Pharma Unit

Hospital & Clinical Pharmacy

Top 25 Most Important Questions with Answers

According to New Syllabus ER 2020-21

2nd Year D. Pharmacy

1) Define Hospital pharmacy write scope of hospital pharmacy?

Ans.

Definition: Hospital pharmacy is the department, service, or a domain in the hospital organization, managed under the direction of professionally competent legally qualified person.

Scope of Hospital pharmacy:

- To provide the right medicine to right patient at right time, in right quantity with minimum cost.
- To plan, organize and implement the policies of pharmacy.
- To implement the decision of PTC.
- To participate in research work.
- To act as profit centre of the hospital.
- To act as a counselling centre to the patient.
- To act as an information centre about drugs.
- To manufacture large volume parenteral or suitable dosage forms.

2) Explain good pharmacy practice in the hospital?

Ans.

Definition: Good pharmacy practice is a practice of pharmacy that responds to the needs of the people, who use the pharmacist's services to provide optimal, evidence-based care.

WHO Recommendations for GPP:

- Professional responsibility as main philosophy.
- Pharmacist's input crucial in medicine use decisions.
- Professional interactions as therapeutic partnerships.
- Collaboration among pharmacists for service improvement.
- Importance of providing patient information.

Elements of GPP:

- Promoting good health and achieving health goals.
- Rational supply and use of medicines.
- Self-care activities and advice.
- Influence on prescribing and medicine use.
- Collaboration for community health promotion.
- Involvement in clinical trials.

Major Roles for Pharmacists in GPP:

- Handling medical products.
- Providing effective medication therapy.
- Maintaining and improving professional performance.
- Contributing to healthcare system and public health effectiveness.

Requirements for GPP:

- Neat and identifiable pharmacy location.
- Equipped with necessary tools, including refrigerator and basic medical equipment.
- Managed under pharmacist supervision with well-trained personnel.
- Proper storage and inventory management.
- Service strategies like home delivery and patient care.
- Documentation for quality maintenance and compliance.

3) Define Hospital pharmacy and describe function of Hospital?

Ans.

Definition: Hospital pharmacy is the department, service, or a domain in the hospital organization, managed under the direction of professionally competent legally qualified person.

Function:

1. To take a care of sick and injured patients.
2. Restoring and keeping up good health of community.
3. To promote good services to patient for getting relief from diseases and pains.
4. To lower the incidences of diseases through early detection and treatment.
5. To make trained and skilled physicians and nurses.
6. To maintain and distribute hospital formulary.
7. To promote research in medical, pharmaceutical, and other related fields.
8. To take care of patient by using advanced knowledge and instruments.
9. To rise general standard of medicine for increasing quality of patient care.
10. To contribute to prevention of spreading of disease in the community.
11. To run the programmes like public education and vaccination.
12. It serves as a link between community and official health agencies to improve community health.
13. The bigger hospitals co-operate with smaller hospitals. Thus, hospital performs co-operative work.
14. Primary function is to take care of inpatients and outpatients.

4) Explain pharmacy and therapeutics committee (PTC)? write composition and function of PTC?

Ans.

Definition: PTC is a policy framing and recommending body on matters related to rational use of drugs in the hospital and consists of members from various departments of the hospital.

Objectives:

A. Advisory Objectives:

- Assist in formulating policies for drug evaluation and selection.
- Advise medical staff and administrators on drug matters, including investigational drugs.
- Provide recommendations for effective drug distribution and control.
- Suggest drugs to be stocked in patient care areas.

B. Educational Objectives:

- Help formulate policies to ensure professional staff have up-to-date drug knowledge.
- Review adverse drug reactions and establish a hospital formulary system.
- Arrange training programs for staff involved in drug use.

Composition:

- At least 3 physicians.
- One nursing staff.
- One pharmacist (secretary).
- Hospital administrator (chairman).

Functions

- Develops drug safety policies.
- Establishes hospital formulary system.
- Promotes rational drug use.
- Reviews hospital formulary.
- Provides training to staff.
- Develops drug policies and procedures.
- Manages staff education programs.
- Advises pharmacy on drug purchasing and storage.
- Manages hospital activities through subcommittees.
- Inspects routine hospital activities.
- Partially oversees hospital library.
- Provides suggestions to hospital manufacturing.
- Decides on 'automatic stop orders' for dangerous drugs.
- Compiles lists of emergencies, dangerous, and narcotic drugs.
- Interacts with FDA department.
- Promotes rational drug use.
- Guides addition and deletion of drugs in hospital.
- Reviews Adverse Drug Reactions (ADR).
- Sets quality norms for medication use.
- Advises pharmacy on drug distribution and control procedures.

