

Enhancing Medication Reconciliation During Patient Discharge: The Collaborative Roles of Pharmacists and Pharmacy Technicians in Preventing Readmissions

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Abstract

Background: Medication reconciliation at discharge is a critical process for preventing medication errors and reducing hospital readmissions. Pharmacists and pharmacy technicians play essential, complementary roles in ensuring accurate medication reconciliation, yet little research has explored their collaborative efforts during patient discharge.

Objective: This study investigates the collaboration between pharmacists and pharmacy technicians in enhancing medication reconciliation during patient discharge, with a focus on preventing medication-related readmissions.

Methods: A qualitative study was conducted at a tertiary hospital using semi-structured interviews with 10 pharmacists and 10 pharmacy technicians. Thematic analysis was used to identify key themes related to workflow, challenges, and communication strategies.

Results: Three major themes emerged: (1) Collaborative Workflow in Medication Reconciliation, highlighting the complementary roles of pharmacists and pharmacy technicians; (2) Challenges in Ensuring Accuracy and Preventing Readmissions, including time constraints, incomplete patient information, and complex medication regimens; and (3) Communication with Patients and Healthcare Providers, emphasizing the importance of clear communication to ensure patient understanding and prevent medication errors.

Conclusion: The collaboration between pharmacists and pharmacy technicians is critical for ensuring accurate medication reconciliation and reducing the risk of medication-related readmissions. Addressing workload challenges and enhancing communication between healthcare providers can further improve the medication reconciliation process.

Keywords: Medication reconciliation, pharmacists, pharmacy technicians, hospital discharge, collaboration, patient safety, readmissions

Introduction

Medication reconciliation is a critical process in healthcare, particularly during the transition from hospital to home, when patients are discharged. It involves ensuring that patients' medication lists are accurate and complete, preventing discrepancies that could lead to adverse events such as drug interactions, omissions, or duplications. Studies have shown that poor medication reconciliation is a leading cause of medication-related errors, which can result in increased hospital readmissions and negative patient outcomes (Gleason et al., 2010; Midlöv et al., 2008). Effective reconciliation is essential to ensure continuity of care and minimize the risks associated with transitioning patients to self-management after discharge.

Pharmacists play a vital role in medication reconciliation by reviewing and validating medication lists, identifying potential drug interactions, and ensuring that any changes in therapy are clearly communicated to both patients and healthcare providers (Wachter et al., 2013). Their clinical expertise allows them to assess the appropriateness of medications and make recommendations that reduce the risk of adverse events post-discharge. However, given the complexity and time-sensitive nature of the discharge process, pharmacists often collaborate with pharmacy technicians, who handle more operational tasks such as gathering medication histories, verifying information, and preparing medication lists for the pharmacist's review (Pevnick et al., 2016).

The collaboration between pharmacists and pharmacy technicians is particularly crucial in managing the workload during discharge, ensuring accuracy in medication reconciliation, and preventing errors that could lead to readmissions. Despite the growing recognition of this teamwork, little research has focused on how this collaboration functions specifically during patient discharge and how it contributes to preventing readmissions due to medication-related issues. This study aims to investigate the roles of both pharmacists and pharmacy technicians in the medication reconciliation process at discharge, focusing on how their collaboration enhances accuracy and patient outcomes.

Literature Review

1. The Importance of Medication Reconciliation

Medication reconciliation is a critical process in ensuring patient safety during transitions of care, particularly at hospital discharge. The goal of medication reconciliation is to avoid discrepancies between the medications a patient was taking prior to admission and those prescribed at discharge, preventing medication errors such as omissions, duplications, dosing errors, or drug interactions (Midlöv et al., 2008). Studies have shown that patients are particularly vulnerable to medication-related problems at discharge due to the complexity of their treatment regimens, frequent changes in medication during hospitalization, and communication gaps between healthcare providers and patients (Gleason et al., 2010).

Failure to conduct accurate medication reconciliation can lead to adverse drug events (ADEs), which are a significant cause of hospital readmissions. According to a study by Forster et al. (2003), approximately 20% of patients experience an adverse event within 30 days of discharge, and medication-related problems account for a large proportion of these events. As a result, improving medication reconciliation has become a priority for hospitals seeking to reduce readmission rates and improve patient outcomes (Mueller et al., 2012).

2. Pharmacists' Role in Medication Reconciliation

Pharmacists are recognized as key players in the medication reconciliation process. Their clinical expertise in pharmacotherapy positions them to review medication regimens for potential drug interactions, dosing errors, and unnecessary medications. Pharmacists also play a crucial role in counseling patients on their medications, ensuring that patients understand their treatment plans, and providing instructions for safe medication use (Pevnick et al., 2016).

