PICOT Problem And Evidence-Based Solution

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PICOT Question

In adult acute-care patients (P), does implementation of a standardized nurse-led medication-reconciliation and transition-of-care bundle (I), compared with usual discharge practice (C), reduce medication discrepancies and preventable medication-related harm (O) within 30 days after discharge (T)?

Problem Identification

Transitions between hospital and home create a high-risk period for medication error. Admission lists may be incomplete, medications can be added or stopped during hospitalization, and discharge instructions may not match what the patient was taking previously. Problems include duplication, omitted medicines, incorrect dose or frequency, failure to restart an appropriate chronic medicine, and continuation of a treatment that should have ended. Patients may also misunderstand which prescription changed or may obtain conflicting lists from different clinicians.

Medication reconciliation is a structured process for creating the most accurate medication list possible, comparing it with current orders, identifying discrepancies, resolving unintended differences, and communicating the final plan at transitions. It is not simply copying a medication history from the electronic record. A reliable process requires verification with the patient or caregiver, pharmacy or other sources where appropriate, clinical review, documentation, and clear communication. (Agency for Healthcare Research and Quality, n.d.; Centers for Disease Control and Prevention, 2025)

Why the Problem Matters

Medication discrepancies can cause adverse drug events, treatment failure, emergency visits, and readmission. Older adults, people taking many medications, patients with multiple prescribers, those with limited health literacy, language barriers, cognitive impairment, or reduced access to follow-up may be especially vulnerable. A transition bundle is justified because one educational handout or electronic list cannot address all causes.

The nursing role is central because nurses assess understanding, administer medications during hospitalization, observe adverse effects, communicate with prescribers and pharmacists, and prepare patients for discharge. The intervention should not make one nurse solely responsible for all

medication safety. The goal is an interdisciplinary process with clear ownership and escalation.

Population

The population includes adults discharged from medical or surgical acute-care units to home or community settings. The project could initially focus on patients with five or more chronic medications, recent medication changes, high-risk medicines, multiple comorbidities, or prior readmission. These criteria increase the likelihood of discrepancies and make a pilot feasible.

Patients discharged to skilled nursing facilities or other institutions may require a related but different workflow because receiving clinicians and pharmacy systems participate directly. Pediatric medication reconciliation also requires separate considerations involving weight-based dosing and caregivers.

Intervention

The proposed intervention is a standardized nurse-led medication-reconciliation and transition bundle with six components:

1. obtain and verify the best possible medication history;
2. compare preadmission medicines, inpatient orders, and proposed discharge medicines;
3. escalate unexplained discrepancies to the prescriber or pharmacist;
4. provide one final patient-friendly medication list explaining what to start, stop, continue, or change;
5. use teach-back to confirm patient or caregiver understanding;
6. complete a follow-up contact within several days for selected high-risk patients.

The bundle should be integrated into workflow and the electronic record rather than maintained as a separate paper exercise. The Agency for Healthcare Research and Quality's MATCH toolkit emphasizes process mapping, clear roles, and redesign across the organization rather than relying on individual memory.

Comparison

The comparison is usual discharge practice before implementation. Baseline practice should be described rather than assumed. Some units may already use pharmacy review, electronic medication lists, or follow-up calls. The project should map current steps and measure baseline discrepancy rates.

If the organization already has a strong reconciliation system, a simple before-and-after design may detect little difference. The intervention can then target a known gap such as teach-back, community-pharmacy communication, or high-risk follow-up.

Outcomes

The primary process outcome is the number or proportion of patients with at least one unintended medication discrepancy at discharge. The primary clinical outcome is preventable medication-related harm within 30 days, measured through chart review, patient contact, emergency visits, or a defined adjudication process.

Secondary outcomes include completion of a verified medication history, discrepancy resolution before discharge, patient understanding, follow-up contact completion, emergency-department visits, and 30-day readmission. Readmission should not be used as the only outcome because many readmissions are unrelated to medications.

Time Frame

The outcome period is 30 days after discharge. This captures the early transition when patients are implementing new medication plans and obtaining follow-up care. Process measures can be collected at discharge, while a call within 48–72 hours can identify immediate confusion.

A quality-improvement pilot may run for three months after a baseline period of similar length, followed by review and adaptation before broader implementation.

