

# An audit to evaluate the acceptability of a pharmacist electronically prescribing discharge medication and providing information to GPs

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**AIM** • To audit discharge prescribing and information exchange by junior doctors and to assess the effectiveness of a pharmacist in this role.

**DESIGN** • One month's baseline audit of discharge prescribing followed by a pilot study using a pharmacist to prescribe discharge medication electronically and provide information to general practitioners (GPs) using a pharmacy discharge letter. A postal questionnaire was used to obtain the views of GPs.

**SUBJECTS AND SETTING** • Two acute 30-bedded wards, a general medical ward and a care of the elderly ward.

**RESULTS** • The baseline audit confirmed the lack of information supplied on discharge. Information regarding changes in medication was supplied in 15.7% of 420 changes in medication in 111 patients. A pharmacy discharge letter was designed to enable a pharmacist to electronically prescribe discharge medication and ensure that all changes of medication were accompanied by a reason. 22 GPs completed and returned a questionnaire sent to all 40 lead GPs in the PCG. 98% of responses agreed or strongly agreed with the benefits of the letter.

**CONCLUSIONS** • The introduction of a pharmacy discharge letter has enabled the pharmacist to prescribe discharge medication electronically and provide reasons for all medication changes during an inpatient stay. The letter may be useful in informing community pharmacists of discharge medication and as a patient medication card.

Since the introduction of the NHS and Community Care Act, there have been a number of government initiatives aimed at improving communication between the primary and secondary care sectors. In 1991, executive letter EL (91)127<sup>1</sup> recommended communication between hospital and community pharmacists to ensure continuity in the supply of medicines. The Royal Pharmaceutical Society has responded to these recommendations by developing checklists for communication between community and hospital pharmacists.<sup>2</sup> More recently, a resource document and guide for the new NHS "GP prescribing support" has highlighted the need for a greater involvement of hospital pharmacists to provide a good flow of information about patients on their discharge.<sup>3</sup>

A study undertaken by Argyle and Newman<sup>4</sup> provides a useful assessment of the discharge procedures and communication in 239 hospitals throughout the United Kingdom. A questionnaire was used to assess how hospitals communicate with GPs following a patient's discharge, the type of pharmaceutical information supplied to patients on discharge and to the patient's community pharmacist and the extent of use of the Society's discharge checklist.

Responses showed that the most popular form of communication to GPs is a discharge note combined with the discharge prescription, which is delivered by post or by the patient.

The pharmacy departments supplied written information for patients in a variety of ways: through a copy of the discharge prescription (43 per cent), a hand written compliance chart (45 per cent), a computer generated chart (4 per cent) and patient information leaflets (69 per cent). Twenty-one per cent of departments said that they supplied written information for the patient's community pharmacist and only 4 per cent said that they used the discharge checklist provided by the Society.

From the viewpoint of community prac-

tioners, there are a number of studies which identify their need for improved discharge information.

Brackenborough<sup>5</sup> reported that 42 per cent of GPs in her survey believed that they received too little information about patients' discharge medication. The main concerns were regarding the discharge summary itself, ie, incomplete, illegible, duration of treatment not indicated, no information about changes in therapy. She also noted that 79 per cent of community pharmacists surveyed thought they received too little information about patients' discharge medication. The main concerns were lack of information regarding changes in medication, information about generics and brands and the source of non-standard preparations.

Munday *et al*<sup>6</sup> highlighted the lack of published studies assessing the need for community practitioners to receive information from secondary care regarding medication changes. They found that 96 per cent of their GP respondents would have liked information on drug changes, but the majority did not receive the desired information. Of their community pharmacist respondents 94 per cent would have liked this information and the preferred method of receiving it was by postal delivery via a modified hospital discharge prescription.

When considering where to focus this audit on discharge, a number of recent papers, which describe the need for a more proactive role for the pharmacist, were helpful.

In their paper "A new model for hospital pharmacy practice", Cousins and Luscombe<sup>7</sup> state that an important objective for hospital pharmacy practice is "smooth discharge of an adequately counselled patient with good communication with community practitioners and with minimum delay after the time the hospital doctor has indicated that the patient can go home". The paper suggests that pharmacists should "manage the delivery of discharge drugs by writing the prescription in advance". Sexton and Brown<sup>8</sup> in their paper on discharge also propose a role for discharge prescription writing by the pharmacist.

The study reported here uses a pharmacist in the proactive role of prescribing discharge medication electronically, using the prescription to provide information on medication changes during the hospital stay.

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## METHOD

A proposal for a pilot study to measure the impact of an interface pharmacist in providing seamless care on discharge was submitted to the department of clinical effectiveness and audit for funding; the department agreed to fund a senior clinical pharmacist (grade D) for nine months, half-time.

A project team was set up which comprised two consultants (one representing care of the elderly), the primary care group prescribing lead, the director of pharmacy, the clinical services manager, the senior pharmacist admissions and discharge (the interface pharmacist) and the co-ordinator of the department of clinical effectiveness and audit.