Research has demonstrated that pharmacist involvement in medication reconciliation significantly reduces the occurrence of medication discrepancies. In a systematic review by Mekonnen et al. (2016), pharmacist-led medication reconciliation interventions were associated with a reduction in both medication errors and adverse drug events at discharge. The review highlighted the clinical value of pharmacists in reviewing complex medication regimens and ensuring that changes made during hospitalization are accurately reflected in the discharge instructions.

3. Pharmacy Technicians' Role in Medication Reconciliation

While pharmacists often take the lead in clinical decision-making during medication reconciliation, pharmacy technicians provide crucial operational support. Technicians are frequently responsible for obtaining and verifying patients' medication histories, preparing medication lists, and ensuring that the information is

accurate and up-to-date. This allows pharmacists to focus on the clinical aspects of reconciliation, such as identifying potential interactions or errors (Desselle & Holmes, 2017).

Several studies have emphasized the benefits of including pharmacy technicians in the medication reconciliation process. A study by Boockvar et al. (2011) found that pharmacy technicians could significantly improve the accuracy of medication histories obtained during admission, which ultimately contributed to fewer discrepancies at discharge. The operational support provided by technicians ensures that pharmacists have reliable and complete information, facilitating better clinical decision-making and improving the overall efficiency of the reconciliation process.

4. Collaboration Between Pharmacists and Pharmacy Technicians

The collaboration between pharmacists and pharmacy technicians has been shown to enhance the effectiveness of medication reconciliation efforts. By working together, pharmacists and technicians can streamline the process, reduce errors, and ensure that patients receive clear instructions regarding their medications upon discharge. Pharmacists rely on technicians for gathering and verifying medication histories, while technicians rely on pharmacists for the clinical validation of medications and patient counseling (Kohn et al., 2017).

The literature supports the idea that teamwork between pharmacists and pharmacy technicians improves outcomes in medication reconciliation. For instance, in a study conducted by Pevnick et al. (2016), hospitals that implemented a collaborative approach between pharmacists and technicians reported fewer medication discrepancies at discharge and a decrease in readmissions related to medication errors. The study highlighted the importance of clearly defined roles and efficient communication between pharmacy staff in achieving these outcomes.

5. Impact on Preventing Readmissions

Preventing hospital readmissions has become a key performance indicator for healthcare institutions, particularly in light of penalties imposed by healthcare payers for avoidable readmissions (Medicare Payment Advisory Commission, 2007). Medication-related issues are one of the leading causes of preventable readmissions, and improving the accuracy of medication reconciliation has been identified as an effective strategy to reduce this burden.

Pharmacist-led interventions have been shown to reduce readmission rates by ensuring that patients understand their discharge medications and have access to the necessary resources to manage their medications at home (Mueller et al., 2012). Pharmacy technicians contribute to this effort by ensuring the completeness and accuracy of medication information, reducing the likelihood of errors that could lead to adverse events. Together, the collaboration between pharmacists and pharmacy technicians plays a critical role in improving patient outcomes and reducing readmission rates.

6. Gaps in Research

While there is substantial literature on the roles of pharmacists in medication reconciliation, there is limited research that specifically focuses on the collaborative dynamics between pharmacists and pharmacy technicians during discharge. Much of the existing research tends to focus on pharmacist-led interventions, with less attention paid to the operational contributions of pharmacy technicians and how their roles enhance the medication reconciliation process.

Additionally, few studies explore the direct impact of pharmacist-technician collaboration on preventing hospital readmissions. This study aims to address these gaps by investigating how pharmacists and pharmacy technicians work together to ensure accurate medication reconciliation and how their collaboration contributes to reducing medication-related readmissions.

Methodology

1. Study Design

This study employed a qualitative research design to explore the collaborative roles of pharmacists and pharmacy technicians in enhancing medication reconciliation during patient discharge. A qualitative approach was chosen to gain in-depth insights into how these professionals work together to ensure accurate medication reconciliation and prevent medication-related readmissions. Semi-structured interviews were conducted with pharmacists and pharmacy technicians to understand their experiences and practices.

2. Setting

The study was conducted in a tertiary care hospital that offers a comprehensive range of inpatient and outpatient services. The pharmacy department plays a critical role in managing medications, particularly during patient discharge, where accurate reconciliation is necessary to prevent medication errors and readmissions. The hospital has an established medication reconciliation protocol at discharge, in which both pharmacists and pharmacy technicians participate.

