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## **A REVIEW ON MEDICATION ERRORS AND ROLE OF PHARMACIST**

*Ashitha Suresh<sup>1</sup>, Mohammad H<sup>2</sup>*

Department of pharmacy practice ,Malik Deenar College of Pharmacy Seethangoli Kasaragod, Kerala, India

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### **ABSTRACT :**

One of the most important global public health concerns at the moment is medication errors. Negative drug reactions will result in the patient not adhering to their treatment plan. In this study, the prevalence and kind of medication errors were assessed, along with the role of clinical pharmacists play in their detection and prevention. In both hospital and community settings, it intends to assess the most frequent medication errors and the role that pharmacists play in preventing these everyday prescription errors. Due to its significant impact on death, disease, and increased healthcare expenses, medication errors have rightfully drawn a lot of attention in recent years. Patients may suffer serious consequences as a result of medication errors, and pharmacists are essential in preventing and reducing these errors. This session covers a variety of medication errors types and causes.

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### **INTRODUCTION :**

Medication errors can happen at any point of the medication usage process, from administration to prescription. Patients may experience severe side effects from them, such as deaths from treatment failures and adverse reactions to the drugs. drug-related issues are frequent, with reports of drug errors ranging from 1.5 to 35% of all doses administered to hospitalized patients.<sup>1</sup> Multiple layers of patient protection are made possible by the pharmaceutical care given by clinical pharmacists in hospital settings, which can lower the possibility of these errors.<sup>2</sup> The hospital pharmacist can play a critical role in enhancing medication quality since they are in the greatest position to supervise the quality of the entire drug distribution chain, from prescription, drug selection, preparation, and dispensing to drug administration. The majority of the drug distribution chain's components can be made more efficient, but there isn't much scientific data to support claims that these interventions will increase medicine safety because there aren't enough comparable intervention studies.<sup>3</sup> Medication errors refer to "preventable events that can occur at any stage of the medication process, from prescribing to administration, which may lead to inappropriate medication use or patient harm".<sup>3</sup>

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### **TYPES OF MEDICATION ERRORS :**

#### **1. Prescribing Errors:**

- Incorrect dosage: Prescribing a medication at a dose that is too high or too low for the patient's condition or characteristics.
- Wrong medication: Prescribing the wrong medication due to look-alike or sound-alike drug names, illegible handwriting, or confusion between medications with similar names.
- Allergy or contraindication: Prescribing a medication to which the patient has a known allergy or which is contraindicated due to the patient's medical condition or concurrent medications.

#### **2. Transcription Errors:**

- Misinterpretation: Misinterpreting the prescriber's instructions or writing down the wrong dosage or medication.
- Data entry mistakes: Incorrectly entering prescription information into electronic health records or pharmacy dispensing systems.

#### **3. Dispensing Errors:**

- Wrong drug or strength: Dispensing a medication different from what was prescribed or providing the wrong dosage strength.
- Labeling errors: Incorrectly labeling medication containers, leading to confusion during administration.

#### **4. Administration Errors:**

- Wrong patient: Administering a medication to the wrong patient due to misidentification or incorrect patient labeling.
- Incorrect route: Administering a medication via the wrong route (e.g., intravenous instead of oral) or using the wrong technique.

#### **5. Monitoring Errors:**

- Failure to monitor: Neglecting to monitor patients for potential adverse effects or therapeutic outcomes after medication administration.
- Inadequate follow-up: Failing to follow up on abnormal laboratory results or medication-related concerns.

#### **6. Documentation Errors:**

- Incomplete or inaccurate documentation of medication administration, dosages, or patient information in medical records.<sup>15</sup>

Developing strategies for identifying patients who are more likely to experience adverse drug events, conducting risk assessments in clinical pharmacy, and reducing the drug distribution chain are a few potential treatments meant to lower the number of medication errors. Furthermore, the unique contribution of the clinical pharmacist to enhancing medication safety is emphasized, both from an organizational level and in individual patient care.<sup>4</sup>

In recent years, there has been a lot of attention paid to the problems of pharmaceutical errors and safety. People have become aware of the significant risks associated with administering medication and the high

costs resulting from medication errors due to a number of seminal publications, including *To Err is Human: Building a Safer Health System*<sup>4</sup> in the US, *Building a Safer NHS for Patients: Improving Medication Safety*,<sup>5</sup> and *A Spoonful of Sugar: Medicines Management in NHS Hospitals*<sup>6</sup> in the UK. According to estimates, medical errors cause between 44,000 and 98,000 deaths annually in US hospitals, which is more than the number of deaths linked to the eighth leading cause of death. In the US, medical errors account for a higher number of deaths annually than car accidents, breast cancer, or AIDS combined.<sup>4</sup>