5) Define inventory control and what are different inventory control technique?

Ans.

Definition: Inventory control is an effective way to keep a watch over losses from misappropriation, damage, deterioration and carelessness and proper control over maintenance of stock.

Inventory control technique:

1. ABC analysis.
2. VED analysis.
3. EOQ method.
4. Recorder quantity level.
5. Inventory turnover.
6. Setting of various levels.
7. Perpetual inventory control system.
8. Input–output ratio analysis.
9. Effective purchase procedure.
10. Review of slow-moving and non-moving items.

6) Define radiopharmaceuticals and describe dispensing and disposal of radiopharmaceuticals?

Ans.

Definition: Radiopharmaceuticals are medicinal formulations containing radioisotopes which are used in major clinical areas for diagnosis and treatment.

Dispensing of Radiopharmaceuticals:

- Dispensing area should be separate, secure, and hygienic.
- The dispensing room should be away from imaging and injection areas.
- All work surfaces should be smooth, impermeable, and easily cleanable.

- Radiopharmaceuticals are dispensed as ready-to-use kits or cold kits.
- Chemical reagents are prepared in a sterile environment.
- Dosage levels are calculated based on patient history, age, weight, etc.
- Dispensing follows applicable pharmacy laws and maintains accurate records.
- Policies ensure correct drug, dosage, patient, time, and route.
- Good radiation practices (GRP) should be followed to minimize unnecessary exposure.

Disposal Procedures of Radiopharmaceuticals

- Disposal follows local regulations and considers environmental hazards.
- Large volume waste production should be avoided.
- Waste includes syringes, vials, needles, etc.
- Waste bins are marked, dated, and stored.
- Methods of disposal include dilution, decay, burial, incineration, etc.
- Low-activity solid waste can be disposed as ordinary hospital waste.
- Liquid waste with low activity can be flushed into the sewer system.
- Radioactive waste is stored for decay before disposal.
- Some waste may be sent to approved disposal sites or incinerated.
- Waste with minimal radioactivity can be treated as non-radioactive.
- Disposal methods include delay and decay, burial, incineration, etc.
- Some materials can be disposed of in sanitary sewers or sent to disposal sites.
- Sealed gauges and detectors may require specialized disposal.

7) Explain clinical pharmacy and write scope of clinical pharmacy in India?

Ans.

Definition: Clinical pharmacy is a part of hospital pharmacy which deals with the preparation of patient drug profiles, recording patient drug history, advise about possible drug–drug interactions to trainees and drug effects on clinical laboratory test results.

Scope of clinical pharmacy:

1. Preparation of history of patient.
2. Preparation of drug history.
3. Participation in management of medical emergency.
4. Participation in drug investigation.
5. Participation in the management of chronic diseases like diabetes, hypertension, arthritis.
6. To control over drug utilization.
7. To monitor drug therapy.
8. To counsel with patient.
9. To help in selection of drug therapy to physician.
10. To communicate with physician and nurses through presentation and publication.
11. Detection and reporting of adverse drug reactions (ADRs).
12. To take part in educational programme related with medical pharmacy and nursing profession.
13. To provide the formal and informal consultation to the physician.
14. To explain the direction of use, route of administration and other related information to the patients.
15. Collection of knowledge of drug therapy and pharmacokinetics of drugs.
16. To take part in patients education, vaccination programme and other programmes related to social welfare arranged by the hospital.

8) Define pharmacovigilance write aim and scope of pharmacovigilance?

Ans.

Definition: Pharmacovigilance is defined as the science and activities concerned with the detection, assessment, understanding and prevention of adverse reactions to medicines.

Aims of Pharmacovigilance:

1. Improve patient safety and care with respect to the use of medication.
2. Early detection of unknown adverse reactions and interactions.
3. Detection of frequency of adverse reactions.

4. Improve public health and safety with respect to use of medication.
5. Provide information to healthcare professionals and patients to optimize safe and effective use of medicines.
6. Contribute to assessment of effectiveness, harm, benefit, and risk of medication encouraging their rational, safe, and effective use.

