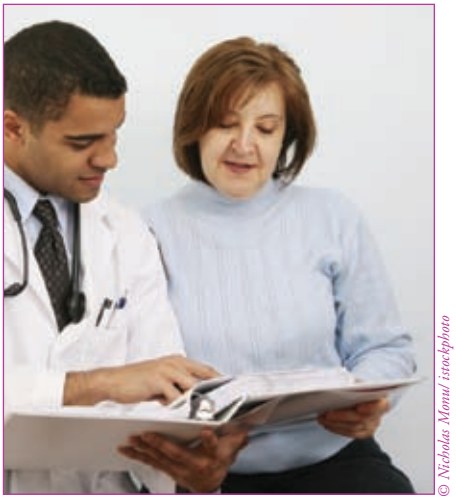
Medicines reconciliation in pre-admission clinics can improve medicines prescribing

Medicines reconciliation is one service that can provide a technical solution to reduce the threat of harm to hospital inpatients. In this article the authors show how inclusion of a pharmacist within a multidisciplinary clinic for patients undergoing elective percutaneous coronary intervention improved medicines prescribing and ensured that medicines reconciliation occurred before hospital admission.

The aim of medicines reconciliation on hospital admission is to ensure that medicines prescribed on admission correspond to those that the patient was taking before admission.[1] Details to be recorded include the name of the medicine(s), dosage, frequency, and the route of administration.[1] Establishing these details may involve discussion with the patient and/or carers and the use of records from primary care.[1]

The importance of medicine reconciliation at hospital admission has been known for some time and is formally recognised in a recent NICE/NPSA report[1] to be actioned by December 2008. The report details how medication errors pose a threat of harm to hospital inpatients and documents that unintentional medication variances occur in 30–70% of patients admitted to hospital. Recommendations in the report include involving pharmacists in medicines reconciliation as soon as possible after admission to reduce this variance, and that alterations of medication should be appropriately communicated to patients' GPs. There is much published evidence to show that prevention of initial prescribing errors is fundamental in ensuring that medication is prescribed safely,[2] in minimising harm to patients and in preventing delayed discharges.

This report complements a key objective of service provision within the NHS, which is to improve clinical quality, service efficiency and the patient experience. Under payment by results, money flows with the patient and so it is essential that services provide best value for money — that is, they run efficiently and meet patients' clinical needs. Pre-admission clinics have been advocated by The Royal College of Surgeons as a way to assess patients before admission, address medical issues that may prevent planned surgical procedures and reduce the number of patients not attending surgery.



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This paper describes how the inclusion of a pharmacist in an elective pre-admission clinic for angioplasty improved medication prescribing and ensured that medicines reconciliation occurred even before hospital admission. With the release of the NICE/NPSA medicines reconciliation report we hope to highlight the benefits of introducing pharmacists in elective pre-admission clinics as one way in which to reach these targets by the end of 2008.

Description of service before and after pharmacist involvement

Traditionally, elective patients admitted for angioplasty at Barts and the London Heart Centre are seen within two weeks before their procedure by a nurse and doctor in the pre-admission clinic. As part of this process a drug history is obtained and documented. A preliminary study highlighted that interventions with individual patients' medication and corrections of inaccurate drug histories by pharmacists were often implemented or raised on their initial assessment, which was commonly when patients were preparing to go home and this delayed discharge.

We initiated a change in practice whereby a pharmacist was included in a multidisciplinary pre-admission clinic for elective angioplasty patients. The role of the pharmacist within the existing team of a doctor and nurse was intended to complement the current skill mix by taking responsibility for documenting accurate drug histories, transcribing the inpatient medication chart, discharge prescriptions (TTA) and optimising therapy according to established guidelines by liaising with medical staff.

Table 1. Secondary prevention medication taken before and after pharmacist involvement in the pre-admission clinic

Statin		ACEi or ARB		BB or CCB	
Pre-admission No pharmacist	Pre-admission With pharmacist	Pre-admission No pharmacist	Pre-admission With pharmacist	Pre-admission No pharmacist	Pre-admission With pharmacist
(N=32)	(N=1000)	(N=32)	(N=1000)	(N=32)	(N=1000)
28/32	986/1000	20/32	829/1000	20/32	797/1000
(88%)	(99%)	(63%)	(83%)	(63%)	(80%)
	P<0.001		**P<0.01**		**P<0.05**

Values in parentheses are percentages of the respective total number of patients (N) in each group.

Key: ACEi = angiotensin converting enzyme inhibitor; ARB = angiotensin receptor blocker; BB = beta-blocker; CCB = calcium channel blocker. The data presented are for the number of patients (and percent of the total number, N, in each medication group) who were recorded as having taken these medications at pre-admission clinics with or without pharmacist involvement. The p values were calculated using Chi-square analysis of the paired 'with' and 'without' pharmacist involvement percentage data for each medication group.

To support pharmacist involvement, we undertook a study to assess the quality of prescribing in elective patients before admission and evaluated improvements made after the introduction of a pharmacist in the pre-admission clinic.

