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Medication Reconciliation Arrives Too Late When Pharmacotherapy Risk Accumulates Before Admission and Persists Beyond Discharge

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ABSTRACT

Medication reconciliation is commonly positioned at admission and discharge as a central defence against medication error during transitions of care. Its value is well established for reconstructing medication histories, identifying discrepancies, clarifying undocumented changes, and improving the accuracy of medication information transferred between settings. Yet clinically important pharmacotherapy risk is not generated only when medication lists disagree. Patients may reach hospital with unstable treatment, high-risk medicines, polypharmacy, frailty, unresolved adverse effects, adherence difficulty, or monitoring deficits. Hospitalization can then deliberately alter the regimen, creating new treatment intentions, surveillance requirements, communication tasks, and practical demands that persist after discharge. Evidence showing substantial reductions in medication errors without corresponding reductions in short-term healthcare utilization illustrates why medication-list accuracy and longitudinal medication safety should not be treated as interchangeable outcomes. Reconciliation can be understood as one time-specific intervention within a longer pharmacotherapy-risk trajectory. This perspective distinguishes preadmission instability, transition-generated discrepancies, intended inpatient treatment changes, unresolved treatment intent, monitoring obligations, information continuity, and the patient's capacity to enact a changed regimen during recovery. Reconciliation remains indispensable where the problem is inaccurate or discordant medication information. Its reach is narrower when risk arises from prescribing decisions, inadequate monitoring, insufficient explanation, weak follow-up, or difficulties implementing treatment after discharge. A more informative medication-safety strategy therefore asks not only whether lists agree, but which risks remain active, who is responsible for resolving them, and whether the next care environment can complete the work initiated in hospital.

Keywords: Medication reconciliation, Transitions of care, Medication-related harm, Polypharmacy, Discharge medication, Pharmacotherapy safety

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Introduction

Medication reconciliation has a clear and important clinical function. At a transition of care, the patient's current medicines are identified, compared with the regimen being prescribed, discrepancies are examined, an updated medication list is established, and relevant information is communicated forward [1]. This process addresses a genuine safety problem: medication information fragments as patients move among prescribers, hospitals, pharmacies, care facilities, and home. Omitted medicines, unintended continuations, duplicate therapies, incorrect

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doses, and undocumented changes can all arise when the next clinician is working from an incomplete or inaccurate representation of treatment.

The difficulty begins when reconciliation is treated as a proxy for transitional medication safety as a whole. Systematic-review evidence has long shown that reconciliation can improve medication-related process measures while effects on adverse drug events, readmissions, emergency care, and other patient-important outcomes are less consistent [2]. This discrepancy is not necessarily evidence that reconciliation fails. It may instead indicate that the intervention addresses only one subset of the mechanisms capable of producing medication-related harm. That distinction becomes more plausible when interventions extend beyond the moment at which medication lists are compared. Medication-related programmes delivered both in hospital and after discharge combine functions such as medication review, counselling, communication, follow-up, monitoring, and coordination [3]. Their wider temporal span recognizes an elementary feature of pharmacotherapy: treatment continues to act after the hospital encounter has ended. A medicine started on the ward may require dose adjustment days later. A discontinued drug may remain available at home. A laboratory test may be due after discharge. A patient may understand what changed but not why, or may understand the intention yet be unable to implement it during a physically and cognitively demanding recovery period.

The strong process effects achieved by well-designed reconciliation programmes should therefore be preserved rather than discounted. In MARQUIS2, mentored implementation of an evidence-based medication-reconciliation toolkit across multiple hospitals was associated with progressive reductions in unintentional medication discrepancies [4]. Such findings show that medication histories and transition records are modifiable safety targets and that implementation quality matters. They do not establish that every medication-related risk encountered during or after hospitalization is generated by a discrepancy.

A recent pragmatic clinical trial makes this boundary particularly visible. Pharmacist-led medication reconciliation markedly reduced clinically important medication errors at discharge, yet the intervention did not produce a statistically significant reduction in healthcare utilization during the subsequent 30 days [5]. The two findings can coexist because they measure different parts of the medication-safety problem. Correcting an inaccurate list can remove one route to harm while leaving other routes active. The question is consequently not whether reconciliation should be replaced. It is how reconciliation should be positioned when pharmacotherapy risk is already present before admission, is modified during treatment, and remains clinically consequential after discharge.