Scope and Objectives of Pharmacovigilance

1. To monitor adverse drug reactions (ADRs).
2. To monitor benefit–risk profile of medicines.
3. To create awareness among healthcare professionals about the importance of ADRs reported in India.
4. To generate independent evidence-based recommendations on the safety of medicines.
5. To communicate findings with all stockholders.
6. To create a national centre of excellence at par with global drug safety monitoring standards.
7. To build and maintain a vigorous pharmacovigilance system.

9) Define Drug related problem? write classification of drug related problems?

Ans.

Definition: The drug related problem is an event or circumstance involving drug therapy that actually or potentially interferes with desired health outcomes.

Classification/Types of Drug Related Problems:

1. New drug therapy: Patient has a medical condition that requires new drug therapy.
2. Unnecessary drug therapy: Patient is taking the drug therapy which is not suitable for his present condition.
3. Use of wrong drug: Patient has a medical condition as wrong drug is prescribed.
4. Too low dose: Patient has a medical condition for which too low dose of a correct drug is taken.
5. Too high dose: Patient has a medical condition for which too high dose of a correct drug is taken.
6. Adverse drug reaction: The patient has a medical condition that occurred due to adverse drug reaction.
7. Non-compliance: The patient has a medical condition for which the patient is not receiving the drug.
8. Drug interactions: The patient has a medical condition and there is a drug–drug drug–food or drug–lab test interactions.
9. Lack of monitoring of effect and toxicity of drugs.
10. Lack of the drug chart/prescription does not contain drug strength.

10) Define Pharmaceutical care & write objective and purpose of pharmaceutical care?

Ans.

Definition: Pharmaceutical care is the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve patient's quality of life.

Objective of pharmaceutical care:

- Optimize patient's health-related quality of life and achieve positive clinical outcomes.
- Requires an established patient-pharmacist relationship.
- Keep records of medication and collect patient-specific information with consent.
- Evaluate patient-specific medical information and develop a therapy plan with the prescriber.
- Ensure patient has all supplies, information, and knowledge for drug therapy plan.
- Review, monitor, and modify therapeutic plan in collaboration with patient and healthcare team.

Purpose of pharmaceutical care:

- Pharmacy is the first point of contact to patient after leaving doctor, hence pharmacist can take care of patients.
- Only pharmacist can help and inform the doctors about the drugs and their actions ultimately it is involved in due care of the patient.
- After the doctor's consultation, patient visits the pharmacy frequently, so monitoring and correction of therapy, if any, can be counselled by pharmacist.
- Most of the time doctors are not available for the patient care but pharmacists are always at any hour of time.
- Multiple services and help under one roof can help the patient to motivate and adhere to the plan.
- Visiting pharmacist is economical and easy as compared to doctor.

11) Define hospital formulary? Write aim of hospital formulary?

Ans.

Definition: It is continuously revised collected information of pharmaceutical dosage forms which gives current clinical judgement to the medical staff. It is continuously revised compilation of pharmaceutical dosage forms.

Aims/Needs of Hospital Formulary:

1. To provide best possible treatment to the patients in lowest possible cost is the aim served by a hospital formulary.
2. It informs the physicians, nurses, and pharmacists about the new and more potent drugs available in the hospital.
3. It avoids the use of brand and therapeutic duplication of drugs.
4. It promotes rational use of drugs.
5. To provide guidelines for 'procuring, prescribing, dispensing, and administering of drugs in a hospital.
6. It informs about availability of medicines, dosage forms and their quantity in the hospital.
7. To inform the staff about standard dosage regimen, adverse effects of the drugs.
8. It provides guidelines regarding emergency drugs in a hospital.
9. It contains list of physicians, their address, phone numbers, qualification and available timings in the hospital which is useful for reference or in emergency conditions.
10. It informs the staff about reported ADRS in the hospital.

12) Write a note on the infection Control Committee (ICC)?

Ans.

Definition: It is a process by which healthcare facilities develop and implement specific policies and procedures to prevent the spread of infection among the healthcare staff and patients.

Objectives of ICC:

- Understand causes of nosocomial infection and basic infection control concepts.
- Minimize infection risk for patients, healthcare workers, and visitors.
- Formulate local guidelines and standard operating procedures (SOPs) for infection prevention.
- Educate and train healthcare workers.
- Recommend rational antimicrobial policy and stewardship program.
- Ensure implementation and monitoring of programs.
- Prevent antibiotic resistance.