The project team requested that initially a baseline audit be undertaken to provide information on the current discharge problems, using two acute 30-bedded wards, a general medical ward and a care of the elderly ward. This would be undertaken for a one-month period on the two wards to assess the quality of prescribing by junior doctors and of information exchange to primary care. Following this, the interface pharmacist would undertake the pilot study prescribing discharge medication on the two wards accompanied by information exchange; the impact of the pharmacist could then be assessed. The team were keen to implement the electronic transfer of information across the interface to one practice (that of the PCG prescribing lead).

For the baseline audit, a form was designed which enabled the interface pharmacist to record the following information from each discharge prescription.

- The number of items prescribed
- The number of changes in medication during the admission which were accompanied by information regarding the change
- The number of inappropriate abbreviations of drug names and strengths
- The misuse or omission of brand names where appropriate
- The number of items needing clearer details of dosage times
- The documentation of allergies to drug therapy

The form also included a section for documenting interventions made by the pharmacists when comparing the discharge prescription against the inpatient chart. A scoring system was used on the form for measuring the clinical significance of discrepancies between the two prescriptions (Figure 1).

For the pilot study, it was agreed by the project team that a computer generated pharmacy discharge letter (PDL) would be designed which would be used alongside the current discharge letter. In the section of the current letter where discharge drugs were normally prescribed, the pharmacist would write "see pharmacy discharge letter" and score through the remainder of the section. An exception was made for the prescribing

of Controlled Drugs. It was agreed that the medical staff should continue to prescribe Controlled Drugs on the current discharge letter; the pharmacist would also include the Controlled Drug on the PDL so that a complete record was available.

The PDL was incorporated into a Microsoft Access programme and was linked to the hospital network. It was designed to list all medicines on discharge at the top and all medicines stopped in hospital separately. This meant that information was presented in an easy-to-read format. There was a column next to the list of discharge drugs for stating reasons for starting or changing medication during admission or to indicate that the drug was "as admission". The programme was designed so that an entry had to be made in this column to enable the PDL to be printed. In this way, a reason had to be given for all discharge medication. The PDL was transmitted electronically to the pharmacy department for dispensing.

For the pilot study the project team agreed that junior doctors would approve and sign the prescription before dispensing. The study would take place on Monday to Friday during normal working hours for a period of six months; there would be four "designated" pharmacists (to include the interface pharmacist) assigned to the project. In addition to a general protocol for pharmacists writing prescriptions, a protocol was written and approved by the project

team for using systemised language when stating reasons for starting, changing or stopping medication during admission. Emphasis was placed on using simple terms where possible. This was essential because the computer programme was designed to provide one copy of the letter for patient information. Four other copies were produced: one each for the GP, the medical notes, the discharge planning team and the pharmacy audit.

All GPs in Harrogate were informed about the initiative and formal approval was obtained from all consultants before pilot study began.

A questionnaire was designed to obtain feedback from the GPs. This was sent out when the PDL had been in use for about three months. It comprised a list of seven questions to which the GP could tick one of five responses: strongly agree, agree, indifferent, disagree or strongly disagree. Modified questionnaires were sent to the seven consultants who routinely have patients on the two wards studied.

## RESULTS

**Baseline audit** The interface pharmacist undertook this one-month audit during August 1999. The discharge prescriptions of all patients discharged from the two acute 30-bedded wards during this period were audited using the form previously described.

The number of patients discharged during this period was 111 and there were 651 prescribed items. This gave a mean number of prescribed items per patient of 5.9.

The format of the discharge letter did not include a specific section for recording reasons for changes in medication; there was an area headed "hospital investigations/treatment/information for GPs" where the medical staff could enter details of changes.

For the 111 patients audited, the number of changes of medication comparing admission drugs with discharge drugs was 420 (mean of 3.8 per patient). Of these, information regarding the change was provided in the area of the discharge letter described in 66 (15.7 per cent) cases.

There were 30 dose changes in the comparison of admission drugs with discharge drugs with reasons supplied in 16.7 per cent of cases. There were 16 changes in the frequency of doses with reasons not supplied in any cases.

The audit of the quality of prescribing showed that abbreviations were used in 4.3 per cent of prescribed items, brand names were used inappropriately in 2.2 per cent of cases, brand names were not stated where professionally required in 1.7 per cent of cases and dosage times were unclear in 22.4 per cent of cases. Allergies (if any) were recorded in 21.6 per cent of prescriptions.