Method

A prospective audit was undertaken for four weeks before a pharmacist started working in the pre-admission clinic. A total of 32 patients were seen during this time (9/1/06 to 3/2/06). The quality of medication prescribed as an inpatient or against patients' TTAs was assessed against national and international guidelines.[3,4] During this period, existing pharmacy services were continued. After the introduction of a pharmacist in the pre-admission clinic, data collection has been on-going. From that time data collection has included interventions made, advice given to patients and alterations made to patients' medication. Presented are details from the first 1000 patients seen up to April 2007.

The European Society of Cardiology[3] and American College of Cardiology[4] recommend that all patients (unless contra-indicated) should receive aspirin and clopidogrel before and after percutaneous coronary intervention (PCI), the audit standard was therefore 100% for these agents. Both NICE[5] and the *National service framework for coronary heart disease*[6] recommend that patients with coronary heart disease should be taking a statin, angiotensin converting enzyme inhibitor (ACEi) and beta-blocker with an audit standard of 80% set for each.

Results

During the initial one-month data collection before pharmacy involvement in the clinic, there were two instances where patients were not loaded with dual antiplatelets before having angioplasty, and a further three patients who were unintentionally not charted for aspirin at discharge. Both of the patients that were not loaded with antiplatelets were identified by the ward pharmacist before angioplasty and were given appropriate loading doses. After pharmacy involvement in the clinic 100% of patients were prescribed both aspirin and clopidogrel before and after they underwent angioplasty.

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Table 1 shows improvements made in the prescribing of secondary prevention medication after inclusion of a pharmacist in the pre-admission clinic. The data are shown for patients prescribed statins, ACEis or angiotensin receptor blockers (ARBs), and beta-blockers (BBs) or calcium channel blockers (CCBs) for both observation periods. A Chi-squared test was applied to the results to assess the statistical significance of improvements in prescribing of secondary prevention medication. This found significant differences in all medication groups.

Discussion

Medicines reconciliation is an important part of patients' admission to hospital. We found that having a pharmacist involved in a pre-admission clinic for elective surgery meant that all patients were seen by a pharmacist and that a complete and accurate drug history was documented in the patients' notes and transcribed on the drug charts. Alterations to medication and optimisation were also relayed to GPs through notes made on the TTAs.

Our routine practice is that all patients attending the pre-admission clinic are given clopidogrel loading and/or aspirin loading if required and patients are identified early if they are unable to tolerate either drug. Patients who are unable to tolerate aspirin or clopidogrel are questioned to establish if antiplatelets are unsuitable or if the inclusion of a proton pump inhibitor could be used to reduce gastric irritation.

The writing of discharge prescriptions before admission for these day case procedures has prevented delays in discharge that were previously caused by 'waiting for their medication', as highlighted in the Picker report.[7] In addition, problems with patients' medication can be resolved in the clinic and do not, therefore, interfere with discharge because these are dealt with before patients are admitted.

Unlike our previous clinic system, all elective patients are now seen by a pharmacist before they are admitted and a complete and accurate drug history is documented and transcribed on drug charts and TTAs. This procedure *ensures* that all patients will be seen before admission. In line with other pre-admission clinics with pharmacists there has been an improvement in the accuracy of documented drug histories.[8]

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With a drive to increase the number of patients seen as day cases it is essential that patients' medication histories are complete and accurate on admission and that discharge planning is considered before patients arrive at hospital. We have shown that pharmacists can play an integral role within the multidisciplinary team. They complement the existing skills of the members involved in the clinic by ensuring that a complete and accurate drug history is taken and that delayed discharges are prevented through early completion of both the TTA and drug charts, which are transcribed in the pre-admission clinic. Medical optimisation is also improved with pharmacy involvement showing an increase in secondary preventive medication prescribing in line with NICE guidance.

Recommendations

From our experience we have the following recommendations to make to improve prescribing and medicines reconciliation for patients attending pre-admission clinics:

- Include pharmacists as part of multidisciplinary pre-admission clinics for angioplasty to ensure that medication reconciliation targets are met.
- Consider introducing pharmacists to other cardiac pre-admission clinics, such as those for coronary artery bypass and day-case angiograms.
- Audit the services to assess the benefits of pharmacists working within multidisciplinary pre-admission clinics to optimise medication and prevent delayed discharges for elective patients.
- Consider the implementation of independent prescribing to facilitate pharmacists working within the pre-admission clinic.

Declaration of competing interests

The authors declare that they have no competing interests.

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Calling all those interested in medicines management in primary care

Medicines management in primary care is an important aspect of pharmacy practice and of patient care. The UKCPA has a number of groups that bring together members working in specific clinical areas and include recognised experts. The UKCPA Medicines Management in Primary Care Group has, however, been dormant for a while and Steve Mennear, group committee lead, is keen to re-establish this group.

If you are interested in being part of the medicines management in primary care group, please contact the UKCPA Office Manager, Marie Matthews, by email: admin@ukcpa.com.