Composition of ICC:

- Infection control officer (Chairman-Medical Superintendent).
- Infection control nurse (Secretary).
- Heads of departments from Microbiology, Pathology, Pharmacy, Surgery, Medicine, Paediatrics, Nursing.

Responsibilities of ICC:

- Develop manual of policies and procedures for aseptic techniques.
- Conduct surveillance of HAIs, analyse data, and take corrective actions.
- Advise staff on infection control, maintain safe environment.
- Supervise cleanliness, sterilization, and disinfection practices.
- Oversee isolation procedures for at-risk patients.
- Investigate and control outbreaks of infection.
- Manage waste.
- Provide infection-related information to management.
- Train new employees on infection control policies.
- Organize regular training programs for staff.
- Audit infection control procedures and antimicrobial usage.
- Monitor healthcare worker safety programs.

13) Explain FEFO method of inventory control?

Ans.

Definition: FEFO stands for first expired, first out. FEFO is a term used in the field of inventory management to describe the process of dealing with logistics of products that have limited self-life. FEFO is an inventory management technique that permits for products with the earliest expiry date to be distributed first. FEFO is a simply highly effective inventory management technique that focuses on the handling and moving of date sensitive inventory.

Advantages of FEFO

- It helps to sell the products with shortest expiry date at the first.
- It reduces inventory, waste, and addition work.
- It helps to reach the ultimate product before expiry date to the end user.
- It avoids unnecessary dumping/stock of certain items in the warehouse.
- It provides guarantee of the product towards customer satisfaction.
- It avoids of dead stocking.

Disadvantages of FEFO

- An accurate product tracking system is required.
- Proper space should be planned for the storage.
- Higher taxes.

14) Explain FIFO method of inventory control?

Ans.

Definition: FIFO stands for first-in first-out. It is based on the principle that the materials which are purchased first are sold first. It is simple and logistic method because it takes into consideration the normal procedure of utilizing first those materials which are received first.

Advantages of FIFO

- It reduces impact of inflation.
- The change in cost price, lot wise will not affect the sale.
- Easy to apply.
- Produces higher income during inflation period.
- This method is used for the products with stable prices and less frequency of purchase and sale.

Disadvantages of FIFO

- In FIFO inconsistent prices may be given to the customers.
- It may produce clerical errors.

15) Write definition advantages and disadvantages of individual prescription order method?

Ans.

Individual Prescription Order Method: Small and private hospitals adapt this system. According to this system prescription is received by pharmacist and medicines are dispensed for inpatients. The collection of prescription is also done by pharmacist. Here the drugs are dispensed and labelled for each individual patient. Here medications are kept in nursing unit medication cabinet under the custody of nurse in-charge. Nurse is responsible for administering correct medications to each patient in ward. The nurses are advised by the pharmacist about proper storage, labelling and accounting of drugs and unwanted effect produced by drug, etc. For faster dispensing, commonly used drugs can be prepackaged.

Advantages

- Review of prescription is possible by the pharmacist.
- Pharmacist can counsel the patient.
- Control over inventory is easy.
- Purchasing cost, maintenance cost, space required are less in comparison with other systems.
- Maintenance of record is easy, and paperwork is minimized.
- Adjustment of cost of prescription is possible by considering economical condition of the patient.

Disadvantages

- Emergency medicines are not quickly supplied.
- Delay in receiving medicines.

16) Explain distribution of drugs to ICCU, ICU, NICU and emergency department?

Ans.

Distribution of Drug to ICCU/ICU/NICU/Emergency Ward: In hospitals, specialized units are dedicated for the patients who have life-threatening illness or injuries and need intensive care constant supervision.

The following are the specialized units:

1. ICU (Intensive Care Unit): It is a special department for critical patients who needs intensive treatment and continuous observation. It is also known as critical care unit.
2. ICCU (Intensive Coronary Care Unit): It is also known an intensive cardiac care unit. It is a unit which is focused on intensive treatment for heart issues such as coronary heart disease, cardiac arrhythmia, heart attack, heart failure and other cardiac conditions.
3. NICU (Neonatal/Newborn Intensive Care Unit): It is also known as intensive care nursery (ICN) It is an intensive care unit specializing in the care of ill or premature newborn infants.
4. Emergency ward: These are also known as accident and emergency department, casualty department. It provides a medical treatment facility specializing in emergency medicine, the acute care of patients who present without prior appointment, either by their own means or by that of an ambulance.

