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Clinical governance in action

Investigating the procedures, drawbacks and implications of seamless primary–secondary care

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ABSTRACT

One of the many difficulties with medicines management in primary care is the information gap that exists between the primary and secondary care continuum with regard to the transfer of patients' medication details. This study describes the procedures and drawbacks involved in bridging this information gap, with a view to improving medication safety and its implications on seamless patient care. The accuracy of the information transfer across multidisciplinary teams was audited by an interface pharmacist. Data from 41 general practitioners were analysed. Interventions made included identification of inappropriate medications and adjustments to ensure accurate medicines and doses. Two-hundred and eight (66 patients and 142 emergency patients) were evaluated. Medication errors were detected in a total of 58.7% of hospital admissions. The outcome of this study showed that the presence of a primary care pharmacist working within the hospital setting ensured accurate medication histories were available for patients, and any unintentional prescribing changes made during episodes of inpatient care were quickly identified and addressed. Swift electronic transfer of accurate discharge medication and laboratory tests enabled primary care clinical records to be immediately updated and primary care rationalisation of treatment to be effected. This ensured the safe and accurate use of medication by reducing the likelihood of transcription errors and adverse consequences occurring across the interface, thereby ensuring seamless patient care.

Keywords: audit, information gap, seamless patient care

Introduction

One of the many difficulties with medicines management in primary care is the information gap that exists between the primary and secondary care continuum with regard to the transfer of patients' medication details.[1,2] This study describes the procedures and drawbacks involved in bridging this information gap, with a view to improving medication safety and its implications on seamless patient care. It also highlights the ease with which potential errors can occur between inter-organisational medical records.[3] The accuracy of information transfer across multidisciplinary teams was audited by a primary care pharmacist based in hospital (Interface Pharmacist: IP).

Patient data from 41 primary care physicians (GPs) in the Rowley Regis and Tipton area were analysed at a general hospital based in the Midlands (UK). Patients admitted on both medical and surgical wards were analysed over the duration of the study.

Objectives

The objective of this study was to bridge the information gap that exists between the primary and

secondary care continuum with regard to the swift transfer of accurate patient medication details using the interventions of an IP.

Method

Development of the admissions pathway

An admissions pathway for patients visiting the hospital was established. It was however, impossible to determine a single point of entry for patient admissions due to the complex nature of this pathway (see Figure 1). Patient admissions were divided primarily into two primary categories, booked elective and emergency admissions (EA).

Collaboration with the Information Technology (IT) Department enabled a weekly list of booked elective patients to be prepared in advance ('To come in' or TCI lists). This enabled the primary care pharmacists to electronically transmit patient medication records (PMRs) for TCI patients from the GP practice to the IP at the hospital. The main limitation of the TCI lists was the absence of certain specialities from the lists due to the nature of the system at the hospital. The TCI lists also included patients booked into outpatient clinics. The turnover of patients in this area was, however, too rapid to enable any pharmaceutical interventions to be conducted.

In addition, certain wards stocked analgesic prepacks. These comprised analgesics supplied in containers bearing pre-printed standardised instructions. Although a copy of all discharge medication is routinely sent to the GP practice, issuing pre-packs from the wards meant the absence of pharmacist involvement in the dispensing process. It was therefore unfeasible to detect when patients issued with pre-packed medication had been discharged from the hospital.

The IT department also produced a weekly retrospective list of patients admitted from the study area in an emergency. However, the majority of the EAs had been treated and discharged by the time the list had been processed.

The hospital bed management team was approached in an attempt to locate the emergency patients. However, their list was not comprehensive enough for the purpose of this study.

The Emergency Assessment Unit (EAU) was visited on a daily basis in an attempt to locate the EA. According to Figure 1, the EAU should be the primary point of admission for a number of EAs. The ward visit

