

## **Medication errors:**

### **Definition:**

- **A 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 the health care professional, patient, or consumer.**
- **Such events may be related to professional practice, health care products, procedures, and systems, including prescribing, order communication, product labeling, packaging, and nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and use.**

## **Medication errors:**

### **Types of Medical Errors:**

- **Medical errors refer to preventable adverse events or outcomes that occur during medical treatment. These errors can result from human error, system failures, or a combination of both.**
- 1. Medication errors: This includes errors in prescribing, dispensing, or administering medication, such as giving the wrong medication or dosage, administering a drug to the wrong patient, or administering a drug via the wrong route.**
  - 2. Diagnostic errors: These errors occur when a patient is misdiagnosed, or a correct diagnosis is delayed, resulting in incorrect or delayed treatment.**

## Medication errors:

- **3. Surgical errors:** These are mistakes made during surgery, such as wrong-site surgery, leaving a foreign object inside a patient, or performing the wrong procedure.
- **4. System failures:** These errors occur when the healthcare system fails, such as inadequate staffing, faulty equipment, or poorly designed systems and processes.
- **5. Infections:** These errors occur when a patient acquires an infection during medical treatment, such as healthcare-associated infections, including those acquired during surgery.

2) **Omission Error** : this error occurs when patient is not given a scheduled prescribed drug in health care control , like hospital , nursing home etc.

3) **Improper Dose Error** : this error occurs when a patient is given a higher or lower dose in comparison to prescribed dose .

4) **Deteriorated (Expired) Drug error** : This error occurs when expired

5) **Prescription Filling(Dispensing) Error** : This error occurs when drugs are not dispensed properly according to the prescription .

6) **Unauthorised Drug error** : This error occurs when patient is given a medication without consent(willing ) of prescriber .

7) **Wrong Time Error** : this error occurs when drug is not administered at appropriate time . (too soon or too late )

8) **Wrong dosage Error**

9) **wrong drug preparation error**

10) **Wrong administration technique error**

11) **Monitoring Error**

12) **Compliance Error** : This error occurs when patient do not complete a prescribed medication course .

# Medication errors:

## Consequences:

- Medical errors can have serious consequences for patients, their families, and healthcare providers. Here are some of the consequences of medical errors:
  1. **Patient harm or death:** Medical errors can cause physical harm, emotional trauma, or even death to patients.
  2. **Longer hospital stays:** Medical errors can result in extended hospital stays, increasing healthcare costs, and delaying the recovery process.
  3. **Increased healthcare costs:** Medical errors can lead to additional medical interventions, prolonged hospital stays, and increased healthcare costs.
  4. **Loss of trust:** Patients may lose trust in their healthcare providers or the healthcare system as a whole due to medical errors.
  5. **Legal consequences:** Medical errors can result in malpractice claims, lawsuits, and legal actions against healthcare providers or institutions.
  6. **Psychological impact:** Medical errors can cause emotional trauma, stress, anxiety, or depression for patients, their families, and healthcare providers.
  7. **Reputation damage:** Medical errors can damage the reputation of healthcare providers or institutions, leading to loss of business or negative publicity.

### Strategies to minimize medication errors:

- FDA looks for ways to prevent medication errors. Before drugs are approved for marketing, FDA reviews the drug name, labeling, packaging, and product design to identify and revise information that may contribute to medication errors. For example, FDA reviews:
- Container labels to help healthcare providers and consumers select the right drug product. If a drug is made in multiple strengths – e.g., 5 mg, 10 mg, and 25 mg, – the labels of those three containers should be easy to differentiate. The label design may use different colors or identify the strength in large bold numbers and letters.
- Prescribing and patient information to ensure the directions for prescribing, preparing, and use are clear and easy to read.

