

# Improving information transfer from hospital to primary care

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When patients are discharged from hospital, medicines-related information is often not effectively communicated to general practitioners. This article describes how a pharmacy-generated electronic discharge letter could help alleviate this problem, thereby reducing risk to patients



Risk to elderly patients is reduced by better discharge information

One of the good practice requirements set out in the National Service Framework for Older People is to improve the quality of the medicines information supplied to general practitioners and their staff when a patient is discharged from hospital. Such a requirement is pertinent, given that a considerable body of research has shown that there are medicines-related deficiencies in the hospital discharge process. For example, one study reported that only five of 130 discharge letters (covering 496 drugs in total) received by GPs contained any details of drug regimen changes.<sup>1</sup>

With the NSF in mind, pharmacy staff at the Queen Elizabeth Hospital, Gateshead, decided to produce an electronic discharge letter containing medicines information in a clear and concise format. This would be sent out as patients are discharged from the Jubilee wing, a 96-bed elderly rehabilitation unit attached to the hospital.

In order to determine whether the use of such a letter reduced risk to patients pharmacy staff designed a study to:

- Survey end-users, using a questionnaire that included a question about risk perception
- Compare the incidences of medicines errors in the GP prescriptions for patients whose discharge was accompanied by an electronic letter (study group), with those whose discharge was not (control group)
- Compare readmissions in the study and control groups
- Details of any drugs that have been started or stopped during a patient's stay in hospital and the reasons for such changes
- Details of any dose changes
- Information about the patient's self-medication status and any reasons why they do not self-medicate (eg, because the patient has a carer who manages their medicines)
- Information about whether the patient uses a compliance aid and who fills it (eg, staff at a particular community pharmacy or a carer)
- Details of any drug allergies

## ■ Generating the letter

A program has been set up to generate a drugs-related discharge letter automatically from the entries in the pharmacy computer system (Ascribe).

Once a patient's discharge prescription reaches the pharmacy department, the patient's records are accessed on the computer system. These include details of the drugs that have been dispensed for them during their stay. The program then prompts pharmacy staff to select the drugs that are included in the discharge prescription. New drugs can be added to the prescription (and therefore the letter) as appropriate. There are also prompts to input the other information to be included in the discharge letter, including:

The software is designed so that once the discharge letter is finalised, the dispensing labels for the drugs are printed, as well the discharge letter. Three copies of the letter are printed — one for the patient's GP, one for the case notes and one to be retained in the pharmacy department. The letter (see Figure 1, p254) is sent to the GP along with the standard "doctors discharge letter".

It is important to note that, in order to provide the information needed for the pharmacy discharge letters, changes had to be made to some of the procedures in place at the Jubilee wing. For example, a

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pharmacist and pharmacy technician now visit patients early in their stay. The pharmacist carries out a medicines review, using the patient's notes and test results, as well as by talking to the patient and his or her relatives or carers, if available. Drug histories and allergies, together with information about any compliance aids used and the date they are delivered, are obtained from the patient's GP.

The medicines management technician assesses whether a patient is able and willing to self-medicate during their hospital stay. To do this, they use a tool developed by pharmacy staff. If self-medication is considered to be appropriate, medicine reminder charts are drawn up. One-stop dispensing has also been introduced to the Jubilee ward, so that patients who are self-medicating can familiarise themselves with their new regimen and have all their medicines correctly labelled for discharge.

Our team also links into the Single Assessment Process by which a member of the health care team can refer a patient to the pharmacy team if they think that a specialist assessment is required. This occurs both

within the Jubilee wing and within the medical directorate at the Queen Elizabeth Hospital.

## Survey

Once the new pharmacy-generated electronic letter system had been in place for a year, a survey to establish whether end-users thought it had improved the discharge process and reduced risk to patients was carried out.

Questionnaires were drawn up and passed on to the prescribing adviser at Gateshead Primary Care Trust, who distributed them to staff at GP practices within the area and encouraged recipients to complete them. A sample electronic letter was distributed with the questionnaires, so that practice staff who had not yet received such a letter could respond to part of the survey, potentially providing useful opinions.

An indication of the questions that recipients were asked, together with the responses received, are set out in Panel 1 (p255). A total of 74 responses were received — 50 from GPs (representing 40 per cent of all GPs reg-

istered with Gateshead PCT), 11 from receptionists, three from prescription clerks, four from practice pharmacists, two from nurse practitioners and four from practice administrators or managers.

