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Nursing Compliance with Medication Administration and Management of Omitted Doses: A Clinical Audit in Two Hospital Wards

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Abstract

Background: Medication administration is a critical component of patient safety. Nurses in hospitals serve as the final checkpoint in the medication use process, ensuring that prescribed medications are administered correctly and safely. Failure to administer medications as prescribed or delays in obtaining medications can lead to treatment failure and adverse patient outcomes, particularly with high-alert medications.

Objective: This clinical audit aimed to evaluate nursing compliance with medication administration practices, documentation standards, and the management of omitted medication doses in two hospital wards.

Methods: A retrospective audit of 60 medication charts (Kardex) from two hospital wards was conducted using a structured audit tool evaluating nine medication safety criteria: patient identification, review of medication orders, verification of dose and time, documentation of medication administration, documentation of omitted doses, communication of omitted doses to the healthcare team, medication availability, allergy status verification, and patient education and consent.

Results: Full compliance (100%) was observed for patient identification, documentation of medication administration, and patient consent. However, deficiencies were identified in several areas. 25% of medication charts contained incomplete prescribing instructions, 48% showed discrepancies related to dose or timing verification, and 42% of nurses documented omitted doses without informing the clinical team. In addition, 25% of nurses did not obtain unavailable medications from pharmacy promptly, resulting in missed doses for up to two days. Allergy documentation was absent in 16.7% of medication charts.

Conclusion: While nurses demonstrated strong adherence to patient identification and documentation standards, gaps remain in medication verification, communication regarding omitted doses, and medication supply management. Pharmacist-led education and improved multidisciplinary collaboration are essential to enhance medication safety and reduce omitted doses.

Keywords: Medication Safety, Nursing Compliance, Medication Administration, Omitted Doses, High-Alert Medications, Clinical Pharmacy Audit

Introduction

Medication errors remain a significant challenge in healthcare systems worldwide and are recognized as a major cause of preventable patient harm. The World Health Organization (WHO) launched the global initiative Medication Without Harm to reduce severe avoidable medication-related harm by 50%.

Medication administration involves multiple healthcare professionals; however, nurses are responsible for the final stage of the medication process and therefore act as the last safety barrier before medication reaches the patient. Their responsibilities include verifying medication orders, ensuring correct dosing and timing, monitoring therapeutic responses, and documenting medication administration accurately.

The safe administration of medications is guided by the internationally recognized six rights of medication administration, which include the right patient, right medication, right dose, right route, right time, and right documentation. Failure to adhere to these principles may lead to medication errors such as incorrect dosing, delayed administration, or omitted doses.

Omitted medication doses are among the most commonly reported medication administration errors in hospitals. An omitted dose occurs when a prescribed medication is not administered before the next scheduled dose. Depending on the medication

involved, this can result in significant clinical consequences. This risk is particularly important for high-alert medications, defined as medications with a high risk of causing serious harm if used incorrectly. According to the Institute for Safe Medication Practices (ISMP), examples include insulin, anticoagulants, opioids, and chemotherapy agents. Certain medications should not be stopped abruptly due to the risk of withdrawal or rebound effects. Examples include:

- Beta-blockers – abrupt discontinuation may cause rebound hypertension and tachycardia
- Corticosteroids – sudden withdrawal may cause adrenal insufficiency
- Antiepileptic drugs – discontinuation may precipitate seizures
- Clonidine – sudden cessation may lead to severe rebound hypertension
- Anticoagulants – missed doses increase the risk of thromboembolic events

Pharmacists play an important role in improving medication safety through medication review, ensuring medication availability, and providing education to nursing staff regarding medication safety and high-risk medications.

This clinical audit was initiated after repeated observations by a senior ward pharmacist that several patients had missed prescribed medications, including high-alert drugs. The aim of this audit was to evaluate nursing compliance with medication administration standards and identify factors contributing to omitted medication doses.

Methods

Study Design

A retrospective clinical audit was conducted to assess nursing compliance with medication administration standards.

Setting

The audit was performed in two inpatient hospital wards.

Sample Size

A total of 60 medication charts (Kardex) were reviewed.

Audit Tool

A structured audit questionnaire was developed based on international medication safety guidelines and included nine criteria:

1. Patient identification prior to medication administration
2. Review of medication orders
3. Verification of correct dose and timing
4. Documentation of medication administration
5. Documentation of omitted doses
6. Communication of omitted doses to the healthcare team
7. Timely ordering of unavailable medications from pharmacy
8. Allergy status verification
9. Patient education and consent

Results: Overall Compliance

Audit Criterion	Compliance (n)	Percentage
Patient identification	60	100%
Review of medication orders	45	75%
Verification of dose and timing	21	35%
Documentation of medication administration	60	100%
Documentation of omitted doses	60	100%
Communication of omitted doses	35	58%
Documentation in nursing notes	20	33%
Timely ordering from pharmacy	45	75%
Allergy documentation	50	83%
Patient consent documentation	60	100%

Prescribing Issues

Fifteen medication charts (25%) contained prescribing issues such as duplicate charts, missing dose regimens, or incomplete instructions.