Preadmission instability and the limits of the admission medication list

The medication list created at admission is often the first formal representation of a patient's outpatient pharmacotherapy within the hospital, but its accuracy depends on how the history is obtained. In a randomized trial, medication histories obtained by pharmacists or pharmacy technicians before admission orders were finalized produced substantially fewer history and medication-order errors than usual medication-history processes [6]. This is precisely the type of failure that reconciliation is designed to address: the hospital cannot make safe decisions if the starting regimen has been reconstructed incorrectly.

Accurate reconstruction, however, does not establish that the reconstructed regimen is itself safe. Admission studies show why the two questions should remain separate. A prospective Swiss investigation identified numerous discrepancies between best possible medication histories and routine admission medication information, but only a subset reached the threshold of clinical relevance [7]. A discrepancy is therefore an informational difference requiring interpretation. Its presence does not determine whether the underlying medication is appropriate, whether the difference was intentional, or whether the patient was already experiencing a treatment-related problem before hospitalization.

Preadmission pharmacotherapy risk can exist even when every medicine is documented correctly. Older adults with frailty and substantial medication exposure remain vulnerable to medication-related harm because physiological reserve, multimorbidity, treatment complexity, and the practical demands of medicine use interact over time. In a multicentre cohort, frailty was associated with healthcare use arising from medication-related harm after discharge [8]. These vulnerabilities are not created by failure to reconcile the list. Reconciliation may reveal the medicines through which risk is expressed, but the next clinical question may concern dose, indication, interactions, tolerability, renal function, monitoring, adherence, or whether a treatment remains appropriate.

Drug-related readmission evidence points in the same direction. A systematic review and meta-analysis in older adults found that medication-related readmissions are associated with factors extending across comorbidity, polypharmacy, and particular medication exposures rather than with a single transition error mechanism [9]. Some of this risk is potentially detectable during reconciliation—for example, an omitted high-risk medicine or an unintended duplicate. Other risk may be present in a perfectly concordant list because the regimen is intrinsically difficult to manage or poorly matched to the patient's current physiology and clinical priorities.

This distinction matters because admission reconciliation can otherwise create false closure. When the medication history is judged complete, the record may appear stabilized even though pharmacotherapy remains unstable. A correct list is an accurate description of treatment exposure at a particular moment. It is not a verdict that the exposure is appropriate, tolerable, sufficiently monitored, or sustainable. Admission should therefore be understood as a point at which two tasks intersect: reconstructing what the patient was actually taking and evaluating what risks that treatment state already contains.

Hospitalization rewrites the regimen

Hospitalization does more than expose discrepancies. It actively changes pharmacotherapy. Medicines may be started for newly diagnosed conditions, withheld because of acute illness, substituted because of formulary constraints, titrated in response to laboratory findings, stopped because of adverse effects, or deliberately simplified. These changes can improve treatment while simultaneously creating a different configuration of risk at discharge. In a large population-based study of older adults, patterns of medicines prescribed at hospital discharge were associated with different risks of adverse drug events during the following 30 days [10]. The finding does not imply that a particular medication cluster mechanically causes harm, but it reinforces that the regimen leaving hospital has clinically meaningful properties beyond whether it matches a prior list.

This is also why successful pharmacist interventions often contain more than reconciliation. In a randomized clinical trial, an in-hospital multifaceted pharmacist programme incorporated medication review, patient-facing motivational elements, reconciliation, and coordination after discharge and reduced several readmission outcomes [11]. The effect cannot be assigned to one component in isolation. Its importance for the present argument is functional: medication safety may require detecting discrepancies, reconsidering treatment, preparing the patient, communicating across settings, and maintaining contact after the transition.

Wider intervention scope is not a guarantee of effectiveness. A cluster-randomized Swiss trial of medication review combined with enhanced information transfer at discharge did not produce a material reduction in readmissions among older patients with polypharmacy [12]. Null findings of this type are useful because they prevent the argument from becoming a simple claim that adding more transitional services automatically reduces harm. Baseline quality of care, patient case mix, intervention intensity, timing, implementation fidelity, outcome choice, and the availability of effective follow-up actions can all influence whether an added component changes an endpoint such as readmission.

Evidence from broader medication-optimisation interventions further separates reconciliation from other clinical functions. An updated systematic review and meta-analysis found that interventions designed to optimize medicine use in older adults reduced both overall and serious adverse drug reactions across the included trials [13]. These programmes encompassed pharmacist involvement and other medication-management approaches whose causal pathway is not limited to correcting mismatched medication lists. Prescribing review, deprescribing, surveillance, education, and treatment adjustment can alter risk even when reconciliation has already established an accurate record.