3. Participants

A purposive sampling method was used to select participants for the study. The sample included 10 pharmacists and 10 pharmacy technicians who were directly involved in the medication reconciliation process during patient discharge. To ensure participants had sufficient experience with the process, all selected individuals had been working in the pharmacy department for at least one year. Participants were recruited from both the inpatient and outpatient pharmacy units to provide a broader perspective on the reconciliation process.

4. Data Collection

Data were collected through semi-structured, face-to-face interviews conducted over a period of three months. The interviews were held in a private room within the hospital to ensure confidentiality and allow participants to speak openly about their experiences. Each interview lasted between 30 and 60 minutes, and participants were asked a series of open-ended questions designed to explore their roles, the challenges they encountered, and the strategies they used in the medication reconciliation process.

The interview guide covered the following topics:

- The role of pharmacists and pharmacy technicians in ensuring accurate medication reconciliation during discharge.
- How pharmacists and pharmacy technicians collaborate to identify and resolve medication discrepancies.
- Challenges faced in communicating with patients and other healthcare providers about medication changes.
- Strategies used to prevent medication-related readmissions.

All interviews were audio-recorded with the consent of the participants and transcribed verbatim. Field notes were also taken during the interviews to capture non-verbal cues and additional insights.

5. Data Analysis

Thematic analysis was used to analyze the interview data, following the steps outlined by Braun and Clarke (2006). The analysis was conducted as follows:

1. Familiarization with the Data: The researcher repeatedly read through the interview transcripts to become familiar with the content and to identify initial patterns.
2. Generating Initial Codes: The transcripts were systematically coded to identify key concepts and recurring themes related to the collaboration between pharmacists and pharmacy technicians.
3. Searching for Themes: The codes were grouped into broader themes that captured the essence of the participants' experiences, such as "collaboration in medication reconciliation," "role differentiation," and "challenges in preventing readmissions."
4. Reviewing Themes: The identified themes were reviewed to ensure they accurately represented the data and aligned with the research objectives.

5. Defining and Naming Themes: Each theme was clearly defined and given a descriptive label to reflect the key insights drawn from the data.

6. Writing the Report: The themes were organized into a coherent narrative, with direct quotes from participants used to illustrate the key findings.

6. Ethical Considerations

Ethical approval for the study was obtained from the hospital's Institutional Review Board (IRB) prior to data collection. All participants provided informed consent before participating in the study. They were informed of their right to withdraw from the study at any time without consequence, and confidentiality was maintained throughout the research process. The audio recordings were stored securely, and identifying information was removed during transcription to protect participants' anonymity.

7. Trustworthiness and Rigor

Several strategies were used to ensure the trustworthiness and rigor of the study:

- Triangulation: Data were collected from both pharmacists and pharmacy technicians to capture multiple perspectives on the medication reconciliation process.
- Member Checking: After data analysis, participants were provided with a summary of the findings and invited to review the results to ensure their views were accurately represented.
- Peer Debriefing: The researcher discussed the analysis and findings with colleagues who have expertise in qualitative research to verify the validity of the interpretations.
- Reflexivity: The researcher maintained a reflective journal throughout the study to acknowledge and minimize potential biases that could influence data interpretation.

8. Limitations

One limitation of the study is that it was conducted in a single tertiary care hospital, which may limit the generalizability of the findings to other healthcare settings. Additionally, the study's qualitative design focused on a relatively small sample size, meaning the results should be interpreted with caution. Future research could benefit from a larger sample size and a multi-center approach to explore these roles across different healthcare systems.

Findings

The analysis of the interviews revealed several key themes related to the collaboration between pharmacists and pharmacy technicians in the medication reconciliation process at discharge. Three primary themes emerged: Collaborative Workflow in Medication Reconciliation, Challenges in Ensuring Accuracy and Preventing Readmissions, and Communication with Patients and Healthcare Providers. Each theme is supported by sub-themes and illustrated by direct quotes from the participants.

1. Collaborative Workflow in Medication Reconciliation

Both pharmacists and pharmacy technicians described their roles as complementary, working together to ensure the accuracy and completeness of medication lists during patient discharge.

a) Role Differentiation

Pharmacists and pharmacy technicians had clearly defined roles in the reconciliation process. Pharmacy technicians were responsible for gathering and verifying medication histories, while pharmacists focused on clinical decision-making, such as checking for drug interactions and ensuring the appropriateness of medications.

