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Diploma in Pharmacy 2nd Year
Hospital & Clinical Pharmacy
Chapter 4 : Drug Distribution

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Chapter 4

Drug Distribution

→ Drug distribution is a process to provide drugs to the patient or patient's attendant.

Or

→ Physical transfer of drugs from storage area in the hospital to the patient's bedside.

This involves two types of drug distribution.

1. In-patient distribution
2. Out-patient distribution

In-patient distribution : In this type of drug distribution , drugs are provided to those patients who are admitted in hospital.

In patient Distribution Method

- Individual prescription order method ,
- Floor stock method
- Unit dose drug distribution method
- Drug Basket Method

Out-patient distribution : In this type of drug distribution , drugs are provided to the patients are not admitted in hospital and are given general or emergency treatment.

Out – Patient Distribution Method

- Retail pharmacies
- Mail-order pharmacies

Steps for dispensing drugs to out-patients

- ▲ The patient name is registered by registration staff and patient is send to the physician with registration form
- ▲ The Physician Checks the patient and write a prescription.
- ▲ The patient takes the prescription to the pharmacy.
- ▲ The pharmacist reviews the prescription carefully and records the prescription and provides the drugs.

Methods of drug distribution to in patients

- ⇒ Individual prescription order method ,
- ⇒ Floor stock method
- ⇒ Unit dose drug distribution method
- ⇒ Drug Basket Method

1) Individual prescription order method

- Individual Prescription Order Method Individual prescription order system, though old is still followed in small private hospitals.
- In this system, doctors write a prescription and ask the patient to get the medicines from licensed medical stores.
- Medications should be dispensed in properly labelled individual prescription containers.
- Medication for administration should be labelled with :
 - Patient's name and location.
 - Drug's name and strength.
 - Drug dose,
 - Administration route,
 - Accessory and cautionary statements,
 - Dispensed date,
 - Hospital's name,

Advantages

- ✓ All the prescribed medicines are directly revived by a pharmacist .
- ✓ Less number of staff required in hospital .
- ✓ It may be cheaper than hospital pharmacy .

Disadvantages

- ⤴ chances for increasing medication errors due to
 - wrong scheduling .
 - wrong administration
- ⤴ Greater chances for drug interaction .
- ⤴ there may be delay in obtaining required drugs .

2) Floor Stock Method In this method

→ The drugs are stored in the chief stock room , and are supplied to the wards at nursing station (which may at every floor) and stored there , and from there administered to a patient by a nurse according to the chart order of physicians.

It is divided in two types

- **Charge Drugs** : These are costly drugs obtained from the pharmacy store when the pharmacist receives the prescription for patients. Cost of these drugs is billed in the patient's account for charging.
- **Non-charge Drugs** : These are cheaper and commonly used drugs. Their cost is not directly entered in the patients account but included into the per day cost of hospital ward.

Advantages

- ✓ Drugs are readily available for use
- ✓ Reduced the number of staffs .
- ✓ The number of drug order by nurses is also reduced
- ✓ Reduced the number of drug returned to the pharmacy .

Disadvantages

- ⤴ Medicine errors may increase .
- ⤴ Degradation of drugs may increase .
- ⤴ There is need of extra investment to maintain storage facilities in every ward or floor .

3) Drug Basket Method

→ It is a type of floor drug distribution method , in this method , nurses verify the availability of medicines in all rooms and refrigerators with the help of master list of pharmacy , then fill demand form for the delivery of drugs to floors.

→ If they found any empty container , they put it in the drug basket.

→ After completing the round in all rooms , they send the demand form and container to the pharmacy.

Advantages

- ✓ Drugs are readily available for use
- ✓ Reduced the number of staffs.
- ✓ The number of drug order by nurses is also reduced
- ✓ Reduced the number of drug returned to the pharmacy.

Disadvantages

- ⤴ Medicine errors may increase.
- ⤴ Degradation of drugs may increase.
- ⤴ There is need of extra investment to maintain storage facilities in every ward or floor.

4) Unit Dose Drug Distribution Method

- In this method drugs are prepared and distributed in a single dose to use once
- Unit dose system means a drug distribution system in which each dose of medication is contained in, and administered from, single unit or unit dose packages.

Types of Unit Dose Drug Distribution Method

- **Centralised Unit Dose Dispensing (CUDD) :** In this method the drugs are stored in the main pharmacy and dispensed when any dose is required to give a patient (by dumb waiter) with medication card.
- **Decentralised Unit Dose Dispensing (DUDD) :** In this method a small pharmacy is made on each floor of the hospital , and drugs are supplied to this pharmacy from main pharmacy on receiving the demand . from this small pharmacy drugs are dispensed in unit dose when required to give a patient.

Advantages

- ✓ Pharmacist checks the physician 's prescription before administration of drugs by a nurse.
- ✓ Less chances for stolen of drugs.
- ✓ Low investment , because storage facility is not required at each floor or ward.
- ✓ Nurses have more time to care patients because all doses are prepared in pharmacy.

Disadvantages

- ⤴ **Time consuming :** A Pharmacist has to give more time in handling each dose individually than sending the bulk drugs to a ward .
- ⤴ **Increased staff :** This system requires a large number of staff to manage the system .
- ⤴ **Increased Cost :** This system additional equipments to deliver drugs like dumb waiter .

Distribution of Drugs to ICCU/ ICU /NICU / Emergency Wards

- There are some specialised units (department) in hospital which are reserved for those patients are in serious condition and require close monitoring and extensive (big) treatment.

some specialized units are given below :

- **ICU (Intensive Care unit) :** It is also called Intensive treatment unit ,ICU is a specific department for critically ill patients who require intensive and constant care.
- **ICCU (Intensive coronary Care Unit) :** It is also called Intensive Cardiac care Unit . ICCU department is reserved for patients having Heart related problems like heart failure, coronary heart diseases etc.

