

Definition

Medicines reconciliation (also known as "medication reconciliation") is the process of ensuring that patients' medication lists are accurate and complete as they move across different stages of care, such as from hospital admission to discharge or between different healthcare providers. The aim is to reduce medication errors, which are a significant cause of preventable harm to patients. Below is a detailed breakdown of the benefits case for medicines reconciliation:

1. Improved Patient Safety

- **Reduction in medication errors:** Medicines reconciliation helps to prevent common errors such as omissions, duplications, dosage mistakes, and drug conflicts. These errors can occur when patients transition between care settings (e.g., from community to acute care).
- **Prevention of adverse drug events (ADEs):** Ensuring accurate medication lists minimizes the risk of ADEs, which can cause harm, including hospital readmissions or extended hospital stays.
- **Consistency across care settings:** By reconciling medications at every point of transition, discrepancies between a patient's home, hospital, and primary care medications are minimised.
- **EVIDENCE:**
 - Vuong V, O'Donnell D, Navare H, Merrill D, Racki M, Burton S, Anderson L, Beaton C. BOOMR: Better Coordinated Cross-Sectoral Medication Reconciliation for Residential Care. *Healthc Q.* 2017;20(1):34-39. doi: 10.12927/hcq.2017.25075. PMID: 28550698.
 - Abdulghani KH, Aseeri MA, Mahmoud A, Abulezz R. The impact of pharmacist-led medication reconciliation during admission at tertiary care hospital. *Int J Clin Pharm.* 2018 Feb;40(1):196-201. doi: 10.1007/s11096-017-0568-6. Epub 2017 Dec 16. PMID: 29248986.
 - Byrne SM, Grimes TC, Jago-Byrne MC, Galvin M. Impact of team-versus ward-aligned clinical pharmacy on unintentional medication discrepancies at admission. *Int J Clin Pharm.* 2017 Feb;39(1):148-155. doi: 10.1007/s11096-016-0412-4. Epub 2016 Dec 22. PMID: 28004239.
 - Cebron Lipovec N, Zerovnik S, Kos M. Pharmacy-supported interventions at transitions of care: an umbrella review. *Int J Clin Pharm.* 2019 Aug;41(4):831-852. doi: 10.1007/s11096-019-00833-3. Epub 2019 May 23. PMID: 31123900.
 - Cebron Lipovec N, Zerovnik S, Kos M. Pharmacy-supported interventions at transitions of care: an umbrella review. *Int J Clin Pharm.* 2019 Aug;41(4):831-852. doi: 10.1007/s11096-019-00833-3. Epub 2019 May 23. PMID: 31123900.

2. Cost Savings

- **Avoidance of hospital readmissions:** Medication errors and ADEs are common causes of readmissions, which are costly. Accurate medicines reconciliation can prevent these events, leading to cost savings for healthcare systems.

- Reduced length of stay in hospitals: Proper medication management may prevent complications that could otherwise extend a patient's stay in the hospital, saving both time and healthcare resources.
- Fewer legal liabilities: Reducing medication errors decreases the likelihood of malpractice claims and litigation, which can be costly for healthcare organisations.
- EVIDENCE:
 - Najafzadeh M, Schnipper JL, Shrank WH, Kymes S, Brennan TA, Choudhry NK. Economic value of pharmacist-led medication reconciliation for reducing medication errors after hospital discharge. *Am J Manag Care*. 2016 Oct;22(10):654-661. PMID: 28557517.
 - Chen CC, Hsiao FY, Shen LJ, Wu CC. The cost-saving effect and prevention of medication errors by clinical pharmacist intervention in a nephrology unit. *Medicine (Baltimore)*. 2017 Aug;96(34):e7883. doi: 10.1097/MD.0000000000007883. PMID: 28834903; PMCID: PMC5572025.
 - Klopotoska JE, Kuiper R, van Kan HJ, de Pont AC, Dijkgraaf MG, Lie-A-Huen L, Vroom MB, Smorenburg SM. On-ward participation of a hospital pharmacist in a Dutch intensive care unit reduces prescribing errors and related patient harm: an intervention study. *Crit Care*. 2010;14(5):R174. doi: 10.1186/cc9278. Epub 2010 Oct 4. PMID: 20920322; PMCID: PMC3219276.
 - Guchelaar HJ, Colen HB, Kalmeijer MD, Hudson PT, Teepe-Twiss IM. Medication errors: hospital pharmacist perspective. *Drugs*. 2005;65(13):1735-46. doi: 10.2165/00003495-200565130-00001. PMID: 16114974.
 - Dalton K, Byrne S. Role of the pharmacist in reducing healthcare costs: current insights. *Integr Pharm Res Pract*. 2017 Jan 25;6:37-46. doi: 10.2147/IPRP.S108047. PMID: 29354549; PMCID: PMC5774321.