- Technician 1 : "We're the first step in the process. I collect the patient's medication history, check the records, and make sure everything is in order before passing it to the pharmacist."
- Pharmacist 2 : "Once the technician has completed the initial list, I review it to make sure there are no discrepancies or potential interactions, and then I go over any necessary changes with the patient."

b) Interdependence in Workflow

Both groups emphasized the interdependent nature of their work. Pharmacists relied on technicians to prepare accurate medication lists, which allowed them to focus on clinical validation, while technicians valued pharmacists' expertise in resolving more complex medication issues.

- Pharmacist 4 : "I depend on the technicians to gather the information accurately. Without their work, it would take much longer for me to complete the reconciliation."
- Technician 3 : "We know that if we make a mistake, it could slow things down for the pharmacist. So we try to be as thorough as possible."

2. Challenges in Ensuring Accuracy and Preventing Readmissions

Participants discussed various challenges they encountered in ensuring accurate medication reconciliation, many of which were tied to workload, incomplete patient information, and the complexities of patients' medication regimens.

a) Time Constraints and Workload

Both pharmacists and pharmacy technicians identified time pressures as a significant challenge, especially during busy periods when multiple discharges occurred simultaneously.

- Pharmacist 3 : "One of the biggest challenges is time. When you have several discharges happening at once, it's difficult to give each patient's medication list the attention it deserves."
- Technician 2 : "We have to balance discharge medication lists with our other duties, like filling prescriptions. It can get overwhelming when we're short-staffed."

b) Incomplete or Inaccurate Patient Information

A recurring issue was the incomplete or inaccurate medication information provided by patients, particularly in cases where patients had been admitted with limited records or were unable to recall all their medications.

- Technician 4 : "Sometimes patients don't remember all the medications they were taking, or they leave out over-the-counter drugs, which can lead to errors."
- Pharmacist 1 : "There are cases where we don't have full information about a patient's prior medications, especially if they've been admitted in an emergency. That makes reconciliation difficult."

c) Complexity of Medication Regimens

Participants noted that the complexity of patients' medication regimens, especially among elderly patients or those with multiple comorbidities, presented a challenge in ensuring accurate reconciliation and preventing medication-related errors.

- Pharmacist 6 : "Patients who are on 10 or 15 different medications are particularly tricky. You have to be extra careful to make sure that all the changes made during their hospital stay are reflected correctly in their discharge plan."
- Technician 5 : "With patients on multiple medications, it's easy to miss something if you're not careful. That's why we double-check everything before handing it over to the pharmacist."

3. Communication with Patients and Healthcare Providers

Effective communication was identified as a key factor in ensuring accurate medication reconciliation and preventing readmissions. Both pharmacists and pharmacy technicians played roles in educating patients and coordinating with other healthcare providers.

a) Patient Education and Counseling

Pharmacy technicians often initiated conversations with patients about their medications, while pharmacists provided more detailed counseling to ensure that patients understood their discharge medications and the importance of adherence.

- Technician 6 : "We talk to the patients first, explain that we're reviewing their medications, and let them know that the pharmacist will go over the details with them."
- Pharmacist 5 : "I make sure the patient understands why their medications may have changed during their hospital stay, how to take them, and any potential side effects they should look out for."

b) Coordinating with Healthcare Providers

Both pharmacists and pharmacy technicians emphasized the importance of communicating with physicians and nurses during the discharge process. Pharmacists were responsible for resolving discrepancies in medication orders, while technicians helped ensure that the necessary information was relayed to the rest of the healthcare team.

- Pharmacist 7 : "If I find a discrepancy in the medication list, I contact the prescribing physician to clarify before we discharge the patient. It's important that we're all on the same page."
- Technician 7 : "I often relay information to the nurses or help coordinate between the pharmacy and the doctors when things get busy."

Discussion

This study explored the collaborative roles of pharmacists and pharmacy technicians in enhancing medication reconciliation during patient discharge. The findings revealed that effective teamwork between these professionals is crucial in ensuring accurate medication reconciliation, preventing medication errors, and reducing the risk of readmissions. Three key themes emerged from the data: Collaborative Workflow in Medication Reconciliation , Challenges in Ensuring Accuracy and Preventing Readmissions , and Communication with Patients and Healthcare Providers .

1. Collaborative Workflow in Medication Reconciliation

The study highlighted the complementary roles of pharmacists and pharmacy technicians in the medication reconciliation process. Technicians were responsible for gathering and verifying medication histories, while pharmacists took on the clinical responsibility of ensuring the appropriateness of the medications and resolving any discrepancies. This division of labor reflects previous research that emphasizes the importance of utilizing the distinct strengths of each role (Pevnick et al., 2016).