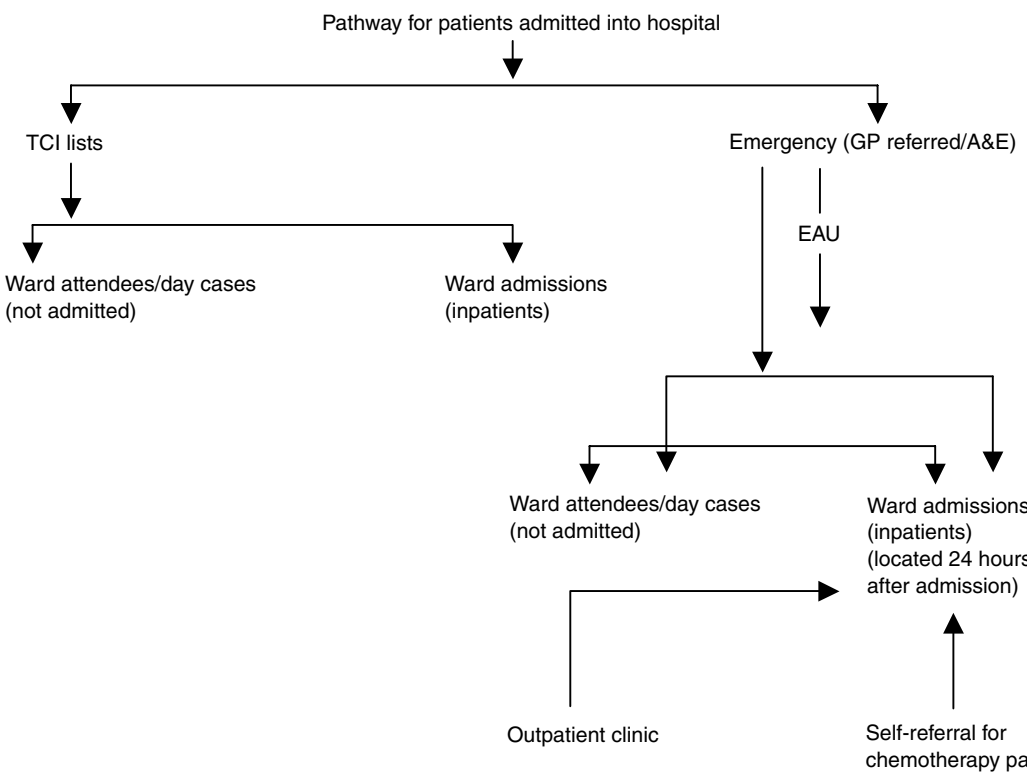

Figure 1 Pathway for patients admitted into hospital. TCI = to come in, EAU = emergency admissions unit

involved evaluating every patient record in order to locate patients admitted from the study area. This was a time-consuming procedure. Consequently, the emergency admissions desk was approached. They were able to produce a more comprehensive list of emergency admissions 24 hours after admission into the hospital.

Methods of data collection and transfer

A computer program called 'Medway' was used to locate the TCI admissions. Structured consultations were conducted with patients on admission to, and discharge from, the hospital. Medication histories obtained from primary care were compared with those documented in secondary care. Each evaluation took approximately 40 minutes to undertake.

Medication charts for patients in the study were identified by means of a pharmacy identity sticker. These charts were brought to the attention of the IP once the discharge medications had been logged into the Pharmtrack system. Pharmtrack is a computer system, operating in the pharmacy, used to track prescriptions through each stage of the dispensing process. The prescriptions for these discharge medications were prioritised through the clinical checking pathway. A photocopy of the discharge prescription was made when the IP was absent from the pharmacy department.

Patient-friendly records were issued to the patients detailing their medication regime before being discharged from the hospital.

Medway was used to access electronic case notes containing the most recent laboratory test results conducted at the hospital. Cases notes, including diagnosis, medication and up-to-date laboratory tests, were electronically transferred to the GP's practice once the patient was discharged.

Categories of data collection

The categories of data collection are shown in the list below.

1 Type of admission:
   - emergency
   - booked electives.
2 Alterations in patient medication during transfer between primary and secondary care:
   - intentional (no interventions made by IP)
   - unintentional (interventions made by IP).
3 Accuracy of directions on patient medication labels.
4 Accuracy of PMRs obtained from primary care.
5 Frequency of adverse drug reactions resulting from medication issued in primary care.
6 Lifestyle issues:
   - smoker
   - non-smoker.

Results and discussion

Difficulties encountered in data collection

The complexity of locating patients within the study area was underestimated. Difficulties encountered included the:

- absence of a single point of entry for patients due to the intricate nature of the admissions pathway
- absence of certain specialities from the TCI lists
- rapid turnover of outpatients admissions
- retrospective nature of the EA list.

Once located, there were many reasons for loosing track of patients. These included:

- discharge medication being issued directly from the ward in the form of pre-packs
- medication charts being rewritten on the ward with the pharmacy identity sticker remaining on the original chart
- discharge medication being dispensed at satellite hospital pharmacies
- discharge medication charts passing through the pressured working environment undetected
- patient mortality.

Data analysis

Analysis of records transmitted between primary and secondary care produced interesting results.

Over the duration of this study, the number of EAs was considerably greater than that of booked admissions. Data from 66 booked patients and 142 emergency patients were evaluated. Patients' medications were frequently altered during transfer from primary to secondary care. Many errors were detected (see Table 1) over the course of 208 admissions.