Hospitalization should therefore be regarded as a period in which the medication state is rewritten. Some differences between admission and discharge are errors. Others represent desirable therapeutic decisions. A meaningful transition-safety system must distinguish those categories because the appropriate response is different. An unintended omission may require reconciliation and immediate correction. A deliberate initiation of an anticoagulant, insulin regimen, diuretic, opioid, or other consequential therapy may be entirely appropriate but still create new requirements for explanation, surveillance, coordination, and patient self-management. The safety problem at discharge is consequently larger than the question of whether every medication change can be accounted for.

What reconciliation can detect—and what it cannot resolve

Even within reconciliation itself, effectiveness is not uniform. Analysis of MARQUIS2 showed that particular practices—especially high-quality medication-history acquisition and appropriately performed reconciliation at admission and discharge—were associated with larger reductions in medication discrepancies than other programme components [14]. Treating "medication reconciliation" as a single undifferentiated exposure can therefore obscure which actions are actually being delivered and which outcome they are capable of changing.

A similar distinction is necessary between successful medication-information transfer and downstream clinical outcomes. In an observational multicentre study of older patients, pharmacist-led discharge reconciliation improved aspects of medication continuity and patient experience without demonstrating a significant reduction in the primary healthcare-utilization outcome [15]. This pattern is consistent with the 2024 pragmatic trial described earlier: a transition process can become substantially more accurate without eliminating every determinant of subsequent emergency care, readmission, or medication-related deterioration.

The nature of post-discharge discrepancies provides an additional mechanistic boundary. In a follow-up analysis of pharmacist-led transitional care, the intervention reduced clinically important unintentional patient-generated medication discrepancies after discharge, whereas intentional medication changes did not show the same response [16]. That difference is clinically important. A patient may stop, restart, or alter a medicine because instructions were misunderstood, because an old supply remains at home, because side effects occur, because symptoms change, because another clinician advises a modification, or because the patient deliberately exercises preference. These events should not automatically be coded as equivalent failures of reconciliation.

Information transfer is another distinct function. Pharmacist involvement in the discharge reconciliation process can improve the quality and continuity of medication information reaching primary care [17]. That improvement reduces uncertainty about what changed, but it does not by itself determine whether the treatment decision was optimal, whether laboratory surveillance will occur, whether a newly responsible clinician knows when to act, or whether the patient can obtain and use the medicines as intended. The medication list may therefore be reconciled while important treatment work remains unfinished.

The evidence supports a functional division of transitional pharmacotherapy risk. Reconciliation is most directly suited to problems of medication identification, list discordance, undocumented change, and transfer accuracy. When risk arises from the appropriateness of the prescription, the need to monitor its effects, the persistence of unresolved treatment intent, or the practical ability to enact the regimen after discharge, another clinical or organizational response is required. These functions interact, but they should not be collapsed simply because they occur near the same transition.

The resulting differences across the medication journey are summarized in **Table 1**, which separates discrepancies that can be detected through reconciliation from risks that remain active after medication-list agreement has been achieved.

Table 1. Pharmacotherapy risk across the medication journey and the clinical reach of reconciliation

Medication information and persistent risk	Reconciliation and additional clinical action
Before admission — Existing treatment burden, multimorbidity, frailty, high-risk medicines, adherence difficulty, prior adverse effects, incomplete monitoring	
Potential discrepancy: Omitted medicines, incorrect doses, duplicate entries, outdated therapies, undocumented self-directed changes	Reconciliation: A more accurate representation of what the patient was actually taking
Risk despite list agreement: Inappropriate therapy, excessive burden, treatment intolerance, interaction risk, unmet monitoring needs, inability to manage the regimen	Additional response: Medication review, prescribing reassessment, clinical investigation, monitoring, adherence or self-management support
Admission — Hospital decisions are made from an imperfect representation of community treatment	
Potential discrepancy: Differences between routine history, patient report, pharmacy records, prior records, and admission orders	Reconciliation: Best possible medication history; identification of unintended omissions, additions, dose errors and duplications
Risk despite list agreement: A correctly documented preadmission regimen may still be clinically unstable or inappropriate for the acute illness	Additional response: Prescriber review, indication reassessment, dose adjustment, temporary withholding or therapeutic modification

