Medication Errors

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Definition of Medication Errors:

- 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 healthcare professional, patient, or consumer."*
  — National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP)

These events can be related to:

- Prescribing
- Order communication
- Labeling
- Dispensing
- Distribution
- Administration
- Education
- Monitoring

Types of Medication Errors:

1. **Prescribing Errors:**
   - Wrong drug, dose, dosage form, route, or frequency written by the prescriber.
2. **Omission Errors:**
   - Failure to administer a prescribed dose before the next scheduled dose.
3. **Wrong Time Errors:**
   - Administration of a drug more than 30 minutes before or after the scheduled time.
4. **Unauthorized Drug Errors:**
   - Administration of a drug not authorized for that patient.
5. **Wrong Dose Errors:**
   - Giving more or less than the prescribed dose.
6. **Wrong Dosage Form Errors:**
   - Wrong formulation (e.g., tablet instead of injection).

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7. **Wrong Route Errors:**
   - Administration via an incorrect route (e.g., IV instead of oral).
8. **Wrong Technique Errors:**
   - Incorrect technique in drug administration (e.g., improper injection method).
9. **Deteriorated Drug Errors:**
   - Use of expired or improperly stored medications.
10. **Monitoring Errors:**
    - Failure to review patient's response or monitor for adverse effects.
11. **Compliance Errors:**
    - Errors due to patient non-compliance with treatment.
12. **Look-Alike/Sound-Alike Errors (LASA):**
    - Confusion due to similar drug names in appearance or pronunciation.

Consequences of Medication Errors:

Consequence	Explanation
Patient Harm	Ranges from mild side effects to permanent disability or death.
Legal Issues	Litigation against healthcare providers or institutions.
Financial Burden	Increased cost of care due to extended hospital stay or additional treatments.
Loss of Trust	Patients may lose trust in the healthcare system or providers.
Professional Consequences	Disciplinary action, loss of license, or reputation damage to healthcare providers.

Strategies to Minimize Medication Errors:

1. System-Level Strategies

- Use of Computerized Physician Order Entry (CPOE)
- Barcoding for medication identification
- Automated Dispensing Cabinets (ADCs)
- Regular staff training and continuing education
- Standard medication administration protocols
- Implement Double-check systems, especially in high-alert drugs
- Clinical decision support systems (CDSS)

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2. Pharmacy-Level Strategies

- Avoid sound-alike/look-alike drugs being stored together
- Tallman lettering for LASA drugs
- Use of unit-dose packaging
- Clear and standardized labeling practices
- Regular medication reconciliation

3. Nurse/Clinician Strategies

- Apply the "5 Rights" of medication administration:
  - Right Patient
  - Right Drug
  - Right Dose
  - Right Route
  - Right Time
- Perform read-back and verify orders
- Ensure clear and legible documentation
- Educate patients on proper medication usage

LASA Drugs (Look-Alike Sound-Alike Drugs)

Definition:

LASA drugs are medications that are:

- **Look-alike** – These drugs may have similar packaging, label design, shape, color, or formulation (e.g., both are tablets with same color and size).
- **Sound-alike** – These drugs may have similar-sounding names, which can be confused when spoken, especially in noisy environments or over the phone.

Why are they important?

- They are a major cause of medication errors, particularly in busy hospital settings where healthcare professionals may:
  - Misread the label or prescription.
  - Mishear the name.
  - Choose the wrong drug from automated systems or shelves.

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Causes of LASA Drug Errors:

1. Similar drug names (generic or brand).
2. Poor handwriting in prescriptions.
3. Illegible or unclear labels.
4. Verbal miscommunication between doctors, pharmacists, and nurses.
5. Cluttered or disorganized storage of medications.
6. Lack of awareness or training among staff.
7. High-pressure environments (e.g., emergency or ICU).

Examples of LASA Drugs:

Look-Alike Drugs:

- These drugs appear visually similar in terms of:
  - Packaging
  - Labeling
  - Physical appearance (color, shape, size)

Drug 1	Drug 2	Risk of Confusion
Celebrex (celecoxib)	**Celexa** (citalopram)	Anti-inflammatory vs. Antidepressant
Lamisil	**Lamictal**	Antifungal vs. Anticonvulsant
NovoLIN	**NovoLOG**	Different types of insulin
Zantac	**Zyrtec**	Acid reducer vs. Antihistamine

Sound-Alike Drugs:

- These drugs are confused because their names **sound alike**, especially when spoken quickly.

Drug 1	Drug 2	Risk of Confusion
Hydralazine	**Hydroxyzine**	Antihypertensive vs. Antihistamine
Clonidine	**Klonopin**	Antihypertensive vs. Anticonvulsant
Adderall	**Inderal**	ADHD treatment vs. Beta-blocker

Consequences of LASA Errors:

1. **Adverse Drug Events (ADEs):** Unintended administration may lead to severe harm or death.
2. **Therapeutic failure:** The intended drug effect is not achieved.
3. **Toxicity or overdose:** If a wrong or higher dose drug is administered.

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