

# REVIEW ARTICLE CAUSE ON AND PREVENTION OF MEDICATION ERROR

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## Abstract:

Medication errors rank as the most frequent source of patient harm. They can display at various points in the healthcare process, ranging from prescribing to actual drug administration. Given the gravity of this issues, regulatory bodies have introduced guidelines to reduce the occurrence of these incidents. This topic dig in into the prevalent causes and categories of medication errors and their consequences for patients and the healthcare system. Next it underscores preventive strategies and the collaborative efforts of interprofessional teams in eradicating medication errors.

**Keyword:** Medication Errors, Prevention, pharmacist, medication safety, patient safety, pharmacy practice, healthcare.

## Introduction:

Medication errors are the most common and preventable causes of patient injury. These are errors typically involves administering the wrong drug or dose, administering it incorrectly, or giving medication to the wrong patient. The reported incidences of medication errors in acute hospitals are approximately 6.5 per 100 admissions.

The Institute of Medicine (IOM) Committee on Quality of Health Care in the United States defines an "error as the failures of the planned action to be completed as intended or the uses of a wrong plan to achieve an aim." The IOM identifies medical errors as a leading cause of death and injury. According to the 2019 World Health Organization (WHO) factsheet on patient safety, adverse events resulting from unsafe patient care rank among the top 10 causes of death and disability worldwide

## What is a medication error?

According to the United States National Coordinating Council for Medication Error Reporting and Prevention, the term "Medication Error" refers to any avoidable incident that is caused or result's in improper use of medication or harm to the patient while the medication is under the control of healthcare professionals, patients, or consumers. These incidents can be linked to professional practice, healthcare products, processes, and systems, including prescription writing, communication of medication orders, labelling and packaging of products, medication preparation, distribution, administration, education, monitoring, and utilization . It is estimated that in wealthy nations, 10% of patients experience harm during their hospital stay. Adverse events are responsible for harming, and almost half of these incidents are avoidable. Around the world, up to 40% of patients experience harm in primary and outpatient healthcare. Preventable harm accounts for as much as 80% of this figure. The most harmful mistakes are associated with the diagnosis, prescription, and administration of medications . Adverse events account for 15% of total hospital activity and expenses in OECD countries

## Adverse Drug Reaction (ADR)

As defined by the World Health Organization, an ADR is a harmful, unintended reaction to a medication occurring at normal treatment doses. Adverse Drug Event (ADE) An Adverse drug event is a term encompassing any harm resulting from medication and including harm from the drug at a standard dose and also harm due to inappropriate dosage or overdose.

. **Medication Misadventure** : A medication misadventure is any hazard associated with medication. Medication misadventures include medication errors, adverse drug events , and adverse drug reactions.

## Types of Medication Errors:

- \* Prescription error
- \* Dispensing error
- \* Administration error
- \* Monitoring error
- \* Wrong time

- \* Unauthorized medication
- \* Improper dose
- \* Compliance errors defined as not following protocol & rules made for dispensing and prescribing medications

### 1. Prescription error:

Prescription error can be stated as a set of pre-planned or planned acts that may not produce the expected result, according to theories of human error, because actions did not go as planned or because the plan was insufficient. The prescribing error is a common drug error that may be prevented in hospitals around the world. The types of prescription errors are dose, route, frequency, dosage-form, quantity to supply, omission errors same as the prescriber (including patient name, age, prescriber name, prescriber signature, patient visited department, and diagnosis), and commission errors (including wrong strength, incorrect drug name, incorrect dosage form, and drug-drug interaction). It can also be classified based on the potential impacts and discomfort to patients, pharmacists, and healthcare providers. It was developed as a result of three separate studies of prescription errors.

There are mainly four types of prescription errors: type A (potentially detrimental to the patient); type B (severe annoyance—need to contact pharmacist or doctor); type C (minor nuisance—pharmacist must use professional discretion); type D (trivial) .