Inpatient modification — Acute illness and therapeutic decisions create a new medication state	
Potential discrepancy: Apparent differences between preadmission and inpatient regimens	Reconciliation: Whether a difference is intended and whether it has been accurately documented
Risk despite list agreement: Intentional changes may generate new adverse-effect, interaction, monitoring, duration or follow-up requirements	Additional response: Active medication optimisation, monitoring plans, documentation of treatment intent and future decision rules
Discharge — Multiple intentional and unintended changes must be converted into a coherent outpatient regimen	
Potential discrepancy: Unexplained continuation, omission, duplication, wrong dose, conflicting discharge documents	Reconciliation: Concordance of the intended discharge list; clarification of undocumented or erroneous differences; accurate transfer of the final regimen
Risk despite list agreement: Correct prescriptions may still have unclear rationale, duration, monitoring ownership, contingency plans or insufficient patient understanding	Additional response: Explicit treatment-intent communication, monitoring assignment, patient counselling, coordination with primary/community care
Early recovery at home — The regimen is enacted under changing symptoms, recovery demands, medicine availability and variable support	
Potential discrepancy: Unintentional patient-generated differences from the discharge regimen; intentional self-modification; discrepancies introduced at subsequent transitions	Reconciliation: Reconciliation can identify divergence when another medication comparison occurs
Risk despite list agreement: Adverse effects, adherence difficulty, inaccessible medicines, intentional changes, delayed monitoring, failure to act on results, inadequate follow-up	Additional response: Timely clinical review, monitoring, access support, clarification of responsibility, patient/caregiver support and treatment adjustment

Discharge converts prescriptions into monitoring and communication obligations

A reconciled discharge list can still leave the next phase of therapy clinically under-specified. Patients must know not only what to take, but which medicines changed, why the change occurred, what symptoms or adverse effects require attention, and what should happen if treatment does not proceed as expected. Teach-back counselling has been developed as one way to verify whether medication information has become usable knowledge rather than merely transmitted information [18]. Its value for this argument is functional: comprehension has to be checked when the safety of a regimen depends on the patient carrying instructions into another setting.

Communication quality also shapes whether a correct list can be enacted. Qualitative work has shown that discharge medication conversations may remain clinician-led and insufficiently empowering for patients expected to manage complex therapy after leaving hospital [19]. More recent observations similarly identify problems of timing, language, power, and mismatched expectations about self-care during discharge encounters [20]. These findings do not prove that a particular communication style causes an adverse drug event, but they identify a plausible transition failure: the hospital may transfer the regimen successfully while transferring too little practical capacity to use it.

Patient involvement therefore belongs inside medication safety without implying that responsibility for harm is shifted onto the patient. Commentary in this field has argued for stronger patient participation in transitional medication safety [21]. Participation can include confirming what was actually taken before admission, questioning unexplained changes, identifying practical barriers, and signaling when the prescribed regimen conflicts with symptoms, preferences, resources, or prior instructions. Its feasibility will vary with illness severity, cognition, language, social support, and the urgency of the transition.

The discharge medication plan also has to carry treatment intent forward. Consensus work on medication discharge planning in older adults emphasizes that information about medication changes, reasons, intended use, and follow-up should accompany the patient into community care [22]. This extends the purpose of discharge documentation beyond producing a technically accurate list. A newly started medicine may be entirely appropriate at discharge and still remain unsafe if nobody is clearly positioned to review laboratory results, reassess dose, determine duration, or respond when treatment is poorly tolerated.

Risk remains active during early recovery at home

The medication journey does not end when the patient crosses the hospital door. Medication discrepancies can reappear at later transitions, as demonstrated among older adults moving from post-acute care to home, where differences between the facility medication list and the regimen reported after return home were extremely common [23]. The finding is population-specific, but it shows that medication-state instability can recur even after earlier reconciliation work has been completed.

Post-discharge harm also persists independently of whether another formal discrepancy is detected. Systematic-review evidence in older adults has documented wide variation in the reported incidence of medication-related harm after hospital discharge [24]. A prospective multicentre UK cohort subsequently found that medication-related harm remained common during the eight weeks after discharge and that a substantial proportion was considered potentially preventable [25]. These studies make early recovery a clinically active medication-safety period rather than a passive endpoint to the hospital episode.