Omitted Doses

Although all omitted doses were documented, 25 nurses (42%) did not inform the clinical team after documenting the omission. The most frequent reason for omitted doses was patient refusal of medication.

Medication Availability

In 15 cases (25%), medications were not ordered from the pharmacy in a timely manner, leading to missed doses for 1–2 days.

Discussion

Medication administration errors remain one of the most frequently reported patient safety incidents in hospital settings. Nurses play a critical role in preventing these errors because they are responsible for the final stage of the medication process. Consequently, their adherence to medication administration protocols is essential for minimizing medication-related harm.

The findings of this clinical audit demonstrated high compliance in several key areas of medication administration practice. Full compliance was observed for patient identification, documentation of medication administration, and patient consent. These findings indicate that fundamental safety procedures are well established among nursing staff within the audited wards.

However, several areas requiring improvement were identified. One of the most significant concerns was the low compliance rate for verification of medication dose and administration time, which was observed in only 35% of medication charts. Failure to verify medication dose and timing is a recognized contributor to medication administration errors and can result in incorrect dosing or delayed treatment. Studies evaluating medication administration practices have shown that timing errors and omitted doses are among the most common medication administration errors in hospitals, often occurring due to workload pressures, interruptions during medication rounds, and insufficient verification processes.

Another important finding was the incomplete review of medication orders, which occurred in 25% of medication charts. Prescribing errors such as incomplete dosing instructions or duplicate medication charts may increase the risk of medication administration errors if not identified by nursing staff. Nurses are expected to clarify unclear medication orders before administration, and failure to do so may compromise patient safety.

The audit also revealed that although omitted doses were consistently documented, 42% of nurses did not communicate these omissions to the healthcare team. This finding is particularly concerning because failure to report omitted doses may delay clinical decision-making and

compromise patient outcomes. Previous studies have highlighted that communication failures between healthcare professionals are a major contributing factor to medication errors. In many healthcare settings, omitted doses may be documented but not escalated appropriately to physicians or pharmacists, thereby limiting opportunities for timely intervention.

Patient refusal of medication was identified as the most common reason for omitted doses in this audit. While patient autonomy must be respected, healthcare professionals should ensure that the reasons for refusal are explored and documented appropriately. Nurses should notify the prescribing physician when essential medications are refused so that alternative formulations or therapeutic strategies can be considered.

Medication availability was another important factor contributing to missed doses. In 25% of cases, medications were not ordered from the pharmacy in a timely manner, resulting in treatment interruptions lasting up to two days. Previous research has demonstrated that medication unavailability and delays in medication procurement are common system-related causes of omitted doses. Electronic medication management systems and automated medication dispensing systems have been shown to reduce these delays by improving medication tracking and inventory control.

Allergy documentation was missing in 16.7% of medication charts. Although this percentage is relatively low compared to other compliance indicators, incomplete allergy documentation may expose patients to serious adverse drug reactions. International patient safety guidelines emphasize that allergy verification should be performed before medication administration as a routine safety check.

Another important aspect identified in the literature is the role of knowledge gaps among nurses regarding pharmacology and medication safety. Studies have shown that insufficient pharmacological knowledge and lack of continuing education may contribute to medication administration errors. For example, research examining drug knowledge among nurses found that a significant proportion of nurses demonstrated limited understanding of medication safety principles and error reporting procedures.

The findings of this audit are consistent with international evidence suggesting that medication omissions represent a substantial proportion of medication administration errors. Large observational studies have reported that omitted doses account for approximately 30% of medication administration errors in hospital settings, highlighting the need for targeted interventions aimed at improving medication administration practices.

Pharmacists play a critical role in improving medication safety by supporting medication reconciliation, ensuring medication availability, and providing education to healthcare professionals. Pharmacist-led interventions, including medication safety training and participation in multidisciplinary ward rounds, have been associated with significant reductions in medication administration errors and improved adherence to medication safety protocols.

Implementing structured educational programs for nurses focusing on high-alert medications, medication verification procedures, and appropriate management of omitted doses may significantly enhance medication safety. In addition, strengthening communication pathways between nurses, physicians, and pharmacists may improve the timely management of medication omissions.

This audit highlights the importance of continuous monitoring of medication administration practices through clinical audits. Regular audits provide valuable insights into system weaknesses and enable healthcare organizations to implement targeted quality improvement interventions.

Action Plan

Based on the findings of this audit, several interventions are recommended to improve medication safety and reduce omitted medication doses.

Pharmacist-Led Education

- High-alert medications
- Medications that should not be abruptly discontinued
- Safe medication administration practices
- Management of omitted doses Medication Availability Management Omitted Dose Management Protocol

Re-Audit Plan:

A re-audit will be conducted three months after implementation of the action plan to evaluate the effectiveness of the interventions.

The re-audit will use the same methodology and audit tool to ensure comparability with the initial audit.

Target Compliance Standards

Audit Criterion	Current	Target
Review of medication orders	75%	≥95%
Dose and timing verification	35%	≥90%
Communication of omitted doses	58%	≥95%
Nursing note documentation	33%	≥90%
Timely medication ordering	75%	≥95%
Allergy documentation	83%	100%

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