### 2. Dispensing error:

Dispensing errors are any lack of consistency between the written instructions on the prescription order form and their fulfilment by the pharmacy when the medication is given to patients or hospital staff. Hospital units use a variety of medicines dispensing systems, each of which has a unique expectation of errors and mistakes. Missing doses, inaccurate patient, , item omissions, and medicine names, as well as incorrect patient names, are some of the most frequently seen dispensing errors. Some chemists may have abandon or failed to ask patients for identification forms before dispensing, which is one of the potential reasons for dispensing errors. Occasionally, incorrect patient names, spellings of names, and personal information were entered into the pharmacy database. Subsequently, this inaccurate information will be used, potentially results in dispensing errors. Missing doses, elimination of substances, and writing or entering the incorrect patient's name or medicine name are just a few of the mistakes that might result in a dispensing error.

### 3. Administration error:

Medication error is defined as "a medication error that occurs when a patient receives a medication that is different from what the prescriber intended. This can happen at any stage of the medication process, from prescribing to dispensing to administration. Medication errors can have serious consequences, including patient harm, increased length of stay in the hospital, and even death" . Errors in drug administration frequently entail omissions, where the medication is not provided for a number of reasons. Other drug administration mistakes include using the wrong technique and administering the wrong or expired medicines. The failure to confirm the patient's identity before administering the medication and the incorrect storage of similar preparations in similar locations are two variables that contribute to medication administration errors. These errors can also be caused due to environmental elements, including noise, interruptions during the medicalround, and inadequate illumination .

### 4. Monitoring error:

Medication errors require particular monitoring because they pose risks that are typically preventable. A monitoring error occurs when a prescribed medicine is not monitored according to the accepted standard of care in routine general practise. This includes not performing tests at the required frequency with a tolerance of 50%. However, if a patient refuses to give consent for a test, then this will not constitute an error.

**5.wrong time :** Wrong time errors , wherein a medication is given outside the predetermined interval from its scheduled time. Improper dosing errors , wherein a greater or lesser amount of a medication is delivered than is required to manage the patient's condition. Causes Of Medication Error Various studies have investigated the factors linked to medication errors. For example, the Commonwealth Fund International Health Policy Survey found that 11% of patients who experienced medication errors were at risk due to factors such as inadequate coordination of care, obstacles to accessing medical services or medicines due to cost, the presence of multiple health conditions, and hospitalisation . Several studies have indicated that

medication errors are linked to a higher number of prescribed medications, as well as to patients at either end of the age spectrum: children and older adults. In addition, certain medications and those prescribed for particular health conditions, such as musculoskeletal disorders, oncology and immunosuppression, dermatology, ophthalmology, otolaryngologic conditions, infections, and cardiovascular conditions, have also been associated with a higher risk of medication errors.

#### ☒ **Different factors leading to medication errors.**

1. The factors that are linked to healthcare professionals are:
2. Insufficient training in therapy.
3. Lack of experience and knowledge of drugs.
4. Limited knowledge of the patient.
5. Insufficient risk perception
6. Overworked or fatigued professionals.
7. Physical and emotional health problems
8. Ineffective communication within and between healthcare providers and patients

#### ☒ **Factors related to patients**

1. Patient characteristics.
2. Complexity of the clinical case.
3. Factors linked with medications:
4. The naming of medicines
5. The labelling and packaging of medications ☒

#### **Factors related to the work environment include:**

1. High workload and time constraints.
2. Disturbances and disruptions from both primary care staff and patients.
3. Inadequate standardisation of protocols and procedures.
4. Limited availability of resources.
5. Problems with the physical work environment, such as lighting, temperature, and ventilation.

#### ☒ **Factors related to tasks**

1. Patient monitoring may vary depending on the specific practise, patient, other healthcare settings, and prescriber.
2. use of standardised and repeatable procedures for tasks such as ordering, processing, and authorizing medications or treatments.

#### ☒ **Factors linked to computerised information systems**

1. Complicated procedures for creating initial prescriptions, such as confusing drug selection lists, preset dosage regimens, and missed notifications.
2. Challenging procedures for producing accurate refill prescriptions.
3. absence of precision or correctness in the patient's medical records
4. A design that is not adequate enough to prevent human errors.

#### ☒ **Factors related to the work environment include**

1. 2. 3. High workload and time constraints
- Limited availability of resources
- Inadequate standardisation of protocols and procedures
- Disturbances and disruptions from both primary care staff and patients

Problems with the physical work environment, such as lighting, temperature, and ventilation.

