Communication between infection control and health and safety departments should be extremely good.

In all areas of department, staff are requested to wash their hands between all activities. This is the single most important activity in the prevention of cross-

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infection. All staff ^{who} work in CSSD have the opportunity to communicate with other parts of the hospital either by visiting wards or by telephone. A code of conduct for the staff to work in CSSD is replaced when dealing with the clients. All staffs are informed of their responsibilities under the terms of health and safety act.

CONTROL AND SPREAD OF NEW VIRUSES

When the presence of new virus is detected in the hospital, additional precaution in hospital ward level must be taken. The most recent virus to ^{hit} all hospitals country wide has been a small round structured virus (SRSV) also known as winter vomiting virus. It is the most common cause of GI outbreaks in hospitals, schools, hotels and other places in which there is high density population in small area.

SRSV is a short lived infection with an incubation period of approximately 48 hours. Symptoms then last for approximately 24-48 hours. Visiting is restricted and all personnel are monitored by security and infection control department.

LESSON LEARNED FROM AN INFECTION OUTBREAK

An outbreak of H1N1 in 2009 was a major problem for the hospitals and required daily surveillance by the infection control team. The co-operation from all hospital departments was amazing the effort to control the outbreak. In 2013 the infection of Ebola virus in South African countries created emergency situations where all hospitals world wide had to be followed all protocols of infection control strictly.

A great deal was learnt by all as a result

of outbreaks and following the resumption to normal practice
a followup meeting was ^{arranged.} This prob^{lem} was very
important to document the data and put to place
a policy document that would be made available for
any future outbreak.