3. Enhanced Patient Outcomes

- Better medication adherence: Medicines reconciliation allows healthcare providers to identify and address discrepancies, which can improve patients' understanding and adherence to their medication regimens.
- Improved chronic disease management: For patients with chronic conditions (e.g., diabetes, heart disease), accurate medicines reconciliation helps ensure the proper use of essential medications, leading to better disease control and fewer complications.
- Decreased mortality and morbidity: By preventing errors that can lead to life-threatening conditions, medicines reconciliation has a direct impact on improving overall patient survival rates.
- EVIDENCE:
 - Cebon Lipovec N, Zerovnik S, Kos M. Pharmacy-supported interventions at transitions of care: an umbrella review. *Int J Clin Pharm*. 2019 Aug;41(4):831-852. doi: 10.1007/s11096-019-00833-3. Epub 2019 May 23. PMID: 31123900.
 - Mekonnen AB, McLachlan AJ, Brien JA. Effectiveness of pharmacist-led medication reconciliation programmes on clinical outcomes at hospital transitions: a systematic review and meta-analysis. *BMJ Open*. 2016 Feb 23;6(2):e010003. doi: 10.1136/bmjopen-2015-010003. PMID: 26908524; PMCID: PMC4769405.
 - Renaudin P, Boyer L, Esteve MA, Bertault-Peres P, Auquier P, Honore S. Do pharmacist-led medication reviews in hospitals help reduce hospital

readmissions? A systematic review and meta-analysis. *Br J Clin Pharmacol*. 2016 Dec;82(6):1660-1673. doi: 10.1111/bcp.13085. Epub 2016 Sep 29. PMID: 27511835; PMCID: PMC5099542.

4. Improved Communication Across Healthcare Providers

- Streamlined information sharing: Medicines reconciliation facilitates better communication between hospital teams, pharmacists, primary care providers, and other healthcare professionals. This reduces the risk of critical information being lost when patients move between care settings.
- Clearer documentation: Having an accurate, reconciled medication list helps healthcare professionals provide more informed and effective care, and prevents miscommunication or incomplete documentation.
- EVIDENCE:
 - Vuong V, O'Donnell D, Navare H, Merrill D, Racki M, Burton S, Anderson L, Beaton C. BOOMR: Better Coordinated Cross-Sectoral Medication Reconciliation for Residential Care. *Healthc Q*. 2017;20(1):34-39. doi: 10.12927/hcq.2017.25075. PMID: 28550698.
 - Allende Bandrés MÁ, Arenere Mendoza M, Gutiérrez Nicolás F, Calleja Hernández MÁ, Ruiz La Iglesia F. Pharmacist-led medication reconciliation to reduce discrepancies in transitions of care in Spain. *Int J Clin Pharm*. 2013 Dec;35(6):1083-90. doi: 10.1007/s11096-013-9824-6. Epub 2013 Jul 24. PMID: 23881347.
 - Byrne SM, Grimes TC, Jago-Byrne MC, Galvin M. Impact of team-versus ward-aligned clinical pharmacy on unintentional medication discrepancies at admission. *Int J Clin Pharm*. 2017 Feb;39(1):148-155. doi: 10.1007/s11096-016-0412-4. Epub 2016 Dec 22. PMID: 28004239.
 - Cebon Lipovec N, Zerovnik S, Kos M. Pharmacy-supported interventions at transitions of care: an umbrella review. *Int J Clin Pharm*. 2019 Aug;41(4):831-852. doi: 10.1007/s11096-019-00833-3. Epub 2019 May 23. PMID: 31123900.