## ▣ Interface between primary and secondary healthcare services.

### 1. 2. Prevention

Poor communication between primary and secondary care

Insufficient explanation or reasoning behind recommendations from secondary care.

1) **Ask Questions and Disclose as Much Information as You Can** Ask your doctor or pharmacist questions about your medications and what they treat. Knowing what medications you take and why can help you identify possible problems. These potential issues include duplicate therapy (taking two of the same medication or two of the same type of medication), drug allergies, changes in dose and discontinuation of medications. If you are allergic to a certain medication or have had a past issue with one, it is critical that you relay that information to all of your doctors and pharmacists. This will help keep you from receiving that medication or a similar one in the future.

2) **Use One Pharmacy and One Doctor** Having multiple doctors and pharmacies can be problematic. When you have multiple doctors, one doctor may not be aware of what the other is prescribing. This can result in you getting medications of the same type and medications that interact with each other. Furthermore, if you use more than one pharmacy, neither pharmacist will have enough information to identify these issues. Filling all of your prescriptions at one pharmacy can prevent you from receiving duplicate therapy and medications that may interact with each other. If you must have multiple doctors, keep an up-to-date medication list that you can give to each of them.

3) **Keep Your Medications Separate** Keeping medications separate can keep you from confusing them and taking them incorrectly. Some medications require certain storage conditions. For example, nitroglycerin tablets used to treat chest pain must be kept in an amber (dark-colored) glass bottle to keep their potency.

4) **Follow Doctor or Pharmacist Instructions and Stay on Schedule** Do not take more medication than instructed by your doctor and pharmacist. Taking more than recommended can result in more side effects and may harm you. Following instructions also includes not missing doses. Always get your refills on time to avoid missing doses. Missing a dose of your medication can be considered a medication error through omission. Missing doses can delay your recovery or make it more difficult to manage your health condition. When you miss doses of certain medications and for certain health conditions, you can become more ill and may have to be treated in the hospital.

5) **Use the Right Tools** If you need to use a measuring device to take your medication, always use the accurate one, such as the one provided with your medication. Kitchen spoons do not count. Using the accurate measuring device ensures you are receiving the correct amount of medication.

6) **Don't Chew or Crush Medications** Unless your doctor or pharmacist says so, that is. Patients who have trouble swallowing pills often try to cut, chew, open, or crush the tablet or capsule. This may become an issue with long-acting medications like those that are available in XR, XL, SR and ER formulations. When the long-acting formulations are cut, crushed or chewed, they may release the medication too quickly and not last the way they are designed to. Also, they may actually harm you if they are not administered as instructed. Always ask your doctor or pharmacist about the best way to administer your medication. If you have trouble swallowing pills, ask to your doctor or pharmacist.

Health professionals can recommend an appropriate formulation.

7) **Get Rid of Old Medications Properly** dispose of all medications you are no longer taking or those that have expired. Expired medications are no longer as effective because they lose potency after their expiration date. Furthermore, some medications can be harmful when taken after the expiry date.

8) **make a List** Keep an updated list of all medications you take, including over-the-counter medications and herbal and nutritional supplements. You can provide this list to your doctor and pharmacist. It's also very important to ask your pharmacist and doctor about all of the medications you take, including vitamins, supplements, over-the-counter drugs and prescriptions. Even over-the-counter medications can interact with other drugs or your prescription medications.

## CONCLUSION :

In conclusion, medication errors refer to any avoidable incidents that can cause harm or improper use of medication while under the control of healthcare professionals, patients, or consumers. The most harmful medication errors are related to the diagnosis, prescription, and administration of medications and can be linked to professional practice, healthcare products, processes, and systems. Prescription errors, dispensing errors, administration errors, and monitoring errors are the four main types of medication errors. Medication errors can be caused by various factors, such as inadequate coordination of care, obstacles to accessing medical services, multiple health conditions, hospitalisation, and specific medications. Clinical pharmacy services have become integral to ensuring patient safety in hospitals and have undergone significant developments

over the last few decades, helping to reduce medication errors and prevent harm to patients. Overall, it is crucial for healthcare professionals and consumers to be aware of medication errors, their types, causes, and prevention measures to ensure patient safety and improve the quality of care

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