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BRIEF REPORT

An audit of medication information in electronic discharge summaries for older patients discharged from medical wards at a regional hospital

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Abstract

Background: Continuity of medication management relies on accurate and complete medication information being communicated at transitions of care. Polypharmacy and older age are risk factors for medication-related events on discharge from hospital.
Aim: To determine the type and number of discrepancies in the medication information included in electronic discharge summaries prepared for older patients discharged from the medical wards of a regional hospital when compared to the National Inpatient Medication Chart (NIMC) or discharge prescription used for medication supply.
Method: Patients aged 65 years or older, taking three or more regular medications, and who were discharged from the medical wards with an NIMC or discharge prescription, and an electronic discharge summary, were identified, and discrepancies between the two sources of information recorded. A severity assessment code matrix was used to assess the potential clinical significance of the discrepancies.
Results: Fifty patients were included in the audit. Sixty-eight percent (34) of the discharge summaries contained one or more discrepancies with a total of 107 discrepancies identified. Almost half (43%) of the discrepancies related to medications prescribed being omitted from the electronic discharge summary. Of the discrepancies, 29% were classified as having moderate potential clinical significance, and 50% as having minor clinical significance.
Discussion: This audit demonstrated that the majority of electronic discharge summaries supplied by the hospital contained discrepancies. Improved communication between healthcare providers at transitions of care is needed in rural settings.

Keywords: discharge, electronic prescribing, hospital.

INTRODUCTION

The Australian Pharmaceutical Advisory Council's *Guiding Principles to Achieve Continuity of Medication Management* highlight the importance of supplying, during transitions of care, 'comprehensive, complete and accurate information to the health care provider(s) responsible for continuing the consumer's medication management'.[1]

An Australian study conducted at a large teaching hospital found that 15% of medications that were intended to be continued on discharge were unintentionally omitted from the discharge summary.[2] The error rate in the Australian rural hospital setting has not been previously reported. Older patients on multiple medications have been shown to be at high risk of post-discharge medication errors.[3] Despite the importance of the preparation of discharge summaries, the task often falls to the most junior member of the medical team, which may affect the quality of the information contained.[4]

In a previous audit conducted at a regional hospital, the authors found that 75% of patients had discrepancies in the information contained in their general practitioner's medication list when compared with the actual medication usage of patients at admission.[5]

The aim of this audit was to determine the type and number of discrepancies in the medication information included in electronic discharge summaries prepared for older patients discharged from the medical wards of a regional hospital when compared to the NIMC or discharge prescription used for medication supply.

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METHODS

This pilot audit was conducted in a 166-bed Australian rural referral hospital.

Patients discharged from medical wards (Level 4 and Level 5) with a discharge prescription supply order were included in the study if they were aged 65 years or over and were prescribed three or more regular medications as documented on their NIMC or discharge prescription. As the hospital pharmacy supplies seven days of medications on discharge, patients were excluded if they did not have a discharge summary available in the clinical access portal (CAP) within one week of discharge.

The data collection period ran from the 9 March 2015 until a total of 50 patient discharges had been included in the audit (22 April 2015).

The NIMC or discharge prescription was reviewed by hospital pharmacist(s) and compared to the electronic discharge summaries that were prepared by medical officers. The level of training of the medical officer completing the CAP summary was noted. The hospital did not have an electronic inpatient medication management system, so the medical officer was required to manually enter information regarding discharge medications from a paper-based NIMC into the medication section of the electronic discharge summary.

Only regular, prescribed medications were included in the analysis. Medication discrepancies were considered to be any unexplained variation between the medication information on the NIMC or discharge prescription, and the electronic discharge (CAP) summary. The types of discrepancies were coded as: medication omitted; non-current medications recorded; incorrect dose; incorrect frequency; or other. If multiple discrepancies were noted with a single medication, then each was recorded as an individual discrepancy and each type of discrepancy noted.

During the data collection period Level 4 had an assigned clinical pharmacist while Level 5 used a pharmacy referral service. The same medical teams admitted patients to both wards. A Fisher exact test was used to examine any difference in proportion of discrepancies between Levels 4 and 5 medical wards.

The potential clinical significance of the discrepancies was assessed by a clinical pharmacist and a general physician, whose patients were excluded from the study. They were classified using the severity assessment code (SAC) matrix of severe, major, moderate, minor or minimum as outlined in the NSW Health Incident Management Policy.[6] The significance was based on all discrepancies affecting the individual patient, not each individual discrepancy.