Distribution of Drugs:

- Patient receives prescriptions in the ward while receiving treatment in the specialized ward.
- Specialized drug dispensing system is developed to emergency patients in which uses a special cabinet having medication bins that store selected and limited quantities of medications package in single unit containers.
- Intravenous solution, irrigation solution, eye tray medications, drugs for cardiopulmonary resuscitation and refrigerated drugs are kept in areas of ready access.
- The system provides for punched cards containing information on the drug.
- These cards are stored with medication and are used for billing and reordering purposes.
- 24 hours supply of medications is required for these specialized units.

Common drugs used in the specialized units are:

A. ICCU: For example, aspirin, promethazine, heparin, hydrocortisone, streptokinase, metoprolol, pentazocin, frusemide.
B. ICU: For example, epinephrine, atropine, sotalol, lidocaine, adenosine, procainamide, vasopressin.
C. In NICU: For example, gentamicin, ampicillin, caffeine citrate, frusemide, dopamine, azithromycin, ibuprofen, fluconazole.
D. In emergency ward: For example, adrenaline, salbutamol, atropine, aspirin, frusemide, hydrocortisone, insulin, lidocaine, and medical oxygen.

17) Define computer? Explain advantages, disadvantages, and application of computers in hospital pharmacy practice?

Ans.

Definition: It is the electric device performing the several complex and complicated functions and can store the information.

Advantages

- High speed
- Storage capacity—software, floppy disc, hard disc
- Easy retrieval of data
- Accurate results
- Can perform complicated, several arithmetical and logical functions.
- Time saving
- Space saving

- Economic
- Can work for 24 hours.

Disadvantages

- Cannot correct itself.
- Lack of common sense.
- Depends upon human instructions.
- Electricity is required.
- Skilled person is required for operation.

Application of Computers in Hospital Pharmacy

- In drugstore for billing, purchasing, stocking, ordering, etc.
- In hospital pharmacy to record prescriptions.
- In pathological laboratory.
- In manufacturing section of hospital pharmacy.
- In maintenance of patients' records.
- In data storage and retrieval.
- In inventory control. 8. In medication order entry.
- In drug therapy monitoring.
- In reporting ADRs.
- In purchasing and accounting.
- In billing of charge floor stock.

18) Define medication error. Explain types of medication errors?

Ans.

Definition: Medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of healthcare professional, patient, or consumer.

Different types of medication error:

1. Prescribing error: It means those errors which occur due to improper drug selection dose, dosage form or route of administration. Examples of this type of error include Prescribing a dose of drug, i.e. too high or too low. Writing a prescription illegibly. Ordering duplicate therapies
2. Omission error: It occurs when a patient does not receive scheduled dose of medication.
3. Wrong time error: It occurs when a dose is not administered in accordance with a predetermined administration interval.
4. Wrong dose error: This type of error occurs when a prescriber orders an inappropriate dose of medication. It occurs due to wrong calculations or wrong units of measurement or not measured properly.
5. Wrong dosage form error: It occurs when a patient receives a dosage form different from that prescribed.
6. Wrong route of administration: This type of error occurs when an agent meant for intramuscular administration is given intravenously.
7. Wrong drug preparation: This type of error occurs when a medication requires some preparation before its administration such as reconstitution of solution by adding water for injection in the vial.
8. Unauthorized drug error: This type of error occurs when a patient receives the drug which is not prescribed to him.
9. Deteriorated drug error: This type of error occurs when a patient receives an expired drug or deteriorated prematurely due to improper storage conditions.
10. Monitoring error: This type of error occurs when the patient is not properly monitored before or during the therapy, e.g. In warfarin therapy, not conducting the patient's response by doing adequate blood tests, life-threatening haemorrhage may happen.
11. Compliance error: This type of error occurs when the patient use medication inappropriately due to improper education of patient by the pharmacist or physician or both.

19) Explain ward round participation?

Ans.

Definition: A ward round is a visit made by a medical practitioner, alone or with a team of health professionals and medical students to hospital inpatients at their bedside to review and follow-up the progress of their health.