Risk-stratification studies reinforce the point while also illustrating another boundary. The PRIME tool used discharge information to estimate the risk of medication-related harm requiring healthcare use, with moderate discrimination after internal validation [26]. Interviews with hospital pharmacists suggested that such a tool could help prioritise patients, while also exposing practical limitations: identifying a high-risk patient does not specify which problem is present or which action should follow [27]. The HOME Score, developed and externally validated for possible medication-related readmission, likewise achieved only moderate discrimination [28]. Prediction can help allocate attention; it cannot substitute for treatment review, monitoring, communication, or follow-up.

Post-discharge medication changes also require interpretation. Earlier evidence showed that pharmacist intervention reduced unintentional patient-generated discrepancies but did not produce the same pattern for intentional changes [16]. During recovery, patients may alter treatment because instructions were misunderstood, because side effects emerge, because medicines are inaccessible, or because they deliberately revise treatment in response to preferences or symptoms. A longitudinal safety strategy has to distinguish these mechanisms because each requires a different response.

Medication risk therefore outlives the reconciliation encounter when clinically relevant obligations remain unresolved, as shown in **Figure 1**.

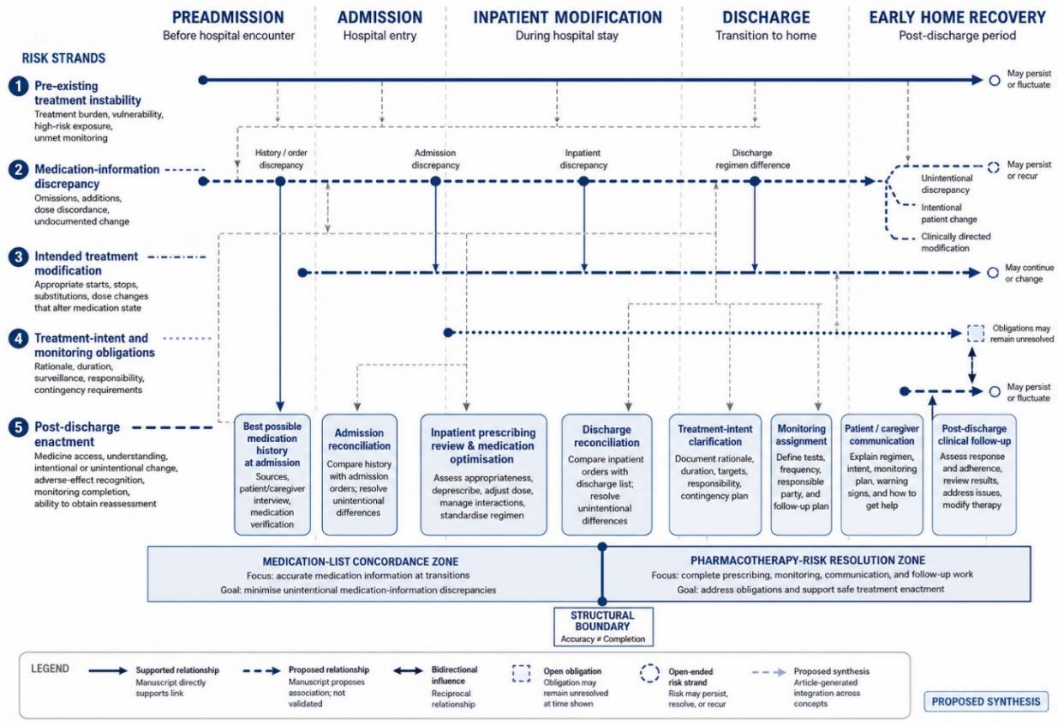

Figure 1. Medication risk persists across reconciliation windows when treatment obligations remain open

From discrepancy reduction to longitudinal risk resolution

A broader view of transitional medicines management is supported by theory-based analysis of intervention trials. Mapping of 24 interventions for older people at care transitions identified multiple behavioral targets, including planning, monitoring, social support, and environmental context [29]. The frequency with which these components appear does not prove that each is independently effective. It does show that transitional medication safety is already being addressed in practice through functions that extend beyond medication-list comparison.

The mixed outcome literature is compatible with this functional diversity. Programmes spanning hospital and post-discharge care can improve some outcomes [3], yet large reductions in medication errors may occur without measurable reductions in short-term utilization [5]. Multifaceted pharmacist intervention has reduced several readmission outcomes in one randomized trial [11], whereas medication review combined with enhanced information transfer was neutral in another setting [12]. Discharge reconciliation can improve aspects of continuity without changing utilization [15]. These apparently discordant findings should be treated as evidence that intervention content, timing, baseline system performance, patient vulnerability, and outcome selection modify what can reasonably be expected from reconciliation.