RESULTS

Fifty patients were included in the study, 25 from each ward. Ninety percent of discharge summaries were completed by intern medical officers (Post-Graduate Year 1) and the remainder by resident medical officers (Post-Graduate Year 2).

The mean age of patients was 80 ± 7.5 years and 52% were male. The median number of prescribed regular medications was eight (range 4–19) and the mean was nine.

Sixty-eight per cent (34) of the audited discharge summaries contained one or more discrepancies. A total of 107 discrepancies were identified (Table 1), 46 from Level 4 and 61 from Level 5 medical wards. There was no difference in the proportion of discrepancies between Levels 4 and 5 medical wards ($p = 0.055$). The median number of discrepancies was two and the mean number was three (range 1–13). Almost half (43%) of the discrepancies related to medications prescribed on discharge being omitted from the discharge summary.

Of the discrepancies, 29% were classified as having moderate potential clinical significance, and 50% as having minor clinical significance.

DISCUSSION

This audit provided a local representation of the accuracy of the medication information in electronic discharge summaries being provided by a rural hospital. In 68% of patients the discharge medication information sent to GPs contained discrepancies. A similar discrepancy result (66%) was recorded in a study conducted in a regional hospital in Switzerland.[7]

Almost half (43%) of the discrepancies related to a medication being omitted from the patient's discharge

Table 1 Types of discrepancies in the clinical access portal discharge summary

Discrepancy type	No. of discrepancies (n = 107)	Percentage of total discrepancies
Incorrect dose	19	18
Incorrect frequency	10	9
Non-current medication listed on discharge summary	13	12
Medication omitted from discharge summary	46	43
Other	19	18

summary, which is consistent with other studies.[2] A similar study conducted in a large metropolitan hospital demonstrated a much lower discrepancy rate (13.3%)[4] but in contrast to this audit where 90% of summaries were conducted by interns, resident medical officers or registrars completed 68% of the discharge summaries. This contrast suggests that review of the discharge summaries by more senior medical officers may improve quality.

Workforce shortages in rural areas may also impact the quality of the discharge summaries.[2,8] Reducing resident medical officer workload has been shown to improve the quality of the information contained in discharge summaries.[8]

A Victorian study demonstrated that using electronic prescribing for inpatient medication administration and to generate medication information for discharge summaries improved both the completeness and the time to completion of the discharge summary.[9] By contrast, other studies fail to demonstrate a significant difference between the quality of handwritten versus electronic discharge summaries when medication information is manually entered into the system as it is at this rural referral hospital.[10] In this audit, the use of an electronic medication management system without an inpatient medication administration component may have contributed to the high rate of omission errors.

Pharmacists are able to provide medication reconciliation for patients at transitions of care. They can effectively liaise with the patient/carer and community-based health service providers (such as general practitioners and community pharmacists) regarding medication regimens. Utilisation of clinical pharmacists to complete some data entry on medications at admission and update changes during the patient's stay may reduce errors. During the period of the audit the Level 4 patients had an assigned clinical pharmacist while the Level 5 cohort had a referral only service. Although not reaching statistical significance ($p = 0.055$) there was a trend indicating that direct pharmacist ward involvement may influence the quality of the discharge information. This is consistent with previous studies that demonstrate a reduction in discrepancies with pharmacist involvement in discharge medication.[11] However, a model of greater pharmacist involvement in discharge processes may be difficult to achieve in rural areas, due to ongoing workforce shortages. The National Health Workforce Data Set (2012) indicates that the majority of pharmacists are practising in major cities (101.6 pharmacists per 100 000 population) whereas very remote areas have only 39.8 pharmacists per 100 000 population.[12]

Limitations of this audit include the small sample size and the potential for bias from the pharmacists and general physician involved in the review process. This must be balanced by the difficulty involved in completing audits in rural hospitals given the smaller workforce and availability of expertise.

CONCLUSION

The risk of medication errors is increased at transitions of care. The authors have previously shown a high rate of discrepancies between the medication information in general practitioner referral letters and the patient's actual medication use at admission via the emergency department of a rural referral hospital.[6] A similar error rate has been found in the audit of the accuracy of medication information sent to general practitioners in electronic discharge summaries from the same rural hospital, demonstrating the need to improve communication between hospital and community healthcare providers.

Conflicts of interests statement

The authors declare that they have no conflicts of interests.

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