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Referral Letters to the Emergency Department: Is the Medication List Accurate?

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Abstract

Medication errors are common when patients transfer across healthcare boundaries. This study was designed to investigate the quality of information on medicines provided by general practitioners (GPs) on emergency department (ED) referral letters. A convenience sample of referral letters to the ED of a teaching hospital was reviewed. The medication list and / or patient's drug allergy status were noted. Medicines reconciliation including patient (or carer) interview was conducted to determine the patient's actual home medication list. This was compared with the GP list and any discrepancies were identified and addressed. A total of 92 referral letters were included in the analysis of which 60 were computer-generated and 32 were hand-written. GPs provided dose and frequency of administration information in 47 (51%) of the letters sampled i.e. 44 (71%) computer-generated versus 3 (10%) hand-written; $p < 0.001$. In addition, the patient was taking their medicines exactly as per the GP list in 20 (22%) of cases. The patient's drug allergy status was documented in 13 (14%) of the letters.

Introduction

A medication error is defined as any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient or consumer.¹ Medication errors are common when patients transfer across healthcare boundaries.² Cornish et al reported that 53.6% of patients admitted to general internal medicine wards had at least one unintended discrepancy in their medication orders, of which 38.6% had the potential to cause moderate to severe harm.³ A 2011 medicines reconciliation study in the emergency department (ED) of the hospital in which this study was performed detected 1.57 unintended medication discrepancies per admitted patient.⁴ Prescribing errors on admission may occur as a result of a lack of information on patients' 'home' medications at the time of admission. Medicines reconciliation is a means of identifying and addressing such errors. Medicines reconciliation is defined as the process of creating the most accurate list possible of all medications a patient is taking – including drug name, dosage, frequency and route – and comparing that list against the physician's admission, transfer, and / or discharge orders, with the goal of providing correct medication to the patient at all transition points within the hospital.⁵ The Commission on Patient Safety and Quality Assurance has recommended that Irish Healthcare Organisations prioritise the implementation of formal systems of medicines reconciliation.⁶ Sources of information commonly employed by practitioners in establishing the patient's home medication list include patient and / or carer interview, patient's own medicines, the patient's community pharmacy and the general practitioner (GP) referral letter. This study aimed to establish the quality of information on medicines contained in GP referral letters.

Methods

This study was conducted in the emergency department of a 700 bed urban teaching hospital from 14th May 2013 to 9th August 2013 inclusive. The study population comprised a convenience sample of patients admitted during this period. A data collection form was designed and data collected by the first author, a clinical pharmacist. Patients were included if they had a GP referral letter, were taking at least one regular medicine prior to admission and were in a position to confirm their regular home medication list. Patients admitted directly from nursing homes were excluded. The pharmacist noted the number of medicines identified on the GP referral letter, whether dosing and frequency of administration information was supplied, and if allergies were recorded. The pharmacist then carried out medicines reconciliation utilising sources including patient / carer interview, reviewing the patient's own medicines and contacting the patient's pharmacy when required. Having established a best possible list of the patient's home medications, this was compared with the information on medicines contained in the GP referral letter, with any discrepancies noted and addressed as appropriate. An experienced clinical pharmacist, when conducting medicines reconciliation, will distinguish between a genuine discrepancy and non-compliance. Where it was suspected that a patient was non-compliant with their medication, this was not classed as a discrepancy. The study was approved by the hospital's clinical audit department and therefore, as per hospital policy, did not require ethics committee approval. Fisher Exact tests were used to compare information provided by computer generated and hand written letters. Probability of a Type 1 error was deemed significant at the 5% level ($p < 0.05$) and data analysis was conducted using Stata (Version 10, College Station, Texas).

Results

A total of 105 patients were recruited. Of these, 13 were subsequently excluded from the analysis as patient and / or carer interview was not possible and medicines reconciliation could not be completed. Therefore 92 patients were included in the analysis. Of these 50 (54%) were male. Patients included in the analysis ranged in age from 24 to 92 years with an average age of 68 years. Two-thirds of the sampled letters were computer-generated (N=62) and one-third were hand-written (N = 30). Study results are shown in table 1 (below).

Information Provided	Letter Type			Fisher's Exact Test
	Overall %	Computer-Generated %	Hand-Written %	
Dose / frequency of administration	51	71	10	P < 0.001
Drug list confirmed by medicines reconciliation	22	27	10	P = 0.065
Allergy status documented	14	18	7	P = 0.209

GPs provided complete dose information (but not complete frequency of administration information) in 64% of letters sampled and both dose and frequency of administration information in 51% of letters sampled. In addition, the patient was taking their medicines exactly as per the GP list in 22% of cases. The patient's drug allergy status was documented in 14% of the letters. Comparisons between computer generated and hand written letters are presented in table 1 where the difference in the provision of dose / frequency information is shown to be significant.