The central distinction is therefore between clinical functions rather than intervention labels. Medication reconciliation detects and corrects discordant medication information. Prescribing review addresses whether treatment itself should change. Treatment-intent communication explains what the change means. Monitoring assigns observation and response obligations. Follow-up reconnects evolving symptoms or laboratory findings with clinical decisions. Patient and caregiver support helps translate the intended regimen into actual medication use. These functions can overlap operationally, but they should remain analytically separable because failure in one is not repaired automatically by success in another.

This interpretation is testable. It would be weakened if reductions in clinically important discrepancies consistently produced proportional reductions in patient-important harm across heterogeneous settings without additional monitoring or follow-up. It would also be weakened if intentional and unintentional post-discharge medication changes responded similarly to reconciliation-focused interventions, or if patients with unresolved monitoring and treatment-intent obligations experienced no additional risk once list concordance had been achieved. Existing evidence does not establish those propositions conclusively; it makes them plausible enough to warrant direct evaluation.

Evaluation should therefore move beyond the question of whether two medication lists agree. Studies can retain discrepancy outcomes while also identifying which pharmacotherapy risks were present before admission, which treatment changes created new obligations, which obligations were closed before discharge, which remained active after discharge, and whether subsequent harm arose from inaccurate information, prescribing, monitoring, communication, access, or treatment enactment. **Table 2** organizes these failure-to-recovery configurations without treating them as interchangeable barriers.

Table 2. Failure-to-recovery configurations after medication change and the unresolved work carried beyond discharge

Failure configuration	Work already completed	Unresolved work and manifestation	Function-matched response
		Treatment intent and surveillance	
Accurate list, unclear treatment intent	Final list reconciled and transferred	Unresolved: Reason, duration, contingency, or review logic remains unclear Manifestation: Patient or clinician cannot determine whether a change should continue or be reassessed	Communicate rationale, intended duration, and review point
Correct prescription, unassigned monitoring	Medicine and dose appropriate at discharge	Unresolved: Surveillance lacks clear ownership or an action pathway Manifestation: Monitoring is delayed, omitted, or not acted upon	Assign monitoring responsibility, timing, review, and escalation
		Understanding and enactment	
Information transferred,	Discharge information delivered	Unresolved: Usable understanding has not been demonstrated	Teach-back, accessible counselling, and clarification

understanding unverified		Manifestation: Unintentional divergence or uncertainty about medicine use	
Regimen understood, enactment constrained	Patient understands intended treatment	Unresolved: Access, cognition, recovery demands, supply, or support limit implementation Manifestation: Missed doses, delayed initiation, or inability to follow monitoring instructions	Access support, simplification where appropriate, caregiver involvement, and follow-up
		Risk response and reassessment	
Risk identified, action unspecified	High-risk status is known	Unresolved: No mechanism-specific intervention is linked to the risk Manifestation: Risk flag persists without corrective action	Identify the modifiable mechanism and assign a corresponding intervention
New symptoms or preferences alter treatment	Original plan was coherent	Unresolved: Emerging effects, symptoms, goals, or preferences change treatment balance Manifestation: Intentional medication modification	Reassess promptly and distinguish adaptive change from unintentional error

Conclusion

Medication reconciliation remains an essential transition-safety intervention because inaccurate medication histories, undocumented changes, and discordant medication lists are common and modifiable. Its clinical reach becomes overstated when agreement between lists is treated as evidence that pharmacotherapy risk has been resolved. Risk can precede admission in the form of unstable or burdensome treatment, be transformed by intentional therapeutic change during hospitalization, and persist after discharge through adverse effects, unclear treatment intent, monitoring gaps, communication failure, limited follow-up, or difficulty implementing the regimen during recovery.

A more defensible interpretation positions reconciliation as one intervention window within this longer trajectory. The task at admission is to reconstruct treatment accurately and identify what risk is already present. The task during hospitalization is to distinguish error from intended therapeutic modification. The task at discharge is to transfer not only a regimen but the rationale, monitoring responsibilities, contingency plans, and practical support required to use it. After discharge, medication safety depends on whether these obligations are completed as the patient's condition and treatment evolve.

The strongest implication is therefore conditional. Reconciliation may arrive too late when it is expected to solve risk that was generated earlier, and it may end too early when treatment obligations remain active after the list has been reconciled. Improving transitional medication safety requires preserving high-quality reconciliation while connecting it to the prescribing, monitoring, communication, follow-up, and patient-support functions that resolve the risks reconciliation can only reveal.

