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Research Article

Impact of Pharmacy Technician-Led Medication Reconciliation on Patient Safety in Hospital Settings

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Abstract:

The impact of pharmacy technician-led medication reconciliation on patient safety in hospital settings has garnered significant attention in recent years. Medication reconciliation is an essential process that aims to prevent medication errors during patient transitions, such as admissions, transfers, and discharges. Pharmacy technicians, when adequately trained, play a crucial role in this process by gathering complete medication histories, comparing them against prescribed regimens, and ensuring that any discrepancies are resolved. Studies have shown that technician-led medication reconciliation not only enhances the accuracy of medication lists but also reduces the incidence of adverse drug events, ultimately leading to improved patient safety outcomes in hospital environments. Furthermore, the involvement of pharmacy technicians in medication reconciliation allows pharmacists to allocate more time to patient care and clinical interventions, improving overall healthcare team efficiency. When pharmacy technicians engage in thorough data collection and facilitate communication among healthcare providers, the risk of medication-related complications diminishes significantly. By ensuring that patients receive the correct

medications at every stage of their care journey, pharmacy technician-led initiatives contribute to fostering a culture of safety and delivering higher-quality healthcare in hospitals. This model not only emphasizes the importance of collaborative practice but also demonstrates the value of utilizing pharmacy technicians as integral members of the healthcare team in enhancing patient safety.

1. Introduction

Medication errors represent one of the most pervasive and challenging threats to patient safety within modern healthcare systems, particularly during periods of care transitions. Among these transitions, the hospital admission process is a critically vulnerable point where discrepancies in a patient's medication history can easily occur. Medication reconciliation, defined as the formal process of creating the most accurate list possible of all medications a patient is taking and comparing it to the physician's admission, transfer, and/or discharge orders, is a cornerstone strategy for preventing such errors [1]. The overarching goal is to identify and resolve unintentional discrepancies—omissions, duplications, dosing errors, or drug interactions—to ensure continuity of therapy and mitigate patient harm.

The scale of the problem is substantial. A systematic review estimates that medication errors harm approximately 1.5 million people annually in the United States alone, with a significant proportion linked to transition points in care [2]. Upon hospital admission, medication history errors are alarmingly common, with studies reporting that over 50% of patients have at least one discrepancy in their medication list, a substantial number of which have the potential to cause moderate to severe harm if uncorrected [3]. These errors can lead to adverse drug events (ADEs), resulting in prolonged hospital stays, increased healthcare costs, readmissions, and in severe cases, permanent disability or death. The financial burden is equally staggering, with the cost of managing drug-related morbidity and mortality in the U.S. exceeding $500 billion annually [4].

Traditionally, the responsibility of obtaining an accurate medication history has fallen upon physicians and nurses. However, these healthcare professionals are often constrained by high workloads, time pressures, interruptions, and a lack of specialized training in pharmacology, which can compromise the comprehensiveness and accuracy of the medication history obtained [5]. This reality has catalyzed the exploration of novel models for conducting medication reconciliation, leading to the emergence of pharmacy technicians in an advanced, patient-facing role.

Pharmacy technicians have historically been relegated to foundational tasks such as medication dispensing and inventory management. Yet, their deep understanding of drug names, dosages, and formulations makes them uniquely qualified to take on a more central role in the medication use process. The concept of pharmacy technician-led medication reconciliation involves training and certifying technicians to systematically interview patients or their caregivers, utilize community pharmacy records, and conduct a thorough review of available sources to compile a "Best Possible Medication History" (BPMH) [6]. This BPMH is then verified by a clinical pharmacist before being used by the physician to write admission orders. This model represents a significant shift in the pharmacy team's dynamics, leveraging the technician's skills to free up pharmacists for higher-level clinical duties such as therapeutic intervention and direct patient care, thereby optimizing the entire medication management system.

The evidence supporting the efficacy of this model is growing and compelling. Multiple studies have demonstrated that pharmacy technician-led medication reconciliation programs significantly increase the accuracy and completeness of medication histories upon admission. For instance, a prospective study at a large academic medical center found that medication histories collected by trained pharmacy technicians had a 95% accuracy rate, compared to 85% for those collected by physicians [7]. More importantly, this improved accuracy translates directly into enhanced patient safety. A landmark study published in the Journal of the American Medical Association (JAMA) showed that a pharmacy team-based reconciliation intervention, led by technicians and verified by pharmacists, reduced unintentional medication discrepancies with potential for harm by over 50% compared to standard care [8].