Evidence-Based Rationale

Medication reconciliation is widely recommended as a patient-safety practice, but effectiveness depends on intervention design. Studies have found inconsistent effects when reconciliation is treated as a single documentation task. Stronger programs often include pharmacist involvement, patient education, follow-up, and targeting of high-risk individuals.

This supports a bundle rather than a checkbox. A high completion percentage means little if the underlying list is inaccurate or the patient leaves without understanding the changes.

Best Possible Medication History

A high-quality history asks about prescription drugs, over-the-counter medicines, vitamins, supplements, inhalers, injections, eye drops, patches, and medicines taken only as needed. The nurse should ask how the patient actually takes the medicine, not simply what the label says.

Sources may include the patient, caregiver, pharmacy, medication bottles, prior records, and external health-information exchange where available. Conflicting information should be flagged for resolution. Imported lists can contain discontinued medicines and should never be assumed accurate merely

because they are electronic.

High-Risk Medications

Additional review may be appropriate for anticoagulants, insulin, opioids, immunosuppressants, antiepileptics, and other medications in which an error can cause serious harm. The exact list should follow organizational policy and current evidence.

High-risk review may include dosing indication, renal or hepatic considerations, monitoring, drug interactions, duplicate therapy, and patient ability to use the formulation safely.

Teach-Back

Teach-back asks the patient to explain the medication plan in their own words. It is not a test of the patient. It tests whether the healthcare team explained clearly enough.

Useful prompts include: “Please show me which medicines you will stop when you get home,” or “How will you take this new medicine?” If the explanation is incorrect, the nurse clarifies and asks again. Printed materials should support the conversation rather than replace it.

Patient-Friendly Medication List

The final list should identify medication name, purpose where appropriate, dose, route, frequency, and important changes. Start, stop, continue, and changed medications should be visually distinguishable without relying only on color, which may create accessibility problems.

Terminology should match the patient’s comprehension and preferred language. Brand and generic names may be included when confusion is likely. Abbreviations should be minimized.

Language Access

Patients who prefer another language should receive professional interpretation and translated materials where available. Family members should not be used as the default interpreters for complex medication counseling.

Language access is a safety intervention. A medication list in English is not meaningful reconciliation if the patient cannot understand it.

Health Literacy

Limited health literacy can affect any patient and should not be inferred from education or occupation. Universal precautions assume that medical information may be difficult to understand.

Communication should use plain language, limited essential points, demonstrations for devices, and teach-back. Shame should be avoided because patients may hide confusion if they feel judged.

Pharmacist Collaboration

Pharmacists can provide detailed medication review, interaction assessment, dosing advice, and reconciliation support. Resource limitations may prevent a pharmacist from reviewing every discharge.

Risk stratification can prioritize patients with polypharmacy, high-risk medication, renal impairment, recent adverse events, or complex changes. Nurses and pharmacists should define which discrepancies require mandatory consultation.

Prescriber Responsibility

A discrepancy cannot always be resolved by nursing or pharmacy alone. The prescriber must clarify intentional changes and ensure that the final discharge orders are clinically appropriate.

The workflow should create a clear escalation path. Staff should not leave contradictory lists unresolved because discharge time is approaching.

Community Pharmacy Communication

Patients may bring a new discharge prescription to a community pharmacy while old active prescriptions remain on file. If the pharmacist does not know that a medicine was intentionally discontinued, duplicate therapy can occur.

Electronic cancellation, updated prescriptions, and transmission of the final medication list can reduce this risk where systems permit. The patient should also be told which old medicines should no longer be used.

Follow-Up Contact

A post-discharge call can ask whether prescriptions were obtained, whether the patient knows what changed, whether adverse effects occurred, and whether follow-up appointments are scheduled.

The call should use a structured script and an escalation pathway. It should not become an informal source of new prescribing without appropriate clinician involvement.

Social Determinants

A correct medication list does not guarantee access. Cost, transportation, insurance authorization, pharmacy hours, housing instability, storage requirements, and caregiving can prevent adherence.

The bundle should screen for practical barriers and connect patients with case management, social work, or pharmacy assistance. Labeling a patient “noncompliant” without investigating access can hide system failure.