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References

1. Aronson J. Medication reconciliation. BMJ. 2017;356:i5336. doi:10.1136/bmj.i5336
2. Redmond P, Grimes TC, McDonnell R, Boland F, Hughes C, Fahey T. Impact of medication reconciliation for improving transitions of care. Cochrane Database Syst Rev. 2018;8(8):CD010791. doi:10.1002/14651858.CD010791.pub2

3. Daliri S, Boujarfi S, El Mokaddam A, Scholte Op Reimer WJM, Ter Riet G, Den Haan C, et al. Medication-related interventions delivered both in hospital and following discharge: A systematic review and meta-analysis. BMJ Qual Saf. 2021;30(2):146-56. doi:10.1136/bmjqs-2020-010927
4. Schnipper JL, Reyes Nieva H, Mallouk M, Mixon AS, Rennke S, Chu ES, et al. Effects of a refined evidence-based toolkit and mentored implementation on medication reconciliation at 18 hospitals: Results of the MARQUIS2 study. BMJ Qual Saf. 2022;31(4):278-86. doi:10.1136/bmjqs-2020-012709
5. Jošt M, Kerec Kos M, Kos M, Knez L. Effectiveness of pharmacist-led medication reconciliation on medication errors at hospital discharge and healthcare utilization in the next 30 days: A pragmatic clinical trial. Front Pharmacol. 2024;15:1377781. doi:10.3389/fphar.2024.1377781
6. Pevnick JM, Nguyen C, Jackevicius CA, Palmer KA, Shane R, Cook-Wiens G, et al. Improving admission medication reconciliation with pharmacists or pharmacy technicians in the emergency department: A randomised controlled trial. BMJ Qual Saf. 2018;27(7):512-20. doi:10.1136/bmjqs-2017-006761
7. Giannini O, Rizza N, Pironi M, Parlato S, Waldispühl Suter B, Borella P, et al. Prevalence, clinical relevance and predictive factors of medication discrepancies revealed by medication reconciliation at hospital admission: Prospective study in a Swiss internal medicine ward. BMJ Open. 2019;9(5):e026259. doi:10.1136/bmjopen-2018-026259
8. Stevenson JM, Parekh N, Chua KC, Davies JG, Schiff R, Rajkumar C, et al. A multi-centre cohort study on healthcare use due to medication-related harm: The role of frailty and polypharmacy. Age Ageing. 2022;51(3):afac054. doi:10.1093/ageing/afac054
9. Prasad N, Lau ECY, Wojt I, Penm J, Dai Z, Tan ECK. Prevalence of and risk factors for drug-related readmissions in older adults: A systematic review and meta-analysis. Drugs Aging. 2024;41(1):1-11. doi:10.1007/s40266-023-01076-8
10. Weir DL, Ma X, McCarthy L, Tang T, Lapointe-Shaw L, Wodchis WP, et al. Medication clusters at hospital discharge and risk of adverse drug events at 30 days postdischarge: A population-based cohort study of older adults. Br J Clin Pharmacol. 2023;89(12):3715-52. doi:10.1111/bcp.15872
11. Ravn-Nielsen LV, Duckert ML, Lund ML, Henriksen JP, Nielsen ML, Eriksen CS, et al. Effect of an in-hospital multifaceted clinical pharmacist intervention on the risk of readmission: A randomized clinical trial. JAMA Intern Med. 2018;178(3):375-82. doi:10.1001/jamainternmed.2017.8274
12. Grischott T, Rachamin Y, Senn O, Hug P, Rosemann T, Neuner-Jehle S. Medication review and enhanced information transfer at discharge of older patients with polypharmacy: A cluster-randomized controlled trial in Swiss hospitals. J Gen Intern Med. 2023;38(3):610-8. doi:10.1007/s11606-022-07728-6
13. Gray SL, Perera S, Soverns T, Hanlon JT. Systematic review and meta-analysis of interventions to reduce adverse drug reactions in older adults: An update. Drugs Aging. 2023;40(11):965-79. doi:10.1007/s40266-023-01064-y
14. Schnipper JL, Reyes Nieva H, Yoon C, Mallouk M, Mixon AS, Rennke S, et al. What works in medication reconciliation: An on-treatment and site analysis of the MARQUIS2 study. BMJ Qual Saf. 2023;32(8):457-69. doi:10.1136/bmjqs-2022-014806
15. Bajeux E, Alix L, Cornée L, Barbazan C, Mercerolle M, Howlett J, et al. Pharmacist-led medication reconciliation at patient discharge: A tool to reduce healthcare utilization? An observational study in patients 65 years or older. BMC Geriatr. 2022;22(1):576. doi:10.1186/s12877-022-03192-3
16. Jošt M, Knez L, Kos M, Kerec Kos M. Pharmacist-led hospital intervention reduces unintentional patient-generated medication discrepancies after hospital discharge. Front Pharmacol. 2024;15:1483932. doi:10.3389/fphar.2024.1483932
17. Hill A, Wilcock M. Exploring pharmacist involvement in the discharge medicines reconciliation process and information transfer to primary care: An observational study. Int J Clin Pharm. 2022;44(1):27-33. doi:10.1007/s11096-021-01300-8
18. O'Mahony E, Kenny J, Hayde J, Dalton K. Development and evaluation of pharmacist-provided teach-back medication counselling at hospital discharge. Int J Clin Pharm. 2023;45(3):698-711. doi:10.1007/s11096-023-01558-0
19. Rognan SE, Kälvemark-Sporrong S, Bengtsson KR, Lie HB, Andersson Y, Mowé M, et al. Empowering the patient? Medication communication during hospital discharge: A qualitative study at an internal medicines ward in Norway. BMJ Open. 2021;11(6):e044850. doi:10.1136/bmjopen-2020-044850