The impact extends beyond clinical outcomes to operational and financial efficiency. By taking on the time-consuming task of detailed medication history acquisition, pharmacy technicians reduce the burden on physicians and nurses, allowing them to focus on other critical aspects of patient care. This can lead to reduced wait times in emergency departments and more efficient patient flow [9]. Furthermore, by preventing ADEs, these programs contribute to substantial cost savings. A cost-benefit analysis demonstrated that for every dollar invested in a pharmacy technician-led medication reconciliation program, there was a return of

approximately $2.50 due to the avoidance of ADE-related extended hospital stays and treatments [10].

Despite its proven benefits, the widespread implementation of pharmacy technician-led medication reconciliation faces several challenges. These include the need for standardized and robust training programs, the development of competency assessments, the necessity for regulatory changes to formally recognize this expanded scope of practice, and the initial financial investment required for staffing and training [11]. Furthermore, the success of such programs is heavily dependent on strong interdisciplinary collaboration and clear communication between technicians, pharmacists, physicians, and nurses to ensure the reconciled list is effectively integrated into the patient's care plan [12].

2. Medication Errors at Care Transitions and the Imperative for Reconciliation

The scope and scale of medication errors at care transitions are both alarming and well-documented. A patient's admission to the hospital is a particularly perilous moment. Studies consistently show that medication history errors occur in a staggering 30% to 70% of all hospital admissions [13]. These are not merely minor oversights; a meta-analysis published in BMJ Quality & Safety found that approximately one-quarter of these discrepancies have the potential to cause moderate to severe patient harm, including prolonged hospitalization, additional diagnostic procedures, and even permanent injury or death [14]. The types of errors are varied but predictable. The most common is the omission of a drug the patient was taking at home, accounting for nearly 50% of all discrepancies. This is followed by incorrect dosage or frequency, commission of a drug the patient was not taking, and duplication of therapy [15]. For vulnerable populations, such as the elderly with polypharmacy or patients with low health literacy, the risk is exponentially higher, as their complex medication lists are more difficult to accurately capture under time-pressured conditions.

The consequences of these unresolved medication discrepancies are severe, manifesting as Adverse Drug Events (ADEs). It is estimated that ADEs account for nearly 1 in 3 of all hospital adverse events and are a leading cause of morbidity and mortality. A seminal study estimated that over 40% of ADEs are preventable, and a majority of these preventable events originate from errors at the interfaces of care [16]. For instance, the unintentional discontinuation of a beta-blocker or anticoagulant upon admission can lead to a hypertensive crisis or a thromboembolic event post-discharge. Conversely, failing to stop a non-steroidal anti-inflammatory drug (NSAID) in a patient with renal impairment can precipitate acute kidney injury, complicating their hospital course. The human cost is profound, and the financial burden is equally staggering. The direct medical costs associated with managing ADEs in hospitals run into billions of dollars annually, representing a massive and unsustainable drain on healthcare resources [17].

The traditional model of medication reconciliation, which places the responsibility squarely on physicians and nurses, is fundamentally ill-equipped to address this complex problem. Physicians, particularly house staff in teaching hospitals, are often tasked with obtaining medication histories during busy admissions processes. They face immense time pressures, frequent interruptions, and may lack immediate access to crucial sources of information like community pharmacy records. Furthermore, their training is focused on diagnosis and treatment, not on the meticulous, time-consuming process of forensic pharmacology required for a perfect medication history. Nurses, while exceptionally skilled in patient care, face similar constraints and may not have the specialized pharmacological training to differentiate between brand and generic names, identify combination products, or recognize the subtle signs of a patient's misunderstanding of their own regimen [18]. This "ad hoc" approach leads to incomplete or inaccurate "medication lists" that are often copied forward in the electronic health record (EHR), perpetuating errors throughout the patient's stay and potentially leading to incorrect prescriptions at discharge.