5. Patient Empowerment and Satisfaction

- Enhanced patient engagement: Patients who are involved in the medicines reconciliation process have a better understanding of their medications, fostering trust and confidence in the healthcare system.
- Improved patient experience: Patients are less likely to experience frustration or confusion about their medications when they have a clear and consistent understanding of what they should be taking. This leads to higher satisfaction with their care.
- EVIDENCE:
 - Tamblyn R, Abrahamowicz M, Buckeridge DL, Bustillo M, Forster AJ, Girard N, Habib B, Hanley J, Huang A, Kurteva S, Lee TC, Meguerditchian AN, Moraga T, Motulsky A, Petrella L, Weir DL, Winslade N. Effect of an Electronic Medication Reconciliation Intervention on Adverse Drug Events: A Cluster Randomized Trial. *JAMA Netw Open*. 2019 Sep 4;2(9):e1910756. doi: 10.1001/jamanetworkopen.2019.10756. PMID: 31539073; PMCID: PMC6755531.

- Cebron Lipovec N, Zerovnik S, Kos M. Pharmacy-supported interventions at transitions of care: an umbrella review. *Int J Clin Pharm*. 2019 Aug;41(4):831-852. doi: 10.1007/s11096-019-00833-3. Epub 2019 May 23. PMID: 31123900.
- Renaudin P, Boyer L, Esteve MA, Bertault-Peres P, Auquier P, Honore S. Do pharmacist-led medication reviews in hospitals help reduce hospital readmissions? A systematic review and meta-analysis. *Br J Clin Pharmacol*. 2016 Dec;82(6):1660-1673. doi: 10.1111/bcp.13085. Epub 2016 Sep 29. PMID: 27511835; PMCID: PMC5099542.
- Tamblyn R, Abrahamowicz M, Buckeridge DL, Bustillo M, Forster AJ, Girard N, Habib B, Hanley J, Huang A, Kurteva S, Lee TC, Meguerditchian AN, Moraga T, Motulsky A, Petrella L, Weir DL, Winslade N. Effect of an Electronic Medication Reconciliation Intervention on Adverse Drug Events: A Cluster Randomized Trial. *JAMA Netw Open*. 2019 Sep 4;2(9):e1910756. doi: 10.1001/jamanetworkopen.2019.10756. PMID: 31539073; PMCID: PMC6755531.

6. Compliance with Regulatory and Accreditation Standards

- Meeting safety standards: Many healthcare accreditation bodies (such as The Joint Commission, in the US; CareQuality Commission and National Institute for Health and Care Excellence, in the UK) mandate medicines reconciliation as part of their safety standards. Compliance with these requirements ensures healthcare institutions meet regulatory obligations and avoid penalties.
- Adherence to best practice guidelines: Medicines reconciliation aligns with international best practice frameworks, such as those promoted by the World Health Organization (WHO), and contributes to overall healthcare quality improvement initiatives.
- EVIDENCE:
 - WHO: https://cdn.who.int/media/docs/default-source/patient-safety/high5s/h5s-sop.pdf?sfvrsn=594d8e49_4
 - NICE (UK): <https://www.nice.org.uk/guidance/qs120/chapter/quality-statement-4-medicines-reconciliation-in-acute-settings>
 - Care Quality Commission (UK): <https://www.cqc.org.uk/guidance-providers/adult-social-care/medicines-reconciliation-how-check-you-have-right-medicines>
 - Joint Commission (US): <https://www.jointcommission.org/-/media/tjc/newsletters/qs-26-update2-4-21-22.pdf>