Unintentional alterations in patient medication (interventions made by IP)

These are shown in Table 1.

Intentional alterations in patient medication (no interventions made by IP)

These are shown in Table 2.

Medication errors were detected in a total of 58.7% of hospital admissions. For example, a diabetic, hypertensive patient with infected leg ulcers had a total of six medications omitted from her medication chart. This

Table 1 Evaluation of interventions recorded at the primary–secondary care interface

Nature of interventions	Percentage of patients affected ($n = 208$)
Prescribing errors detected during hospital admission	58.7
Patient consuming medication unknown to primary care	15.4
Medication discontinued in error during hospital admission	13.0
Treatment rationalisation proposed in primary care in accordance to PCT criteria	11.5
Prescribing errors detected in discharge medication	26.9

Table 2 Evaluation of interventions recorded in secondary care

Nature of interventions	Percentage of patients affected ($n = 208$)
Introducing a new medicine	11.0
Modifying the category of medicine	8.8
Stopping a treatment	5.1

incomplete information may have been sent to primary care following admission to the hospital as a day case. Another example was a patient presenting with rheumatoid arthritis prescribed paracetamol tablets in secondary care, and prescribed Solpadol tablets, which contain codeine phosphate 30 mg and paracetamol 500 mg, in primary care simultaneously. This duplication in prescribing may have resulted in a potential overdose of paracetamol.

In addition:

- inaccurately labelled medication had been introduced via primary care by 2.3% of patients
- adverse drug reactions were found to occur as a direct result of medication issued in primary care in 2.1% of patients.

Multidisciplinary roles

Access to primary and secondary care PMRs facilitated the pharmacist-led medication review process for TCI patients. The disadvantage of EA was the absence of primary care PMRs. Due to the demanding workload of primary care pharmacists it was unfair to request PMRs for each EA. This would result in an additional raft of work and obtaining information from practices at which they were not based at that particular time. A key individual based at these practices was therefore identified and was allocated the responsibility for collaborating with the IP.

Prioritising the clinical checking of discharge medications saved up to three hours' waiting time for patients before leaving the hospital, and resulted in a more comfortable and efficient discharge. Due to the normally prolonged nature of this waiting interval, patients in a hurry often discharge themselves from the hospital with the intention of obtaining their medication from their GP, although this may not always happen. Prioritising discharge dispensing, with a consequent reduction in waiting times before leaving the hospital, thereby eliminated unintentional non-compliance. This intervention has the potential to improve waiting times, as beds are released more quickly, enabling prompt admissions for subsequent patients. Medication charts that arrived at the pharmacy during the absence of the IP were processed at the normal rate.

The printed hand-held document issued to patients detailing their medication regime before leaving the hospital empowered patients with regard to their own care. Issuing this type of additional advice has been shown to improve the clinical outcome for patients compared with when no advice is issued.[4] Dietary advice was offered and a number of patients who were current smokers expressed an interest in the 'Stop smoking' service provided at the GP practices. A total of 28.7% of patient admissions were current smokers. The IP was able to facilitate referrals to smoking cessation clinics.

The initial findings of this study indicated that the successful nature of this study was subject to the co-operation of a multidisciplinary team. At this stage there were more patients available than time to review them. Compiling detailed protocols was a challenging and time-consuming process and involved prioritising patients.

Practically, it was difficult to conduct medication reviews, improvise improvements in medication regimes and implement local initiatives, without studying the full medical history for each patient, and conducting a structured patient interview.[5] Although it is generally agreed that pharmacists are able to obtain better medication histories than other healthcare professionals, this procedure is subject to time constraints within the environment of a busy hospital pharmacy.[6,7] Accurate collation of medication histories has been shown to result in decreased mortality rates during hospital stays.[8]

Conclusions

The outcome of this study demonstrated that the presence of a primary care pharmacist working within the hospital setting ensured accurate medication histories were available for patients, and any unintentional prescribing changes made during episodes of inpatient care were quickly identified and addressed. Swift electronic transfer of accurate discharge medication and laboratory tests enabled primary care clinical records to be immediately updated, and primary care rationalisation of treatment to be effected at this point. This ensured the safe and accurate use of medication by reducing the likelihood of transcription errors and adverse consequences occurring across the interface. Patients were empowered with regard to their treatment by issuing them with a patient-friendly record detailing their medication regime, and assisted referrals were made to smoking cessation clinics. In addition, prioritising discharge patients reduced hospital waiting times eliminating unintentional non-compliance of updated medication regimes, thereby ensuring seamless patient care.

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CONFLICTS OF INTEREST

None.

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