Since the 1960s, research on medication errors has been conducted; most of the publications have focused on hospitalized patients.<sup>10</sup> A number of studies have examined errors related to prescribing, dispensing, and administration; some have included adverse reactions as errors if they were thought to be preventable; some have included mistakes related to timing, while other studies have excluded them as less significant.<sup>11</sup>

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## CAUSES OF MEDICATION ERRORS :

The process of using medications is complex and requires participation from patients, doctors, pharmacists, nurses, and other healthcare professionals. Both human and system elements may be engaged when an error happens. Numerous researchers have endeavored to identify the worldwide origins of drug errors. 13 primary causes of medication errors were found in a systems study of adverse drug events published by Leape et al. in 1995,<sup>7</sup> as follows:

- Lack of drug knowledge
- Lack of patient information
- Rule-based mistakes
- Slips and memory lapses
- Poor interaction with other services
- Transcription errors
- Improper identity checking
- Incorrect dose checking
- Infusion pump problems
- Inadequate monitoring
- Drug distribution problems
- Drug preparation errors
- Lack of standardization

The list enumerates the systemic and psychological factors that contribute to errors. Errors in problem solving and physiological and psychological aspects of human behavior are examples of human factors linked to error. Anything that diverts attention during mental functioning, such as lack of sleep, drink, illness, overwork, noise, heat, and visual stimuli, can have an impact on physiological and psychological aspects. When solving problems, mistakes usually arise from ignorance, poor rule selection, or misinterpretation of the facts.<sup>8</sup>

The most frequent reasons why pharmaceutical errors occur are :

- Illegible handwriting
- Incorrect transcribing
- Inaccurate dosage calculation
- Poorly trained staff
- Incorrect abbreviations used in prescriptions
- Incorrect labeling
- An excessive workload
- Lack of medication<sup>9</sup>

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## ROLE OF PHARMACIST :

Through a variety of practices and treatments, pharmacists play a critical role in avoiding and reducing drug errors. Here are a few of them:

### 1. Medication Review:

In order to make sure that the drug, dosage, frequency, and mode of administration are appropriate for the patient's condition and medical history, pharmacists check prescriptions for accuracy and appropriateness.

### 2. Drug Interaction Monitoring:

Potential drug interactions between prescription, over-the-counter, and supplement medications are identified by pharmacists. They advise medical professionals on how to reduce the possibility of negative reactions.

**3. Patient Counseling:**

Patients receive information from pharmacists regarding prescription drugs, including how to take them, possible adverse effects, and precautions. Patients gain an understanding of their treatment plan and the ability to properly manage their health as a result.

**4. Medication Reconciliation:**

In order to find inconsistencies and avoid prescribing the same drug to patients more than once or omitting it altogether during care transitions like hospital discharge or provider changes, pharmacists reconcile patients' medication histories.

**5. Compounding and Dispensing:**

By ensuring that medication is compounded and dispensed accurately, pharmacists reduce the possibility of dose or formulation problems.

**6. Adverse Event Reporting:**

Pharmacists are essential in keeping an eye on adverse drug events and reporting them to regulatory bodies, which helps to uncover possible drug safety issues.

**7. Quality Assurance:**

To find systemic flaws that lead to prescription errors and put safety improvements in place, pharmacists take part in quality assurance programs in healthcare facilities.

**8. Technology Utilization:**

Pharmacists use technology to help with effective drug management and lower the risk of errors. Examples of this technology include computerized prescribing systems and clinical decision support tools.

**9. Continuous Education:**

To stay current on new drugs, policies, and medication management best practices, pharmacists participate in continuing education and training programs. This helps them to deliver high-quality treatment and avoid mistakes.<sup>12</sup>

In general, pharmacists collaborate with other medical experts to improve patient outcomes and safety, making them vital members of the healthcare team in the prevention and management of prescription errors.<sup>13</sup>

Throughout the healthcare system, pharmacists are essential in preventing, detecting, and correcting pharmaceutical errors. In conclusion, pharmacists have a variety of responsibilities when it comes to treating prescription errors, including patient advocacy, prevention, identification, and correction. To ensure drug use is safe and effective and to maximize patient outcomes, their knowledge and proactive involvement are crucial<sup>14</sup>.

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