## Medicines-related errors

In order to determine whether the electronic pharmacy discharge letter reduces the risk of medicines-related errors occurring across the primary and secondary care interface, the following study was carried out.

Prescriptions of patients who were discharged from hospital during the two-month study period were selected at random for inclusion in the study, providing the patient met the following criteria:

- Was at least 65 years old
- Had been prescribed at least four medicines on discharge
- Had at least one change made to their prescribed medicines during their stay. (This was assessed by contacting the patient's GP early in the patient's stay, and comparing these drugs with those prescribed at discharge)

Four to six weeks after discharge, a further medication history was obtained from the patient's GP. This was compared with that provided at discharge in order to assess:

- The number of medicines prescribed in hospital but not continued by a patient's GP post-discharge
- The number of medicines stopped in hospital, but still prescribed by a patient's GP post-discharge

The number of medicines falling into these categories in the prescriptions of patients who had been discharged from the Jubilee ward (the study group) was compared with with the number of medicines falling into these categories in the prescriptions of patients who had been discharged from surgical wards (the control group). The medicines-related information that accompanied patients discharged from the Jubilee wing was one of the pharmacy-generated electronic letters whereas, for those discharged from the medical and surgical wards, it was the standard carbon-copied "flimsy" sheet of a discharge prescription. (All discharges were accompanied by a doctor's discharge letter.)

There were 116 medication changes in the control group (on the prescriptions of 29 patients) and 147 in the study group (on the prescriptions of 27 patients). The number of medicines prescribed in hospitals but not carried on by a patient's GP was fewer (but not statistically so) in the study group than the control group (14 compared with 22). The number of medicines that were stopped while the patient was in hospital but carried

Date of admission:	12th August 2005.
Date of discharge:	28th October 2005.
Medication started:	Gabapentin - Neuropathic pain. Climutren
Medication dose changes:	Docusate - Reduced to nighttime only.
Medication stopped:	Ferrous sulphate stopped.
Self medicating ?	No please see reason
Self medicating reason	Family to support.
Pharmaceutical care pre / post discharge	Monitor U+Es: (25/10); Cr-235, Ur-11.6.
Compliance aid used	Yes. please refer to fill section
Compliance aid filled by	Daughter
Medication reminder chart given to patient	Yes
Allergies	No confirmed allergies

  

**Medication**

Prescription date	Discharge medicines & directions	Route	Quantity disp	Review Date
06/10/2005	FINASTERIDE 5mg TABLETS Take ONE tablet in the MORNING	oral	0	06/04/2006
06/10/2005	DOCUSATE SODIUM 100mg CAPSULES Take TWO capsules at night	Patient's Own	0	06/04/2006
06/10/2005	GABAPENTIN 100mg CAPSULES Take TWO capsules at night	Patient's Own	0	06/04/2006
26/10/2005	OMEPRAZOLE 20mg CAPSULES Take ONE capsule in the MORNING swallowed whole, not chewed	Patient's Own	0	26/04/2006
19/10/2005	TRANEXAMIC ACID 500mg TABLETS Take ONE tablet twice daily	Patient's Own	0	19/04/2006
27/10/2005	CLINUTREN FRUIT SFP FEED ORANGE (200mL) Drink th Drink the contents of ONE carton twice daily	Patient's Own	0	27/04/2006
27/10/2005	PARACETAMOL 500mg TABLETS Take TWO tablets every FOUR to SIX hours when required.	oral	0	27/04/2006

Note to GP - A repeat prescription will be required for each medicine unless a fixed course length is indicated in the directions above

GP Practice:

Approved by: \_\_\_\_\_ (Pharmacist)

Approved by: \_\_\_\_\_ (Doctor)

Approved by: Anthony James Young

NOTE TO PATIENT: Please contact your GP within 7 days.