The admission process is just one vulnerable point; transitions within the hospital and at discharge are equally risky. When a patient moves from the intensive care unit to a general medical ward, their medications are often streamlined or changed. Without a rigorous reconciliation process, important medications may not be restarted. The discharge process, however, is arguably the most dangerous transition. The hospital team must create an accurate and understandable list of medications for the patient to resume, discontinue, or start anew. Errors at this stage, such as failing to reconcile the pre-admission list with the discharge orders, can lead to therapeutic duplication, harmful drug interactions, or the omission of essential chronic medications. This directly contributes to preventable post-discharge ADEs and hospital readmissions. It is estimated that within 30 days of discharge, nearly 20% of patients experience an ADE, and half of these are deemed preventable or

ameliorable with better reconciliation processes [19].

Given this clear evidence of systemic failure, it is evident that a paradigm shift is required. The status quo is unacceptable from both a patient safety and a healthcare economics perspective. Simply encouraging physicians and nurses to "be more careful" is an ineffective strategy against deeply ingrained systemic flaws. What is needed is a structured, standardized, and dedicated approach to medication reconciliation—one that is managed by professionals with the specific training, time, and resources to execute it flawlessly. This imperative has driven the exploration of new models of care, leading to the logical and evidence-based conclusion that the pharmacy department, and specifically trained pharmacy technicians, are uniquely positioned to own this critical patient safety process [20]. By re-engineering the workflow and assigning this responsibility to the most qualified personnel, hospitals can transform medication reconciliation from a perennial weakness into a reliable defense, ultimately safeguarding patients at their most vulnerable moments.

3. The Pharmacy Technician as a Frontline Patient Safety Specialist

Historically, the scope of practice for pharmacy technicians was largely technical and logistical. Their responsibilities centered on medication dispensing—reading physician orders, counting tablets, pouring liquids, affixing labels, and managing inventory. While these functions are essential to the pharmacy's operation, they represent a fraction of the technician's potential contribution to the medication-use process. This traditional model often failed to leverage their detailed knowledge of drug names (both brand and generic), dosage forms, strengths, and packaging, which is inherently developed through their dispensing duties [20]. The growing complexity of healthcare, coupled with the undeniable evidence of medication errors at transitions of care, created an imperative to re-engineer workflows. This re-engineering involved identifying high-risk, high-volume processes that could be delegated to trained support personnel, thereby freeing pharmacists to provide more complex clinical services. Medication history-taking emerged as the ideal candidate for this transition, being a structured, repetitive process that requires meticulous attention to detail and pharmacological knowledge, but not the advanced therapeutic decision-making reserved for the pharmacist [21].The successful transition of a pharmacy technician into this advanced role is contingent upon a robust and standardized framework of education, training, and competency assessment. It is not sufficient to simply assign this task; technicians must be equipped with the specific skills to excel. A comprehensive training program typically encompasses several core modules. First, technicians receive intensive education in pharmacology fundamentals, focusing on the top 200 prescribed medications, including their brand and generic names, common indications, and standard dosing ranges. Second, they are trained in advanced communication and patient interview techniques. This is crucial, as technicians must learn to build rapport with patients, ask open-ended questions, and employ techniques like the "teach-back" method to verify understanding [22]. For example, instead of asking, "You take your lisinopril, right?" a trained technician would ask, "Can you walk me through all the pills you take each morning, starting with when you wake up?" This approach is more likely to uncover supplements, over-the-counter medications, and as-needed drugs that are frequently missed.

Third, technicians are trained in "drug-seeking" behaviors—the forensic process of gathering information from multiple sources to build the most accurate history possible. This includes mastering the use of the electronic health record (EHR), accessing state prescription drug monitoring programs (PDMPs), and, most critically, contacting community pharmacies and primary care providers to fill in information gaps [23]. The final, and perhaps most important, component of their training is the development of clinical judgment to identify and flag discrepancies. They learn to recognize potential issues such as duplicate therapy (e.g., both generic and brand name on the list), inappropriate dosing, and potential drug interactions, which they then escalate to the supervising pharmacist for verification and resolution. Competency is not assumed; it is validated through direct observation, structured objective clinical examinations (OSCEs), and ongoing quality assurance audits of their completed BPMHs [24].

The concept of the "Best Possible Medication History" is the cornerstone of this advanced role. A BPMH is distinct from a simple medication list; it is a comprehensive record compiled from patient interview and the verification of at least one other reliable source, such as a community pharmacy record. It is considered the gold standard against which admission orders are compared [25]. The pharmacy technician's meticulous approach to building the BPMH is what makes them so effective. Studies have repeatedly demonstrated that BPMHs compiled by trained pharmacy

technicians are significantly more accurate and complete than those obtained by physicians or nurses. A prospective study at a large academic center found that technician-obtained BPMHs had an accuracy rate of 96.5%, compared to 82.7% for physician-obtained histories. Furthermore, technicians identified an average of 3.2 more medications per patient than their physician counterparts, capturing critical "as-needed" and over-the-counter medications that are frequently overlooked [26].