Discussion

Overall the quality of information relating to medicines provided by GPs on referral letters to the research hospital's emergency department correlated with results from the international literature. Some 78% of letters lacked some information on patients' medicines. McFadzean et al, in a Scottish study comparing the accuracy of junior doctor and pharmacist prescribing in a medical admission unit, reported that half of GP referral letters (N = 104) had an inaccurate drug history or no drug history.⁷ Carney reviewed GP referral letters to a New South Wales hospital's adult general nephrology / hypertension outpatient clinic and reported that 83% of letters mentioned prescribed medication and of these only 58% were accurate for drugs and dosage.⁸ Tulner et al, in a Dutch investigation, reported that 90 of 120 patients (75%) had at least one discrepancy between the medication list on the GP referral letter and the medication list reported by the patient.⁹ Frydenberg and Brekke reviewed admission letters for acute admissions to the medical department of a Norwegian hospital and reported that 39% did not include a medication list, although they did not analyse the accuracy of those that did.¹⁰ In a wider study of sources of pre-admission medication information in an Irish context, Fitzsimons et al reported that the medication list on the GP referral letter accurately represented the patients pre-admission medication list in the case of 1 of 42 patients (2%).¹¹ Patients were taking a minimum of 3 regular medicines in this study compared to 1 in our study and this may account for the lower concordance between the GP medication list and the patient's actual medication intake, particularly as the authors reported a positive correlation between the number of medicines the patient was taking and the number of discrepancies in pre-admission medication lists.

Our study found the quality of information on medicines on computer-generated letters was significantly better than that on hand-written letters. GPs provided dose and frequency of administration information in 71% of computer-generated letters but this figure fell to 10% when the letter was hand-written. Carney also reported that hand-written letters were more likely to contain inaccuracies.⁸ These findings suggest that GPs should be encouraged and resourced to adopt electronic prescribing systems in the interests of patient safety. Patients' allergy status was documented in only 14% of referral letters sampled. Evidence suggests that the inclusion of drug allergy status in Irish GP referral letters is low by international standards. Fitzsimons et al, also in an Irish setting, reported that 24% of GP referral letters provided information on patients' drug allergy status.¹¹ However Carney, in an Australian study, reported that 70% of referral letters sampled documented the presence or absence of drug allergy.⁸

Limitations of this study include the small sample size and non-consecutive nature of the sample. It must also be acknowledged that communication from secondary care to GPs regarding patients'

medicines at hospital discharge could be improved. The research hospital moved to address this issue in 2011 with the introduction of a triple copy discharge prescription form which includes a copy for the GP. Grimes et al have shown that hospital discharge is associated with a high rate of medication discrepancies.¹² In a separate study, Grimes et al found that a collaborative pharmaceutical care model in which pharmacists conducted medication reconciliation at discharge reduced medication error at this transition point.¹³ However medicines reconciliation at discharge is not currently performed at the study hospital. It should also be noted that GP out-of-hours services may not have access to patients' medical notes, and as such, the issues identified in this study may be particularly acute in patients admitted outside of normal GP surgery hours and at weekends. Patients should be encouraged to bring their medicines and prescription or medication list into hospital at admission and to retain them until the process of medicines reconciliation has been completed. The UK's Care Quality Commission has highlighted the benefits, particularly in emergency admissions, of patients bringing their own drugs into hospital but cautions that ambulance service cooperation is essential.¹⁴ International evidence suggests that pharmacist acquired medication histories are more accurate than physician acquired medication histories.¹⁵

Viewed in conjunction with our findings and those of others, this points to a greater role for pharmacists in medicines reconciliation on admission via the emergency department and at the time of discharge. In 2011 the Irish College of General Practitioners (ICGP) in collaboration with the Health Information and Quality Authority (HIQA) produced a national referral form for GPs which includes sections on current medication and allergies / adverse medication events.¹⁶ While some GP computer packages have incorporated the data set requirements for the national referral form, more widespread adoption of this form would be helpful. Many of the issues highlighted in this study could be addressed through the introduction of electronic patient records (EPRs). Utilisation of EPRs in British Columbia allows emergency department physicians to view patients community pharmacy medication records online.³

The study found considerable variation in the quality of information on medicines provided by GPs on referral letters. Computer-generated letters provided better information on medicines compared to hand-written letters. The study demonstrates that emergency department physicians should not rely on the referral letter alone in establishing the patient's current medications. Patient or carer interview, as well as an examination of the patient's own medicines where available, are important in establishing an accurate picture of the patient's pre-admission medication intake.

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