Goals and Objectives

- To improve understanding of patient's clinical progress and status, current therapeutic goals, and planned investigations.
- To provide relevant information on various aspects of the patient's drug therapy such as pharmacokinetics, pharmacology, drug avail ability, adverse reactions, drug interactions.
- Optimize therapeutic management by influencing drug therapy selection, implementations, follow-up, and monitoring.
- Investigate unusual drug doses or orders.
- To provide additional information about the patients such as comorbidities, medication compliance or alternative medicine use that might be relevant to their management.
- To detect drug interactions and adverse drug reactions.
- To participate in patient discharge planning.

Procedure of Ward Round Participation

- Ward round participation provides many learning opportunities for pharmacists.
- It allows pharmacists to see firsthand how drugs are prescribed and used and to see the effects of these drugs on patients.
- With time, pharmacists develop an appreciation of how the patient's own wishes and their economic, social, and cultural circumstances may influence therapeutic choices.
- Even for experienced clinical pharmacists in teaching hospitals, it is very rare to finish a ward round without gaining new perspectives on some aspect of patient care or therapeutics. For those involved in academia and research, ward rounds allow identification of cases for clinical publication and teaching.
- Ward round participation strengthens the inter-professional relationship among various health professionals, leading to better healthcare research and practice.

20) Define drug interactions and explain the role of pharmacist to avoid drug interactions?

Ans.

Definition: The drug interaction is a reaction in which the effects of one drug are altered by prior or concurrent administration of another.

Role of pharmacist to avoid drug interactions:

- Pharmacist should do patient counselling to make the patients aware about drug interactions.
- Pharmacist should provide vital information about the drugs to patients regarding drug selection and administration.
- Pharmacist working in hospitals should maintain drug history and medical record of the patient.
- Pharmacist can educate the public for safe and effective use of medications through verbal communication as well as by written materials and use of computers.
- Pharmacist should warn the patients not to use OTC drugs without consultation of physician.
- Pharmacist should tell the patients to strictly follow the instructions given by the physician regarding administration timing and dosage.
- Pharmacist should guide the patient, not to take the treatment from multiple physicians.
- Pharmacist should tell the patient not to consume excess drug than prescribed dose.
- Pharmacist should tell the patient not to take different drugs at once.
- Pharmacist should inform the patient about drug–food interactions and specific food during use of certain medications.

21) Explain Outpatient in detail?

Ans.

Definition: The patient which is not admitted in hospital but receiving general or specific treatment is called outpatient.

Classification of Outpatient:

- General outpatient: The outpatients which are not receiving emergency or specific treatment are called general outpatients, e.g. diabetic patient, hypertension patient.
- Emergency outpatient: The outpatients if receiving emergency treatment or an accident care are called emergency outpatients.
- Referred outpatients: If outpatients are receiving specific treatment, then those are called referred outpatients, e.g. patients suffering from eye, ear, nose, teeth disorders.
- Ambulatory patient: An ambulatory patient can walk and since outpatients receive primary healthcare and walk off, they are wrongly called ambulatory patients. Majority of outpatients are ambulatory patients, e.g. cancer patient.

Drug Distribution or Dispensing to Outpatient Department:

- Whenever the outpatient visits for the first time, he should register his name at the registration counter.
- Then he will be directed to specialist physician for the consulting and take the prescription from them.
- The prescription would bear, the name, age, registration number and diagnosis of the patient.
- Patient should produce this prescription to dispensing counter where pharmacist checks the prescription and assembles the materials for compounding.
- The specific medications given in the prescription are dispensed properly in the packets/containers, etc. and labelled.
- Patient counselling can be done during the dispensing regarding dose, route, and use of the drugs.
- The prescription along with the bills are issued to the outpatient.

22) Define poisoning and explain different types of poisoning?

Ans.

Definition: It is defined as a substance which when administered, inhaled, swallowed, applied locally, causes toxic effects on the body.

Types of Poisoning

A. According to purpose of poisonings it is classified as
   - Suicidal poisoning: Person consumes poison to kill himself.
   - Homicidal poisoning: Poison is used to kill another person.
   - Accidental poisoning: The poison is consumed by mistake.

B. Based on onset of action poisoning is classified into two groups
   - Acute poisoning: It is generally due to consumption of a large amount of poison. It may be accidental, intentional, or non-intentional. The symptoms develop very rapidly in severity. The aggravation of symptom is fast, therefore, treatment should be given quickly otherwise death may occur. The malfunctioning of respiratory and cardiac function. General symptoms of acute poisoning are vomiting, diarrhoea, convulsions, coma, respiratory or circulatory failure. It requires supportive, symptomatic, and specific treatment.
   - Chronic poisoning: The symptoms are observed very slowly. It is due to consumption of small amount of poison but with definite period of interval. The aggravation of symptom is very slow. The death due to chronic poisoning is rarely observed because more time is available for the treatment. General symptoms of acute poisoning are GIT irritation, confusion, insomnia. Usually, symptomatic treatment is given if required.