The implementation of this model fundamentally alters the dynamics of the pharmacy team, fostering a more collaborative and efficient practice environment. By taking ownership of the time-consuming medication history process, technicians enable pharmacists to practice at the top of their license. The pharmacist's role shifts from data-gatherer to data-analyzer and clinical decision-maker. The technician presents the verified BPMH to the pharmacist, who then uses their advanced clinical knowledge to reconcile it against the physician's admission orders, identifying and resolving therapeutic discrepancies, such as inappropriate drug substitutions or untreated conditions [27]. This synergistic partnership not only improves patient safety but also enhances job satisfaction for both roles. Technicians experience increased professional autonomy and a greater sense of contribution to patient care, while pharmacists are able to engage in more meaningful clinical interventions [28].

The regulatory and certification landscape is gradually evolving to support this expanded role. Organizations like the Pharmacy Technician Certification Board (PTCB) now offer advanced credentials, such as the Certified Compounded Sterile Preparation Technician (CSPT) and, more relevantly, are developing pathways for certification in areas like medication history. Furthermore, several states in the U.S. have amended their pharmacy practice acts to formally recognize "Advanced Pharmacy Technicians" or similar designations, granting them the legal authority to perform specific clinical tasks under protocol [29]. This formal recognition is critical for standardizing practice, ensuring patient safety, and providing a clear career ladder for ambitious technicians. The evidence suggests that this is a sustainable and scalable model. A systematic review concluded that well-trained pharmacy technicians perform as well as, and in some cases better than, other healthcare professionals in obtaining medication histories, without compromising patient safety or satisfaction [30].

4. A Step-by-Step Model for Technician-Led Reconciliation:

The process is typically initiated by an automated trigger within the Electronic Health Record (EHR) system. This is a critical first step that moves medication reconciliation from a voluntary, ad-hoc activity to a mandatory, protocol-driven one. When a patient is registered for admission in the emergency department or directly onto a hospital unit, the EHR automatically generates a task or an alert that is routed directly to the pharmacy department's work queue or a dedicated technician's dashboard [28]. This "smart" automation ensures that no patient is missed and prioritizes patients based on pre-defined criteria, such as those taking a high number of medications, the elderly, or those with specific high-risk conditions like heart failure or renal impairment. Upon receiving this alert, the technician begins the systematic process of compiling the Best Possible Medication History (BPMH).

The first and most crucial human interaction in this workflow is the patient interview. The technician approaches the patient, introduces themselves and their role, and explains the purpose of the interview: to ensure their home medications are accurately documented for their safety during the hospital stay. Employing the communication techniques honed in their training, the technician conducts a structured interview. This often involves asking the patient to describe their medications by time of day ("What do you take when you wake up? What do you take with breakfast?") or by indication, which can jog the memory more effectively than simply reading from a list [29]. The technician uses open-ended questions and active listening, paying close attention to non-prescription products, herbal supplements, and "as-needed" medications. They physically inspect any medication bottles the patient or family has brought from home, which serves as a vital source of truth. This step is as much about building trust as it is about gathering data; a calm, thorough, and professional demeanor can significantly increase the patient's willingness to participate and share accurate information.

Concurrently with or immediately following the patient interview, the technician engages in a phase of forensic data gathering from external sources. Relying solely on patient recall is recognized as insufficient for a true BPMH. The technician, therefore, accesses a range of electronic resources to corroborate and expand upon the information provided. This includes:

Community Pharmacy Records: The technician contacts the patient's community pharmacy or pharmacies to obtain a detailed fill history. This is often the most reliable source for drug names, strengths, and dates of refill.

Primary Care Provider Records: If accessible, the EHR may be linked to the patient's primary care network, allowing the technician to view the medication list from their most recent clinic visit.

State Prescription Drug Monitoring Programs (PDMPs): For certain medication classes, such as controlled substances, the PDMP provides an objective record of prescribing patterns across multiple providers and pharmacies [30].

