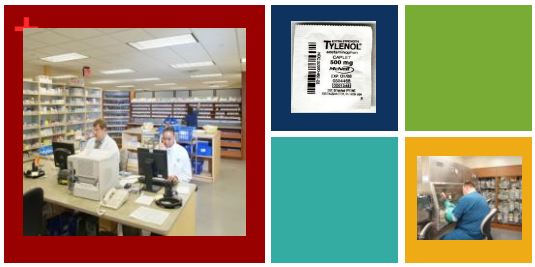

Inpatient Pharmacy Services

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Inpatient Pharmacy Service

- Provides medications for all inpatients on a 24-hour basis.
- Inspection & control of drugs in all treatment areas.
- Cooperate with medical drug research.

Inpatient Pharmacy Service

Inpatient care areas:

1. **Critical care units (CCU)** (coronary care, neonatal, burns, neurosurgery,…)

2. **General care units (GCU)**(medical, surgical, pediatrics,….)

Inpatient care areas

1- Critical Care Units (CCU)

- patients clinical status is constantly changing & must be monitored closely
- their drug therapy is often changed or adjusted.
- usually on multiple I.V. medications creating high potential for:
  - Incompatibilities
  - Drug interactions
  - Errors
- Patients may also have declining kidney or liver functions affecting drug dosing.

- Therefore, the pharmacist plays a critical role in making sure that patients are receiving the right drugs in the right dose that is appropriate for their conditions. (clinical activities: participate in rounds, provide information, answer questions).

Inpatient care areas

2- General Care Units (GCU)

- Patients are less acutely ill.
- drug therapy is more likely to be stable & many times is a combination of oral & I.V. medications, depending on the patients treatment regimen.

- Pharmacists are also responsible for the drug distribution to all inpatients. This is supported by pharmacy technicians, & automation, with a goal of providing safe, efficient, & cost effective drug therapy

Unit Dose System

What is the Unit Dose System ?

A system of distribution coordinated by the pharmacy that dispense medication orders to be administered, not prepared, by the nurse

- medications are contained in single unit packages
- dispensed in as ready-to-administer form as possible
- not more than a 24-hour supply of doses is deliveredto or available at the patient-care area at any time.

History of Medication Distribution System Leading to Unit Dose (U.D.) Concept:

There were at least 2 distribution methods the pharmacist used for the nurse to obtain the medications for patient use before the unit dose system established

History of Medication Distribution System

Floor Stock System
- Bulk containers stored on unit indefinitely
- Containers not patient-specific
- No review of drug order by pharmacist

Patient Prescription System
- Patient-specific containers with 2-day to 5-day supply of drug stored on unit
- Drug order transcribed by the nurse & reviewed by pharmacist
- No patient information available to pharmacist

Unit Dose System
- Medications contained in unit dose packages & dispensed in ready-to-administer form
- No more than a 24-hour patient-specific supply on unit at any time
- Pharmacist reviews every order and checks against patient records & manage the distribution and storage process

Unit Dose System

- Developed in 1960s to support nurses in medication administration & reduce the waste of increasingly expensive medications
- Now, U.D. dispensing of medications is a standard of practice at hospitals

Role of U.D. on Drug Use Control

1. Provide a much better use of pharmacist's knowledge & training because:
   - U.D. required pharmacists to review every medication order prior to dispensing.
   - By the duplicate carbon copies of the original orders, the pharmacist can intervene prior to the first dose.

Role of U.D. on Drug Use Control

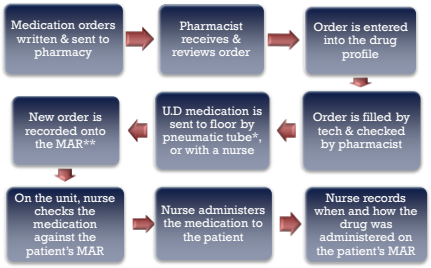
2. It required the pharmacy to maintain a **patient medication profile**, this allow the pharmacist to gain access to patient-specific information including the following:
   - Patient's name & location
   - Generic name of medication
   - Dosage
   - Frequency of administration
   - Route of administration
   - Signature of physician
   - Date & hour the order was written

Advantages

Advantages of the U.D. Distribution Method:

1. Reduction in medication errors.
2. Decrease in total cost of medication-related activities.
3. More efficient use of pharmacy & nursing personnel.
4. Improved drug control & drug use monitoring.
5. More accurate patient billing for medications.
6. Minimization of credits of drugs.
7. Greater control by pharmacist over work patterns & scheduling.
8. Reduction of inventories maintained on nursing units.

The U.D. Order Process



***Pneumatic tube:** pressurized tubes that move small containers throughout the institution for order delivery or transmission
****MAR:** Medication administration record located on nursing units of all themedications that are prescribed for the patient, including administration times.

The U.D. Order Process

- **In the pharmacy, U.D medications are placed in carts containing drawers (or bins).**
  - **One drawer for each patient.**
  - **The drawers are labeled with the patients name, ward, room & bed number.**
- **Then the carts are transported to the wards and used.**
- **The next day , the carts are retrieved from the wards & replaced by a fresh & updated medication supply**

Each patient has a labelled drawer containing his daily dose of medications.

Distribution of Emergency Medications

- A select number of emergency medication needed to be kept on-site (nursing units or any other location where an emergency situation may occur)
- to be available for patients who are deteriorate quickly due to failure of major organ system.
- These medications are placed in tamper-evident boxes or carts (**crash or code carts)**
- They typically contain :
  - medications (e.g. epinephrine)
  - defibrillator
  - medical supplies
  - I.V. solutions

- These carts are checked periodically for tampering or replacement of expired medications.
http://www.ucdmc.ucdavis.edu/cne/resources/clinical_skills_refresher/crash_cart/

Models for U.D service

- **2 Main Models Used to structure U.D. Services:**
  1. **Centralized Model**
  2. **Decentralized Model**

Models for U.D service

1- Centralized model:

- Emanates from the main pharmacy (centralized location)
- Medication orders are received in the central pharmacy, & all of the processing for patients medications occur there (drug processing, packaging, & dispensing)

- **Advantages of Centralized Pharmacy:**
  - ✓ All resources can be localized into one area
  - ✓ drug inventory can be minimized.

- **Biggest Disadvantage:**
  - x The pharmacist is NOT able to directly interact with the physician &nurse. Clinical services are limited since the pharmacy is not located closely to patient care areas.

Models for U.D service

2- Decentralized model:

- Pharmacy satellites located throughout the institution
- Since pharmacists are closely located to patient care area, it is very easy for physicians & nurses to stop by to ask questions.
- Pharmacists can also go into the patient care areas to speak with a patient or provide clinical services
- The satellite pharmacy still needs to be supported by a centralized pharmacy which provides cart fill & serves the decentralized satellites
- After the satellites close, the centralized pharmacy will provide the services
- can provide specialized services in pediatrics, oncology, critical care, the emergency room, & the operating room

Models for U.D service

The Advantages with a Decentralized Model Compared to a Centralized Model Include:

- Faster order filling
- Increased physician & nursing satisfaction
- Better professional relationships between pharmacy & other departments
- Expansion of clinical services
- Decreased need for floor stock medications.