The interdependence in workflow between pharmacists and pharmacy technicians was a recurring theme. Technicians provided operational support by preparing accurate medication lists, allowing pharmacists to focus on clinical decision-making. This collaboration improved the efficiency of the medication reconciliation process, which is consistent with findings from studies that have shown that pharmacist-technician collaboration can reduce medication errors and streamline workflow (Boockvar et al., 2011).

By working together, pharmacists and pharmacy technicians were able to complete the reconciliation process more effectively, minimizing the risk of errors that could occur if either group worked in isolation. This finding underscores the importance of team-based approaches in healthcare, particularly in time-sensitive processes like discharge, where errors could have serious consequences (Mekonnen et al., 2016).

2. Challenges in Ensuring Accuracy and Preventing Readmissions

Despite the effectiveness of the collaboration between pharmacists and pharmacy technicians, several challenges were identified. Time constraints, workload, and incomplete patient information were frequently mentioned as barriers to ensuring accurate medication reconciliation. These challenges align with existing

literature, which highlights the pressure healthcare teams face during high-volume discharge periods (Mueller et al., 2012).

Time constraints were a particular challenge, as both pharmacists and pharmacy technicians reported difficulty balancing discharge medication reconciliation with their other responsibilities. This is consistent with previous research showing that time pressure can lead to incomplete reconciliation, increasing the risk of medication errors (Boockvar et al., 2011). In addition, incomplete patient information—often due to patients not remembering their full medication histories—was a recurring issue. This aligns with the findings of Forster et al. (2003), who reported that incomplete medication histories are a common cause of reconciliation errors.

The complexity of patients' medication regimens, particularly among elderly patients with multiple comorbidities, further compounded these challenges. Participants described how patients on numerous medications posed a higher risk for discrepancies, which is in line with studies highlighting the heightened risk of medication errors among polypharmacy patients (Midlov et al., 2012).

3. Communication with Patients and Healthcare Providers

Effective communication was found to be a critical component in ensuring accurate medication reconciliation and preventing readmissions. Pharmacy technicians played an essential role in initiating communication with patients, explaining the reconciliation process, and preparing them for discussions with the pharmacist. Pharmacists, in turn, provided detailed counseling to patients about their medications, ensuring they understood any changes and the importance of adherence. This two-tiered approach to communication reinforces the findings of Kohn et al. (2017), who suggested that a structured approach to patient education involving both technicians and pharmacists can improve patient outcomes.

Clear communication with healthcare providers, particularly physicians and nurses, was also necessary to ensure consistency in treatment plans and resolve any discrepancies. Both pharmacists and pharmacy technicians emphasized the importance of liaising with other members of the healthcare team, which is supported by the literature on interdisciplinary communication as a critical factor in medication safety (Pevnick et al., 2016). Effective collaboration between pharmacy staff and other healthcare providers is essential for preventing medication-related readmissions, as it ensures that the entire care team is aligned on the patient's treatment plan.

4. Implications for Practice

The findings of this study have important implications for healthcare practice. First, the collaborative model of medication reconciliation between pharmacists and pharmacy technicians should be encouraged and formalized in hospital protocols. Training programs focused on improving the communication and coordination between these professionals could enhance the accuracy of the reconciliation process, ultimately reducing the risk of medication errors and readmissions.

Additionally, addressing time constraints and workload challenges through increased staffing or the use of technology, such as electronic health records (EHR) systems with integrated medication reconciliation features, could improve the efficiency of the process. Streamlining communication channels between pharmacy staff, patients, and healthcare providers is also critical to ensuring that medication discrepancies are promptly identified and resolved.

5. Limitations and Future Research

This study has several limitations that should be acknowledged. First, the study was conducted in a single tertiary hospital, which may limit the generalizability of the findings to other settings. Second, the sample size was relatively small, focusing on a specific group of pharmacists and pharmacy technicians involved in medication reconciliation at discharge. Future research could explore these roles in different hospital settings, including community hospitals or long-term care facilities, to gain a broader perspective.

In addition, while this study focused on the qualitative aspects of collaboration, future research could use quantitative methods to assess the direct impact of pharmacist-technician collaboration on patient outcomes, such as reductions in medication errors or readmission rates. This would provide valuable data to support the expansion of team-based medication reconciliation models.

Conclusion

The findings of this study demonstrate that collaboration between pharmacists and pharmacy technicians is essential in ensuring accurate medication reconciliation during patient discharge. By working together, these professionals can prevent medication errors, improve patient understanding of their treatment plans, and reduce the risk of medication-related readmissions. Addressing the challenges of time constraints and incomplete patient information will be crucial to further enhancing the efficiency and effectiveness of this process. Future research should continue to explore strategies for improving collaboration and communication in medication reconciliation to optimize patient outcomes.

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