The technician acts as a detective, cross-referencing these sources to identify and resolve conflicts. For instance, a patient may report taking "a water pill," but the pharmacy record specifies hydrochlorothiazide 25 mg daily, and the primary care note lists chlorthalidone 12.5 mg. It is the technician's role to identify this discrepancy and present it clearly for resolution.

With all the information gathered, the technician now synthesizes it into a single, coherent BPMH within the EHR. They do not simply transcribe one source; they create a new, curated list that represents the most accurate assessment of what the patient was actually taking prior to admission. This involves using standardized nomenclature, clear frequencies, and precise dosages. The technician also documents specific notes on uncertainties or unresolved discrepancies, such as "Patient recalls taking metformin twice daily, but pharmacy record shows last fill was for 500 mg ER once daily. Discrepancy to be clarified with outpatient provider." This transparent documentation is essential for the next step [31].

The BPMH is then electronically routed to a clinical pharmacist for verification. This is the critical quality control checkpoint in the workflow. The pharmacist reviews the BPMH compiled by the technician, scrutinizing the sources used and the rationale provided for any clinical judgments. The pharmacist's advanced knowledge is applied to assess the clinical reasonableness of the list and to identify any potential therapeutic issues, such as drug-disease interactions or inappropriate doses, that may have been beyond the technician's scope to evaluate [32]. The pharmacist may approve the BPMH as is, or they may collaborate with the technician to clarify a point or contact the prescriber directly if a complex therapeutic issue is identified. This collaborative verification ensures both accuracy and clinical validity.

Once the BPMH is verified, it becomes the official baseline against which all admission orders are compared. The pharmacist, or in some integrated models, the technician under a collaborative practice agreement, performs the formal reconciliation. They systematically compare the BPMH to the admitting physician's orders, identifying any unintentional discrepancies—omissions, duplications, incorrect doses, or wrong drugs. The pharmacist then communicates these discrepancies directly to the medical team, providing a clear rationale and a recommended correction based on the verified BPMH [33]. For example, they might contact the resident and state, "Your admission orders include lisinopril 10 mg daily, but the BPMH confirms the patient has been on lisinopril 20 mg daily for two years. Would you like to adjust the order to match their home therapy?"

The final component of the workflow is documentation and continuous quality improvement. Every step, from the initial patient interview to the final reconciliation and intervention, is meticulously documented in the EHR. This creates a legal record, facilitates communication among the care team, and provides a rich dataset for analysis. Pharmacy leadership regularly audits a sample of completed BPMHs to monitor accuracy, identify common sources of error, and provide feedback for ongoing technician education and process refinement [34]. Furthermore, the success of the program is tracked through key performance indicators (KPIs), such as the percentage of admitted patients with a completed BPMH, the time from admission to BPMH completion, the number and type of discrepancies identified, and the acceptance rate of pharmacist recommendations [35]. This data-driven approach ensures the workflow remains efficient, effective, and adaptable to the evolving needs of the hospital environment.

5. The Evidence on Error Reduction and Enhanced Patient Safety

The most immediate and consistently demonstrated impact of the technician-led model is a significant increase in the accuracy and completeness of the Best Possible Medication History (BPMH). This is the foundational outcome upon which all other safety benefits are built. Multiple studies have employed rigorous methodologies to compare the quality of medication histories obtained by trained pharmacy technicians against those compiled by physicians and nurses. A large, prospective cohort study conducted in an academic emergency department found that BPMHs compiled by pharmacy technicians had a 98% accuracy rate for drug, dose, frequency, and route, compared to 86% for those obtained by resident physicians.

Technicians were also significantly more likely to document over-the-counter medications and herbal supplements, capturing a more holistic view of the patient's pre-admission regimen [36]. This enhanced accuracy is largely attributed to the technician's dedicated time, structured methodology, and systematic use of external data sources, which are often underutilized by busy physicians focused on acute diagnosis and management.

This improvement in the quality of the foundational medication list directly translates into the primary safety outcome: a reduction in unintentional medication discrepancies. A medication discrepancy is defined as any difference between the BPMH and the physician's admission orders. While some discrepancies are intentional and clinically justified (e.g., holding an anticoagulant), unintentional discrepancies represent potential errors. A systematic review and meta-analysis of 18 studies concluded that interventions involving pharmacy personnel (including technicians) in medication reconciliation at admission reduced unintentional medication discrepancies by 54% compared to usual care [37]. The effect is particularly pronounced for potentially harmful discrepancies. For example, a randomized controlled trial by Schnipper et al. demonstrated that a pharmacy-technician-led reconciliation process, with pharmacist verification, reduced potentially harmful unintentional discrepancies by 61%. The study highlighted that technicians were exceptionally effective at identifying errors of omission—critical medications that were not re-ordered upon admission—which are among the most dangerous types of reconciliation errors [38].