### Strategies to Minimize Medication Error

- 1) Separate prescription should be written for each medication
- 2) Before signing the prescription the prescriber should recheck every parts of the prescription
- 3) Abbreviation of drug names should be avoided
- 4) The patient age should be mentioned in the prescription
- 5) The pharmacist should read the prescription carefully and should follow every steps of dispensing of the drugs
- 6) The pharmacist should check, if the doses are adequate or not , according to patient age
- 7) The nurses Should administered the right drug to the right patient in right dose at right time.
- 8) Multitask should be avoided during prescribing/dispersing and administrating the drug.
- 9) The health care professional should be stress free .
- 10) The workload of healthcare professionals should be in limit
- 11) LASA drugs should be handled carefully
- 12) Prescriber should write the prescription himself and should avoid dictation .

## Medication errors:

### **LASA drugs:**

- **LASA** stands for "Look-Alike-Sound-Alike" drugs, which are medications that have similar names or packaging but differ in their active ingredients or dosages.
- **Look Alike Sound Alike (LASA)** medications involve medications that are visually similar in physical appearance or packaging and names of medications that have spelling similarities. This can lead to medication errors if healthcare providers or patients mistake one drug for another.
- To prevent medication errors with LASA drugs, healthcare providers should always double-check the medication name and dosage before administering or prescribing it, and patients should always confirm with their healthcare provider or pharmacist that they have received the correct medication.
- **Example :-** levozin (levocetizine), livogen (iron)

## Medication errors:

### **Common Risk Factors:**

**Common risk factors associated with LASA medications includes:**

- **Illegible handwriting (Example :- levozin (levocetizine), livogen (iron))**
- **Incomplete knowledge of drug names**
- **Newly available products**
- **Similar packaging or labelling**
- **Similar strengths, dosage forms, frequency of administration**
- **Similar clinical use**

### **Strategies to avoid errors with Look Alike Sound Alike Medications**

- |                             |                            |
|-----------------------------|----------------------------|
| • <b>Storage</b>            | • <b>Monitoring</b>        |
| • <b>Prescribing</b>        | • <b>Information</b>       |
| • <b>Dispensing/ Supply</b> | • <b>Patient Education</b> |
| • <b>Administration</b>     | • <b>Evaluation</b>        |

## Medication errors:

### Tallman lettering as per ISMP:

- Drug name confusion, particularly because of look-alike/sound-alike (LASA) name attributes, can be a contributing factor to medication related adverse events.
- TALLman lettering is a method of applying upper-case lettering to sections of LASA drug names as a differentiation strategy.
- Tallman lettering is a technique used by healthcare professionals to differentiate look-alike or sound-alike medication names to prevent medication errors.
- The technique involves using mixed case letters and placing a tall letter (typically the first letter) in the name in uppercase letters to make it stand out.
- The Institute for Safe Medication Practices (ISMP) has recommended specific guidelines for the use of Tallman lettering.
- Example:-aza**T**HIOprine/ azithromycin , CARBO**P**latin/ CIS**P**latin

## Drug Interactions

- A drug interaction is a reaction between two (or more) drugs or between a drug and a food, beverage, or supplement.
- Taking a drug while having certain medical conditions can also cause a drug interaction. For example, taking a nasal decongestant if you have high blood pressure may cause an unwanted reaction.

### Clinical significance of drug interactions:

1. **Decreased effectiveness:** When two drugs interact, the effectiveness of one or both medications may be reduced. This can result in a decreased therapeutic effect.
2. **Increased toxicity:** Drug interactions can also result in an increased risk of adverse effects or toxicity. For example, when two drugs that are metabolized by the same enzyme are taken together, they may compete for the enzyme, leading to an accumulation of one or both drugs and an increased risk of toxicity.
3. **Altered pharmacokinetics:** Drug interactions can also alter the pharmacokinetics (i.e., the way the drug is absorbed, distributed, metabolized, and eliminated) of one or both medications. This can result in changes in the blood levels of the drugs, which can affect their effectiveness and toxicity.