- **NICU (Neonatal Or Newborn Intensive Care Unit)** : it is also called ICN (Intensive Care Nursery) NICU Department is reserved for care of sick or preterm newborn babies.
- **Emergency Ward** : This department provides emergency medication for patients arrive without an appointment.

Drug Distribution to these Departments

- ➔ In Intensive care Units drugs are available already . Only some certain , limited quantity of drugs stored there . They are packed in single unit container . And location are fixed for storage of IV solution for certain drugs.

Automated drug dispensing systems and devices

- ➔ Automated drug dispensing systems and devices are computerized systems that can accurately dispense medications to patients. These systems can be found in hospitals, pharmacies, and other healthcare facilities.

There are several types of automated drug dispensing systems and devices, including :

- **Robotic dispensing systems** : These systems use robots to dispense medications. They can be programmed to dispense a specific dose of a medication, and can handle multiple medications at once.
- **Bar code scanning systems** : These systems use bar code technology to ensure that the correct medication is dispensed to the right patient. The bar code on the patient's wristband is scanned, and then the medication is scanned to ensure that it matches the medication prescribed for the patient.
- **Automated medication cabinets** : These systems are similar to vending machines and are often used in hospitals. The medications are stored in individual drawers, and the system dispenses the medication based on a prescription order.
- **Pharmacy dispensing systems** : These systems are used in pharmacies to fill prescriptions. The system can accurately count and dispense pills, and can also label and package the medications.

Advantages

- ✓ Reduced Pharmacy staff and work load.
- ✓ It Provides Automatic Inventory facility.
- ✓ It saves a lots of time.
- ✓ Decreased mistake.
- ✓ It provides safety.

Disadvantages

- ▲ It Requires Extra training and technical knowledge.
- ▲ Dispensing may be stopped in case of failure of any part of automatic system.
- ▲ It requires extra budget and space.

Distribution of Narcotics and Psychotropic Substances and Storage

- According to Drugs and Cosmetics Act 1945 , Narcotics and Psychotropic substances are can't be sold without a valid prescription for non ward and , and can 't be dispensed without a requisition form for wards in hospital.
- These are also called controlled Substances.
- So It is the responsibilities of Hospitals and Pharmacies to control their use without a valid prescription.

Hospital Control procedures

These Procedures are developed by American Government Authorities and can apply in India also :

1. Responsibilities for Controlled Substances in a hospital :

- ⇒ The administrator of hospital should properly handle the controlled substances .
- ⇒ The Medical superintendent should manage properly.
- ⇒ The Chief Pharmacist : He should Look After the purchase , storage and dispensing of controlled substances.
- ⇒ the Head Nurse should look after the storage and use of Controlled substances in nursing unit.
- ⇒ While Ordering Demand of controlled substances for ward stock the nurse should fill a requisition for and should mention the name , desired strength and quantity of controlled substances.

Requisition form for ward stock controlled substance

ABC Hospital, Delhi		
Ward _____	Code _____	Date _____
Each floor is entitled to contain each of the following tablets and units of injectables. Empty bottles, except tubes along with narcotics or barbiturate accounting, sheets must be returned. All other narcotics and barbiturates must be ordered for and charged to the patient. These special narcotics and barbiturates orders must be accompanied by a prescription.		
No. of Tablets Capsules	Check Item Needed	Price
20	Codeine sulphate tabs. 15mg.	
25	Codeine sulphate tabs. 20mg.	
20	Morphine sulphate H.T.	
25	Morphine sulphate ampoules	
10	Pethidine hydrochloride injection.	
1	Pentobarbitone injection 50mg/ml. 20ml.	
20	Phenobarbitone tablets I.P.	
25	Secobarbitone capsules 50mg.	

The Nurses should also record the use of controlled substances on daily basis

ABC Hospital, New Delhi						
Daily Controlled Drugs Administration Form Part-1						
Date _____	Ward No. _____		Floor _____			
Patient's Name	Specific Description of Drug	No. of Tablets or Injections	Strength Used	Ordered by Doctor	Adm. by Nurse	Time Given

Signature of Nurse _____

ABC Hospital, New Delhi					
Part-2					
Daily Controlled Drugs Administration Form Summary of Daily Report					
Name of the Tablets or Injections	Opening Day Record	Received	Total	Drugs Used	Balance
Signature of Nurse _____					

2. Prescribing Controlled drugs for out patient department :

The prescription prescribed for out patient pharmacy , the prescription should have following information :

- Full name of patient
- Hospital number or address
- Date
- Name and strength of prescribed controlled drugs.
- Quantity of drug
- Frequency and rout of administration
- Signature of Physician.

3. Procedure In Case of Waste , Destruction , contamination etc.

- **Aliquot part of narcotic solution unused :** The remaining part of solution in ampoule which is not used should be thrown into sink by nurse.
- **Prepared dose refuse by patient or cancelled by doctor :** In this case the solution should be discarded into sink , and record the reason for drug not being administrated.
- **Accidental destruction of drugs :** In case of accidental destruction of drug in nursing unit , the responsible person should inform the head nurse about that.

4. Control of Narcotics on the ward by nurses :

- ⇒ When Controlled drugs dispensed to nursing unit , Now it is responsibility of nurses for administration , looking after , and documentation.

5. Delivery of Controlled drugs to ward :

- ❖ The narcotics drugs from main pharmacy should be delivered to ward / nursing station by a faithful person working in hospital

6. Storage of narcotics and psychotropic drugs :

- ▲ These substances should be under lock and key all the times.
- ▲ There should be a different register to register them.
- ▲ No other objects should be kept with Narcotics.
- ▲ They should not be bought and sold to unauthorised person.

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