Technology

Electronic health records can support reconciliation through imported histories, discharge lists, alerts, and communication. They can also create duplicate entries and alert fatigue.

Technology should reduce transcription and make discrepancies visible, but clinicians remain responsible for verification. A completed electronic field should not be treated as evidence that meaningful reconciliation occurred.

Implementation Team

The project team should include bedside nurses, nurse leadership, physicians or advanced practitioners, pharmacists, quality-improvement staff, informatics, case management, and patient representatives.

Patient input is important because staff may design a list that appears clear clinically but becomes confusing at home. Community pharmacists can also identify recurring transition problems.

Staff Education

Training should explain why the project matters, how to obtain the medication history, how to document discrepancies, when to escalate, and how to use teach-back.

Education should include case simulation and audit feedback rather than one online module. New employees need the process built into orientation.

Workflow Mapping

Before implementation, the team should map the current process from admission through discharge. Points where information is copied, transformed, or transferred should be identified.

The map may reveal that no single person owns the final list or that pharmacy changes are made after nursing education has already occurred. Redesign should address these structural gaps.

Measurement Plan

A sample of discharge medication lists can be reviewed by a trained pharmacist or clinician against a reference standard. Discrepancies should be classified as intended or unintended and by potential severity.

Definitions must remain consistent. If reviewers disagree frequently, inter-rater training is needed. Data collection should avoid creating a process so burdensome that it cannot continue after the pilot.

Balancing Measures

Quality improvement can create unintended burden. Balancing measures should include discharge delay, nursing time, pharmacist workload, alert volume, and patient satisfaction.

If the bundle reduces discrepancies but adds several hours to every discharge, redesign may be required. The goal is reliability within normal workflow.

Ethical and Privacy Considerations

Quality-improvement activities should follow organizational review requirements. Patient data used for measurement must be protected, and only necessary information should be collected.

If the intervention becomes research designed to produce generalizable knowledge, institutional review requirements may differ. The project team should obtain guidance before implementation.

Potential Barriers

Barriers include staffing shortages, discharge pressure, incomplete external records, patient fatigue, language needs, poor EHR design, and disagreement about role ownership.

Leadership support is necessary to protect time and resolve cross-disciplinary issues. A process that relies on voluntary extra effort will fade when workload increases.

Sustainability

Sustainability requires embedding the bundle in standard policy, electronic workflow, orientation, and performance review. Measures should transition from intensive pilot audit to a smaller ongoing sample.

Units should receive results and participate in improvement. Frontline staff are more likely to maintain a process when they can see that discrepancies declined and when their feedback changes the workflow.

Expected Results

The intervention is expected to reduce unintended discrepancies and improve patient understanding. A reduction in medication-related emergency visits or readmission is possible, but the project may be underpowered for these less frequent outcomes.

Success should therefore be judged primarily on process reliability and medication safety rather than requiring a dramatic change in all-cause readmission.

Dissemination

Results can be shared with unit councils, pharmacy and medical committees, patient-safety leadership, and executive sponsors. Reporting should include baseline data, intervention fidelity, outcome measures, limitations, and balancing measures.

If successful, the bundle can be adapted to other units rather than copied unchanged. Surgical, oncology, behavioral-health, and emergency populations may have different needs.

Conclusion

The PICOT question proposes testing whether a standardized nurse-led medication-reconciliation and transition bundle can reduce medication discrepancies and preventable medication-related harm within 30 days after discharge. The intervention addresses the complete process: accurate history, reconciliation, discrepancy resolution, patient education, teach-back, final medication communication, and selected follow-up.

The strongest feature of the project is that it treats medication safety as an interdisciplinary system rather than a documentation requirement. Success requires reliable workflow, patient participation, language access, pharmacy and prescriber collaboration, measurement, and attention to practical barriers such as cost. A carefully implemented pilot can provide evidence for broader adoption while protecting staff workload and patient safety.

References

Agency for Healthcare Research and Quality. *Medications at Transitions and Clinical Handoffs (MATCH) Toolkit for Medication Reconciliation*.

Agency for Healthcare Research and Quality. *Guide to Patient and Family Engagement in Hospital Quality and Safety*.

Centers for Disease Control and Prevention. (2025). *Project Firstline: Infection Control and Patient Safety Resources*.