23) Explain Unit dose dispensing system (UDDS)?

Ans.

Definition: It is the system which consists of dispensing unit doses to the patients containing a predetermined amount of drug

Types of Unit Dose Dispensing System

A. Centralized unit dose dispensing system (CUDDS): If the unit doses are dispensed from pharmacy department, it is called centralized unit dose dispensing system.
B. Decentralized unit dose dispensing system (DCUDDS): If the unit doses are dispensed from nursing stations, it is called decentralized unit dose dispensing system.

Advantages of Unit Dose Dispensing System

- Avoids misuse of medication.
- Review of prescription is possible; therefore, medication errors are reduced.
- Time required for dispensing is reduced.
- Patient should pay the cost of medicines which are consumed by him.
- Purchasing cost and budget of hospital is decreased.
- Accounting becomes easier.
- Paperwork is less at nursing unit as well as at the pharmacy.
- Better financial control.

Disadvantages of Unit Dose Dispensing System

- Separate manpower is required for pre-packaging.
- Separate containers, closures, machinery, and space is required.
- Unit dispensing should be handled by skilled person and supervised by pharmacist only.

Benefits of UDDS

- The patients are charged only for those medications which are consumed by them.
- It reduces the medication error since the pharmacist checks a copy of physician's original order.
- It avoids wastage of drug.
- Less space is required as compared to bulky floor stock.
- It allows the nurses more time for direct patient care.
- Patient receives the nursing service 24 hours a day.
- It avoids the duplication of orders and extra paperwork.
- It increases more efficient utilization of personnel.

24) Explain satellite pharmacy?

Ans.

Definition: The main pharmacy centre is called satellite pharmacy and sub pharmacy centres are located at each floor and working as substations for satellite. Satellite pharmacy service is developed with an advanced view of clinical pharmacy programs. These sub pharmacies are located on wards. They receive their supply from main pharmacy and distribute them to the patients on current basis. These pharmacies are managed by clinical pharmacist who is available in his professional capacity for patient counselling.

Advantages

- Review of prescription is possible by pharmacist.
- Waiting period is decreased.
- Emergency medicines are quickly available for administration.
- Drug therapy can be monitored by pharmacist.
- Pharmacist may counsel the patient.

Disadvantages

- Inventory is increased therefore, budget is increased.
- Paperwork, maintenance cost are increased.

- Separate space is required for keeping the stock.
- Number of pharmacists required for dispensing are more.

25) Explain pulmonary function tests in details?

Ans.

1. Spirometry: Measures breathing patterns. Identifies conditions like asthma, pulmonary fibrosis, cystic fibrosis, and COPD. It measures Peak expiratory flow rate (PEFR), Forced expiratory volume in 1 second (FEV1)
2. Diffusion Capacity Test: Measures gas transfer from alveoli to blood. It is Called DLCO (diffusion capacity of lungs to carbon monoxide). Useful in pulmonary oedema, asthma, pulmonary fibrosis, and sarcoidosis.
3. Body Plethysmography: Measures lung volume after deep breath. Provides various lung volumes at different stages of lung inflation.
4. Exercise Challenge Testing: Confirms exercise-induced bronchospasm (EIB). Evaluates medication effectiveness. Typically done using treadmill or cycle ergometer. Spirometry post-exercise indicates abnormal response if FEV1 decreases by 10% or more.
5. Six-Minute Walk Test (6MWT): Measures walking distance in six minutes. Assesses oxygen needs during exertion. Oxygen saturation ≤88% indicates need for supplemental oxygen.
6. Maximal Inspiratory/Expiratory Pressure: Measures strength of inspiratory muscles (maximal inspiratory pressure). Assesses ventilatory failure, restrictive lung disease, and respiratory muscle strength. Non-invasive and quick test.

Notes:

1) Please Read All the Topics & All the Chapters of Hospital & Clinical Pharmacy Very Carefully.
2) This Pdf Notes/Questions & Answers Are Only for Reference Purpose.