Figure 1: An example of a pharmacy-generated electronic discharge letter. Patient details (ie, name, address, hospital number, date of birth, ward and consultant details) have been removed from the top

## Panel1: Indication of survey questions and responses

<p>■ Question: Was the content of the discharge letter(s) you received appropriate and useful?</p> <p>Response: "Not at all useful and appropriate" 2            "Partly useful and appropriate" 0            "Useful and appropriate" 9            "Most useful and appropriate" 63</p>	<p>■ Question: Do you consider that the format of the (sample) letter eases the transfer of information between secondary and primary care?*</p> <p>Response: "Yes" 72            "No" 1 (and 1 non-responder)</p>
<p>■ Question: Was the information contained in the letter(s) you received clear and concise enough to be practical?</p> <p>Response: "Not clear/concise" 2            "Some parts clear/concise" 0            "Mostly clear/concise" 5            "Excellent clarity" 67</p>	<p>■ Question: Could the (sample) letter could be improved?#</p> <p>Response: "Yes" 42            "No" 32</p>
<p>■ Question: Was all of the information about discharge medicines included in the discharge letter(s) you received?</p> <p>Response: "Little information" 0            "Some missing" 4            "Most drugs covered" 10            "All drugs covered" 60</p>	<p>■ Question: Do you think the (sample) letter has the potential to reduce risk?</p> <p>Response: "Yes" 72            "No" 2</p> <p>■ Question: Would like to see this style of letter accompany all discharges from the hospital</p> <p>Response: "Yes" 73            "No" 1</p>

\*Comments included: "Format is perfect, especially as it outlines the discontinuation of medicines" and "Will stop one ringing . . . the hospital regarding confusions." #Suggestions were mainly to combine the pharmacy letter with the doctor's discharge letter

on by his or her GP was eight in the study group and 30 in the control group, which was a statistically significant reduction (two-sample proportion test,  $z$  value = 7.607,  $P=0.034$ ). An example of a medicine change that was missed in the control group occurred in a patient admitted with epigastric pain. The patient's aspirin prescription was stopped in hospital, because a duodenal ulcer was diagnosed, but after discharge the drug was continued by the patient's GP. When data are combined, the total number

of changes not actioned in the primary care setting was 52 (44 per cent) in the control group, compared with 22 (15 per cent) in the study group — representing a 29 per cent potential risk-reduction.

Readmissions were also fewer in the study group — eight compared with 13 in the control group.

## — Benefits

The research carried out strongly suggests that there are benefits in sending pharmacy-generated electronic letters on discharge. In general, GPs and their staff welcomed the development and its use was associated with a reduction in the number of post-discharge medicines-related errors, potentially reducing risk to patients.

It is difficult to say for certain that the decrease in the number of medicine changes missed in the study group was a direct result

### Another elderly discharge scheme

Last month's "Focus on technicians" article, (2006;13:226–8) outlined a scheme in place at Darlington Memorial Hospital and Darlington Primary Care Trust to improve care on the discharge of older patients to an intermediate care facility. Available at *PJ Online* ([www.pjonline.com/links/hp](http://www.pjonline.com/links/hp))

of the use of pharmacy-generated discharge letters. Although care was taken to match patients in terms of age and medicine changes, differences in the nature of the Jubilee wing — a rehabilitation ward to which patients are often referred from other wards and stay for some time — compared with the surgical and medical ward meant that factors such as length of stay were markedly different between the study and control groups. Other changes in procedure on the Jubilee wing, such as the focus on self-medication, might also have prevented errors by, for example, making it more likely that a patient would alert his or her GP to discrepancies that had been resolved before the post-discharge audit took place. Some "discrepancies" might also have been deliberate prescribing decisions on the part of a GP.

The study also suggests that introducing the pharmacy-generated electronic discharge letter may reduce readmissions. However, reasons for patient readmissions are notoriously complex and the sample size and study design were not such that any real conclusions on this subject could be drawn.

The main challenge with the new pharmacy-generated electronic discharge letters is the time taken for them to be produced. For example, it is often necessary to review a patient's notes to find the reasons why medicines have been stopped or started during a

patient's stay or why doses have been changed. However, the introduction of medication reviews by pharmacists means that most of this information should already be known and recorded before discharge planning begins.

## — Conclusion

The electronic discharge letter produced by pharmacy staff at the Queen Elizabeth hospital, Gateshead, has been well received by GPs and their staff. There is evidence that it has reduced the number of post-discharge medicines-related errors, thereby potentially reducing risk to patients.

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## — References

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2. Himmel W, Tabache M, Kochen MM. What happens to long-term medication when general practitioner patients are referred to hospital. *European Journal of Clinical Pharmacology* 1996;50:253–7.