The number of interventions made by the pharmacists when checking discharge forms against inpatient prescriptions was 52, ie, 8 per cent of the number of prescribed items. Twenty-one per cent of these scored 1 point (low significance), 33 per cent scored 2 points, 21 per cent scored 3 points and 25

Points allocated	
<b>1 point</b>	<b>2 points</b>
Antacids	Antiemetics
Antidiarrhoeals	Antidepressants
Laxatives	Antihistamines
Cough mixtures	NSAIDs
Antipyretics	Muscle relaxants
Hormone replacement therapy	Sedatives/hypnotics
Oral contraceptive pill	Non-narcotic analgesics
	H <sub>2</sub> -receptor antagonists
	Proton pump inhibitors
<b>3 points</b>	<b>4 points</b>
Antibiotics/infectives	Anticoagulants
Anticonvulsants	Bronchodilators
Antipsychotic agents	Cardiovascular drugs
Diuretics	Electrolytes
Narcotics	Insulin
Oral antidiabetic agents	Chemotherapeutic agents
Steroids	
1. If drug omitted in error apply number of points	
2. If drug added in error apply number of points	
3. If incorrect form is prescribed and means patient is unable to take, apply number of points	
4. If incorrect release, eg, modified release/enteric coated, apply number and divide by 2	
5. If frequency is incorrect, apply number (if total daily dose is the same, apply number and divide by 2)	
6. If dose is incorrect, apply number	
7. If units are incorrect, apply number	

Figure 1: Discrepancies — key for clinical significance

per cent scored 4 points (high significance).

**The questionnaires** Questionnaires were sent to a lead GP in each practice in Harrogate PCG in order to obtain feedback about the discharge communication. Forty questionnaires were distributed to GPs of which 22 were returned (Table 1). The response rate was 55 per cent which is comparable to the response rates from GPs in the studies quoted (50 per cent, 64 per cent). There was no follow up of non-responders. In addition to the responses shown in Table 1, there were a range of positive comments, eg, "a much improved service", "an excellent system providing greater clarity of what has happened and why" and "worth investing time in this area".

Five of the seven consultants respondents. They stated that PDLs had improved information exchange between primary and secondary care and that the structure of the form was appropriate. When asked whether the project should be extended after the pilot study, all five agreed that it should be and that it should be extended to the rest of the medical wards. Three consultants suggested that it should be extended to the two rehabilitation wards as well.

## DISCUSSION

The results of the baseline study described in this paper identify the paucity of information given on discharge to GPs about medication changes, and the results of the GP questionnaire confirm that the PDL has improved the information exchange.

The study did not measure the effect of the information on patient care; however as described, the language used to give reasons for medication changes in the PDL was simple in order to inform the patients as fully as possible.

The GP questionnaire did address the role of the PDL in reducing medication errors (and therefore increasing patient care) across the interface although as stated the study did not measure this. The GPs all agreed that the PDLs had reduced medication errors across the interface. Cousins and Upton<sup>9</sup> have addressed the problem of such errors. They suggest that the solution is to transfer the information electronically. The project group for this study was keen to pilot the electronic transfer of the PDL to a practice; however the IT systems in place have been unable to facilitate this to date.

A recent study reported by Duggan *et al*<sup>10</sup> did measure the effect of information on patient care using information provided to community pharmacists. A letter was given listing all discharge drugs to one group of patients to give to their community pharmacist and a comparator was used of patients who did not have a letter. Patients were visited in their home once a community supply of drugs had been obtained. The frequency of discrepancies was measured and it was concluded that providing community pharmacists with a copy of patients' discharge summaries was an effective method of reducing unintentional discrepancies with measurable patient benefit. Although this

TABLE 1: RESULTS OF GP QUESTIONNAIRES (N=22)

	Strongly agree	Agree	Indifferent	Disagree	Strongly disagree
1. Do you feel these letters have improved information exchange between primary and secondary care?	15	7	0	0	0
2. Is the structure/design of the form appropriate to your needs?	9	13	0	0	0
3. Do you find the identification of drugs stopped during hospital stay useful?	13	9	0	0	0
4. Has the section on the form entitled "Additional information" been useful for continuing management of drug therapy?	8	14	0	0	0
5. Do you feel your patients have benefited from receiving their own copy of the discharge letter?	11	10	1	0	0
6. Each PDL takes approximately 20 minutes to complete. Do you think this time is worthwhile?	6	14	2	0	0
7. In your opinion, do you feel that the introduction of PDLs has reduced the number of medication errors across the interface?	10	12	0	0	0

study could have been designed to include the provision of a copy of the PDL to community pharmacists, its purpose was to assess the acceptability of information transfer to GPs. Now the study is complete and pharmacist prescribing has continued, the programme has been designed to provide a copy of the PDL to the community pharmacists.

The use of the interface pharmacist in this way has now been funded on a permanent basis as the result of a bid by the medical staff for funds related to the "new deal" for junior doctors' hours.

It is intended to develop the discharge service to provide additional details of drug therapy to GPs, eg, monitoring requirements, protocol-driven therapy.

This study has enabled the pharmacist to be at the centre of the discharge process, taking the role of a discharge co-ordinator. Although it was undertaken before the pub-

lication of the NHS Plan, the study has successfully addressed a number of recommendations outlined in the "Pharmacy in the future" response to the plan.<sup>11</sup>

The skills of the pharmacist are maximised both as a prescriber of discharge medication and in providing accurate information to patients and community practitioners regarding medication changes during the inpatient stay. The central role of the pharmacist in the discharge process facilitates the aim of enabling patients to have the medicines they need with appropriate counselling as soon as they are ready to be discharged.

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