20. Cam H, Franzon K, Kälvemark Sporrong S, Kempen TGH, Bernsten C, Nielsen EI, et al. 'You're just thinking about going home': Exploring person-centred medication communication with older patients at hospital discharge. Health Expect. 2024;27(5):e70065. doi:10.1111/hex.70065
21. Grimes TC. Is it time for greater patient involvement to enhance transitional medication safety? BMJ Qual Saf. 2022;31(4):247-50. doi:10.1136/bmjqs-2021-014116
22. Zhang FH, Lauzon J, Payette J, Courtemanche F, Papillon-Ferland L, Firoozi F, et al. Promoting medication safety for older adults upon hospital discharge: Guiding principles for a medication discharge plan. Br J Clin Pharmacol. 2024;90(11):2939-46. doi:10.1111/bcp.16216
23. Vasilevskis EE, Trumbo SP, Saraf Shah A, Hollingsworth EK, Shotwell MS, Mixon AS, et al. Medication discrepancies among older hospitalized adults discharged from post-acute care facilities to home. J Am Med Dir Assoc. 2024;25(7):105017. doi:10.1016/j.jamda.2024.105017
24. Parekh N, Ali K, Page A, Roper T, Rajkumar C. Incidence of medication-related harm in older adults after hospital discharge: A systematic review. J Am Geriatr Soc. 2018;66(9):1812-22. doi:10.1111/jgs.15419
25. Parekh N, Ali K, Stevenson JM, Davies JG, Schiff R, Van der Cammen T, et al. Incidence and cost of medication harm in older adults following hospital discharge: A multicentre prospective study in the UK. Br J Clin Pharmacol. 2018;84(8):1789-97. doi:10.1111/bcp.13613
26. Parekh N, Ali K, Davies JG, Stevenson JM, Banya W, Nyangoma S, et al. Medication-related harm in older adults following hospital discharge: Development and validation of a prediction tool. BMJ Qual Saf. 2020;29(2):142-53. doi:10.1136/bmjqs-2019-009587
27. Hussain A, Ali K, Davies JG, Stevenson JM, Lippett S, O'Malley M, et al. Hospital pharmacists' opinions on a risk prediction tool for medication-related harm in older people. Br J Clin Pharmacol. 2023;89(2):672-86. doi:10.1111/bcp.15502
28. Glans M, Kempen TGH, Jakobsson U, Kragh Ekstam A, Bondesson Å, Midlöv P. Identifying older adults at increased risk of medication-related readmission to hospital within 30 days of discharge: Development and validation of a risk assessment tool. BMJ Open. 2023;13(8):e070559. doi:10.1136/bmjopen-2022-070559
29. Tomlinson J, Marques I, Silcock J, Fylan B, Dyson J. Supporting medicines management for older people at care transitions—a theory-based analysis of a systematic review of 24 interventions. BMC Health Serv Res. 2021;21(1):890. doi:10.1186/s12913-021-06890-7