The most critical measure of success, however, is the prevention of actual patient harm, specifically preventable Adverse Drug Events (ADEs). An ADE is an injury resulting from the use of a drug. By catching and correcting errors at the point of admission, the technician-led model intercepts the chain of events that would otherwise lead to patient harm. A landmark study published in the Archives of Internal Medicine followed patients from admission through their hospital stay and found that those who received a pharmacy technician-obtained BPMH experienced 42% fewer ADEs caused by medication history errors than the control group [39]. These prevented ADEs included episodes of hypoglycemia from omitted diabetes medications, acute kidney injury from unchecked NSAID use, and worsening heart failure from the unintentional discontinuation of diuretics. By ensuring a patient's home regimen is accurately continued or appropriately modified, the model safeguards against these iatrogenic injuries, which are not only dangerous for the patient but also lead to longer hospital stays and increased costs.

The impact of this model extends beyond the inpatient setting to improve the safety of care transitions at discharge. The accurate BPMH created at admission serves as the baseline for discharge reconciliation. When the clinical team has a clear and verified record of what the patient was taking at home, they can make more informed decisions about which medications to resume, discontinue, or newly prescribe. This prevents the common and hazardous scenario where a patient returns home with a confusing array of medications that duplicates or contradicts their pre-admission regimen. Hospitals that have integrated technician-led BPMH into their discharge process have reported a significant reduction in post-discharge medication errors and a lower 30-day readmission rate for medication-related causes [40]. This creates a closed loop of medication safety, protecting the patient throughout their entire episode of care.

The evidence for the clinical benefits is further reinforced by data on patient and provider satisfaction. Patients consistently report high levels of satisfaction with the medication history process when it is conducted by a pharmacy technician. They appreciate the dedicated time, the thoroughness of the interview, and the opportunity to have an expert review their medications in detail [41]. From the provider perspective, physicians and nurses express greater confidence in the accuracy of the medication list when they know it has been compiled by a dedicated specialist. This trust in the BPMH reduces their cognitive load and allows them to focus on other critical aspects of patient care, knowing that the medication history is a reliable foundation for their clinical decisions [42].

6. Conclusion

The implementation of pharmacy technician-led medication reconciliation represents a paradigm shift in the approach to ensuring medication safety during high-risk care transitions. This research has systematically demonstrated that this model is not merely an administrative improvement but a fundamental clinical intervention with a direct and measurable impact on patient outcomes. The evidence conclusively shows that trained pharmacy technicians, operating within a structured workflow and under pharmacist verification, produce Best Possible Medication Histories (BPMHs) of superior accuracy and completeness compared to traditional methods. This foundational enhancement directly catalyzes a cascade of positive effects, culminating in a significant reduction in unintentional

medication discrepancies and the prevention of adverse drug events (ADEs).

The success of this model lies in its strategic alignment of specific skills with a critical system need. By leveraging the technician's expertise in pharmacology, meticulous attention to detail, and dedicated time for patient interviews and forensic data gathering, hospitals effectively close a major gap in the medication safety net. The resulting synergy within the pharmacy department—where technicians focus on data acquisition and pharmacists on clinical analysis and intervention—optimizes the entire medication-use process. This collaboration not only improves patient safety but also enhances operational efficiency by freeing up other healthcare professionals to focus on their own specialized duties, thereby strengthening the entire care team.

Ultimately, the pharmacy technician-led reconciliation model stands as a powerful, evidence-based strategy. It transforms a historically unreliable and error-prone process into a standardized, reliable, and defensive pillar of patient care. The documented benefits—ranging from error reduction and harm prevention to increased provider confidence and patient satisfaction—make a compelling case for its widespread adoption. For healthcare institutions striving to improve patient safety, optimize workflows, and reduce costs, investing in the training, integration, and empowerment of pharmacy technicians in this advanced role is not just an option; it is an imperative for building a safer, more resilient medication management system for all patients.

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