

Strategies to prevent medication errors between acute and primary care

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Medication errors occurring at transitions of care are a significant contributor to patient harm. The transition between the primary and acute care settings presents a particular risk. GPs can be active participants in facilitating continuity of care and play an important role in preventing medication errors at transitions of care.

KEY POINTS

- Medication errors at transitions of care significantly increase the risk of patient harm.
- Medication errors are often multifactorial, and confirming medication changes at each encounter with patients and their carers is essential in mitigating the risk of unintentional errors.
- Formalised medication reconciliation processes can minimise unintentional medication errors and improve patient safety.
- Simple strategies incorporated into daily practice can contribute to improving medication management between the acute and primary health care settings.
- Developments in information technology and electronic health records have the potential to enhance the accuracy and delivery of medicines information.



When used appropriately and safely, medicines can contribute to considerable improvements in health and quality of life. However, because medicine use is so widespread, they are also one of the most common sources of error and adverse events within the healthcare system.¹ While errors can occur at any stage of the patient journey through the healthcare setting, they are commonly seen at transitions of care, such as on admission or discharge from hospital.²

The impact of medication errors at transitions of care

When continuity of information between healthcare encounters is deficient or lacking, the potential for medication errors to be continued from the primary into the acute healthcare setting is significant. An Australian study that analysed 414 GP letters for patients referred to emergency departments found that 87% had one or more discrepancies in the patients' regular medications and 62% of these discrepancies were of moderate to high significance.

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EXAMPLES OF MEDICATION ERRORS OCCURRING AT ADMISSION AND DISCHARGE

Example 1. Admission from the primary care setting to the acute care setting

On admission to the cardiac ward, a patient was prescribed carvedilol 25mg twice a day instead of his usual regular dose of 6.25mg twice a day. On presentation to the emergency department, he had provided a list of his regular medications from his GP; however, his cardiologist had recently reduced the dose of carvedilol and the medication list had not been updated to reflect this change. The patient experienced severe hypotension and required hourly observations.

Example 2. Discharge from the acute care setting to the primary care setting

On admission to hospital, a patient was discovered to be hyperkalaemic and subsequently her digoxin was withheld. Therapeutic drug monitoring showed her digoxin level to be within the normal therapeutic range. On discharge, her potassium level had returned to normal and digoxin was recommenced; however, digoxin was unintentionally omitted from the discharge summary and patient medication list provided. One week after discharge, the patient presented to the emergency department with atrial fibrillation and was readmitted to hospital.

Omission of medication was more prevalent in the handwritten letters, whereas inclusion of medications no longer taken was found to be more prevalent in electronically generated letters.³ Similarly, a lack of communication between clinicians at hospital admission and at discharge from acute care to primary care has been shown to be a cause of 28% of preventable hospital readmissions within 30 days of discharge.⁴

The risk of medication errors leading to patient harm is heightened when an error is continued across multiple healthcare events.^{2,3} For example, an admission to the intensive care unit is associated with a higher risk of unintentional medication discontinuation. This unintentional discontinuation is then carried through to the patient's discharge into the community, and this discontinuity has been shown to cause an elevated risk of hospital readmission or death due to exacerbation of chronic disease.⁵ Furthermore, suboptimal medication management immediately after hospital discharge into the primary healthcare setting has been shown to contribute to patient harm and increase the risk of potentially avoidable readmissions.

Types of errors and causes

Medication errors are often multifactorial and can occur at any stage of the process of providing medicines including prescribing, dispensing, administration, monitoring or documentation. In the general practice setting, prescribing, monitoring and documentation errors are of particular concern.⁶ Potential errors include the following:

- prescribing errors
 - incorrect dose, drug or route
 - use of an inappropriate formulation, such as prescribing a modified-release tablet every four hours instead of the immediate-release tablets every four hours (e.g. hydromorphone)
 - inadequate instructions on the use of the medicine
- monitoring errors
 - failure to act on relevant clinical or laboratory assessments of therapy
- documentation errors
 - missing or incorrect information about the medication use in the patient's medical records or referral letters
 - lack of communication leading to inadequate transfer of relevant information at transitions of care.

Documentation errors can have far-reaching consequences and flow-on effects, including prescribing errors that can lead to administration of the wrong therapy to the patient and can potentially cause harm or constitute a near-miss.⁶

Example 1 (Box) highlights that it is crucial for clinicians to confirm medication histories with relevant specialists, the patient and/or their carer and not rely solely on written documentation. Maintaining reliable communication and informational continuity across healthcare events, especially when patients see multiple specialists or GPs, can be particularly challenging and increases the risk of medication discrepancies or errors.

Example 2 (Box) illustrates the consequences of a discharge summary that is not 100% accurate in documenting the patient's correct medications at the time of discharge. One study has found that 12% of discharge summaries contained an error. Most commonly, these errors were omissions or inclusions of medications.² A recent audit of discharge summaries conducted in Melbourne by a general practice showed that only 24% of summaries received had complete lists of discharge medications and 44% had no details about the medications.⁴ Confirming any medication changes with the patient or carer at the first GP visit after discharge can assist greatly in identifying and preventing potential medication errors.

What is medication reconciliation?