7. Support for Digital Health and Electronic Health Records (EHRs)

- Integration with EHR systems: Medicines reconciliation is an essential component of modern EHR systems, allowing for easier updates and more reliable access to patients' medication histories. This facilitates seamless care and reduces manual documentation errors.
- Facilitation of telemedicine and remote care: As healthcare increasingly shifts toward remote consultations, having a robust, reconciled medication list in electronic form allows clinicians to offer safe, effective medication management even when patients are not seen in person.
- EVIDENCE:

- Moore P, Armitage G, Wright J, Dobrzanski S, Ansari N, Hammond I, Scally A. Medicines reconciliation using a shared electronic health care record. *J Patient Saf.* 2011 Sep;7(3):148-54. doi: 10.1097/PTS.0b013e31822c5bf9. PMID: 21857238.
- Villamayor-Blanco L, Herrero-Poch L, De-Miguel-Bouzas JC, Freire Vazquez MC. Conciliación de medicación al ingreso mediante un programa de prescripción electrónica asistida [Medicines reconciliation at hospital admission into an electronic prescribing program]. *Farm Hosp.* 2016 Sep 1;40(5):333-40. Spanish. doi: 10.7399/fh.2016.40.5.9080. PMID: 27570985.
- Villamayor-Blanco L, Herrero-Poch L, De-Miguel-Bouzas JC, Freire Vazquez MC. Conciliación de medicación al ingreso mediante un programa de prescripción electrónica asistida [Medicines reconciliation at hospital admission into an electronic prescribing program]. *Farm Hosp.* 2016 Sep 1;40(5):333-40. Spanish. doi: 10.7399/fh.2016.40.5.9080. PMID: 27570985.
- Villamayor-Blanco L, Herrero-Poch L, De-Miguel-Bouzas JC, Freire Vazquez MC. Conciliación de medicación al ingreso mediante un programa de prescripción electrónica asistida [Medicines reconciliation at hospital admission into an electronic prescribing program]. *Farm Hosp.* 2016 Sep 1;40(5):333-40. Spanish. doi: 10.7399/fh.2016.40.5.9080. PMID: 27570985.

8. Resource Optimization

- More efficient use of healthcare staff: Standardised medicines reconciliation processes save time for clinicians, reducing the workload associated with rectifying medication errors and improving the efficiency of care delivery.
- Improved pharmacy utilisation: By involving pharmacists in medicines reconciliation, their expertise is better utilised in reviewing complex medication regimens, thus optimising resource allocation and reducing risk.
- EVIDENCE:
 - Byrne SM, Grimes TC, Jago-Byrne MC, Galvin M. Impact of team-versus ward-aligned clinical pharmacy on unintentional medication discrepancies at admission. *Int J Clin Pharm.* 2017 Feb;39(1):148-155. doi: 10.1007/s11096-016-0412-4. Epub 2016 Dec 22. PMID: 28004239.
 - Renaudin P, Boyer L, Esteve MA, Bertault-Peres P, Auquier P, Honore S. Do pharmacist-led medication reviews in hospitals help reduce hospital readmissions? A systematic review and meta-analysis. *Br J Clin Pharmacol.* 2016 Dec;82(6):1660-1673. doi: 10.1111/bcp.13085. Epub 2016 Sep 29. PMID: 27511835; PMCID: PMC5099542.
 - Renaudin P, Boyer L, Esteve MA, Bertault-Peres P, Auquier P, Honore S. Do pharmacist-led medication reviews in hospitals help reduce hospital readmissions? A systematic review and meta-analysis. *Br J Clin Pharmacol.* 2016 Dec;82(6):1660-1673. doi: 10.1111/bcp.13085. Epub 2016 Sep 29. PMID: 27511835; PMCID: PMC5099542.

Conclusion

In summary, the benefits case for medicines reconciliation is built on the pillars of patient safety, cost savings, improved patient outcomes, and enhanced communication across

healthcare settings. By minimising medication-related errors, preventing adverse drug events, and promoting continuity of care, medicines reconciliation represents a critical step in ensuring high-quality healthcare delivery.