Medication reconciliation is a proven strategy to support continuity of medication management and thus facilitate improvements in patient safety through prevention of medication errors.^{2,7} It is the formal process of obtaining, verifying and documenting an accurate list of a patient's current medicines at each healthcare encounter, with the aim of identifying and resolving any unintentional discrepancies. Formalised processes applied across systems and organisations have been shown to ensure accurate and consistent communication of a patient's medicines information, not only to other healthcare professionals,

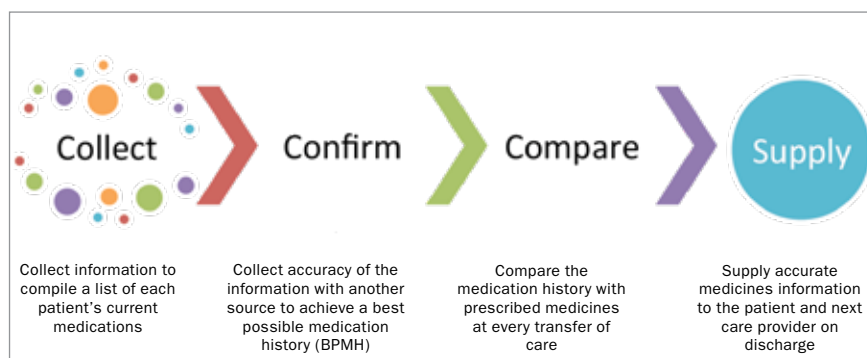


Figure. The four steps to medication reconciliation

Adapted from: Clinical Excellence Commission (CEC). Continuity of medication management: medication reconciliation toolkit. Sydney: CEC; 2014. p. 212.⁸

but also to patients and carers. In the acute care setting, research has shown that an interprofessional team approach involving medical, nursing and pharmacy professionals is the best strategy for implementing processes to achieve continuity in medication management.¹

Formalised medication reconciliation processes are patient-centred and can be summarised in the four steps illustrated in the Figure, 'collect', 'confirm', 'compare' and 'supply', as recommended in the NSW Clinical Excellence Commission medication reconciliation toolkit.⁸

What can GPs do?

There are several ways in which GPs can support and partner with hospital clinicians to improve continuity of medication management across healthcare settings. GPs play a critical role in 'closing the loop' in the medication management cycle for patients, especially at the points of admission to, and discharge from, the acute care setting.

Alongside the ongoing efforts to improve medication reconciliation processes within the acute care setting, GPs can support processes by integrating the following strategies into their practice.

- Ensure that each patient's medication list in the medical record is complete, up to date and contains any nonprescription medicines. This involves reviewing and updating medication records at each patient consultation; when a specialist initiates changes to a patient's medications; and especially after any recent hospital admission. It is essential to ensure that medications no longer taken are not included on the current list.³ This will help reduce the number of inaccurate medication histories obtained on admission to any acute care setting. This strategy is not only important from an acute care perspective, but also at the primary care level with regard to accurate transfer of information between GPs and community pharmacists.
- Clarify any suspected medication discrepancies with the relevant prescriber as soon as possible and document the outcome in the patient's medical record. Engage with

patients and their carers to encourage them to be actively involved in their own medication management. This involves assisting patients in maintaining a current list of their medications (including over-the-counter and complementary medications).⁶ NPS MedicineWise has developed several resources (including the free mobile device app) that can help patients compile a list of their medicines and aid patient adherence.⁹ Encouraging patients and their carers to maintain a medication list and bring it with them to every healthcare visit will support clinicians in documenting an accurate medication history and minimise medication errors

- Encourage patients or their carers to bring the actual medicines to the next consultation for reconciliation against the patient's medical record.
- Initiate a domiciliary medication management review or residential medication management review where appropriate. These items are listed on the Medicare Benefits Schedule (MBS Items 900 and 903, respectively) and aim to optimise an individual's benefit from their medication regimen and prevent medication-related problems through a team approach. Although the team usually comprises the GP and a preferred community pharmacy, it may also involve nurses in community practice and carers.

The role of acute care services

Medication errors or discrepancies at transfers of care are multifactorial and can occur at any point within the primary or acute care settings. It is every clinician's responsibility (medical, nursing and pharmacy) to perform their role in the medication reconciliation process.

In partnership with the NSW Clinical Excellence Commission, public hospitals and facilities are working towards implementing formalised medication reconciliation process goals to help improve patient safety at all transfers of care. These include ensuring that:

- a best possible medication history is documented for every patient within 24 hours of admission

- all medicines taken prior to admission that are intended to continue are prescribed on the patient's medication chart, with documented reasons for any changes
- the discharge summary contains an accurate medication list and the reasons for any change in medicines
- on discharge, the patient is provided with an accurate medication list.⁷

Using information technology to improve continuity

Recent developments in information technology at the national level through the My Health Record and electronic medication management systems (currently being introduced across many Australian public hospitals) have potential to significantly enhance the effectiveness and quality of medication reconciliation processes through ease of documentation and access to stored information.

As of February 2018, more than 5.5 million people in Australia have a My Health Record, and about 17,000 new records are created each week.¹⁰ Clinical documents that can be uploaded to the My Health Record system include electronic hospital discharge summaries, prescriptions, pharmacy dispensing records, specialists' letters, eReferral notes and shared health summaries.

It is important to realise that while electronic medication management systems can potentially eliminate or reduce some sources of error, they introduce some new risks in terms of medication safety.⁶ For example, although electronic records may improve efficiency in timely transfer of medicines information across healthcare settings, there are now new concerns regarding the quality of information that electronic discharge summaries contain.¹¹ And while prescriptions and dispensing records may be visible within the My Health Record, it is important to keep in mind that there could be up to a two-week delay for dispensed paper prescriptions to be uploaded into the system.

Working together towards improving patient safety

Evidence shows that continuity of medication management plays a major role in ensuring medication safety through a reduction in medication-related errors and preventable hospital readmissions, although these benefits can only be realised if all clinicians involved work as a team. Performing medication reconciliation by reviewing and updating patient medication lists after each hospital admission is a critical task for GPs as key players in primary health care. Central to the success of continuity of medication management is the involvement of patients in their medical care decisions and maintaining open channels of communication between clinicians and patients. Overall, the long-term benefits include enhanced patient safety and a reduced burden on the healthcare system.

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