

# Extent of uncollected prescriptions in general practice

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**Background:** A small number of prescriptions ordered by the patient from their general practice remain uncollected and hence undispensed. No research has been published on this phenomenon and on how this is managed. We aimed to evaluate this in one primary care trust. **Aim:** To find out what prescription items are not collected, and why. **Design of study:** A descriptive cross-sectional analysis of prescription data. Semi-structured interviews with 21 primary health care team members, and 10 patients who had apparently not collected their prescription. Fifty-seven patients from the lead author's practice were telephoned and gave their comments. **Setting:** Twenty general practices in the Gateshead Primary Care Trust. **Method:** Nineteen practices provided suitable data for analysis from one month's uncollected prescriptions plus total items issued during the same period of time. All suitable patients who had uncollected prescriptions from 10 practices were invited to participate in a telephone interview. Similar patients from the lead author's practice were telephoned and invited to comment. **Results:** On average 0.5% items were uncollected. Drugs for a specific diagnosis (eg, cardiovascular drugs) were significantly less likely to be uncollected than drugs prescribed either symptomatically or for a presumptive diagnosis (0.48% versus 0.67% uncollected, respectively,  $P < 0.001$ ). Many uncollected prescriptions were due to administrative causes: few resulted from patient error or forgetfulness. The majority of patients reported obtaining their medication. No adverse events arising from uncollected prescriptions were reported. **Conclusion:** Uncollected prescriptions are a small proportion (0.5%) of the total issued and were more likely to be for non-essential items; therefore the policy of destroying uncollected prescriptions after an appropriate period without any further action is probably safe.

**Keywords:** drug; general practice; prescriptions; primary health care

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## Introduction

In England, many patients request either new or repeat prescriptions by phoning, writing to or calling at the surgery. Some may use fax or email. Once the prescription is prepared, the patient collects it and takes it to the pharmacy. Some of these prepared prescriptions are never collected. Most research on non-compliance has focussed upon secondary non-compliance (ie, on whether patients take their drugs

as intended by the prescribing doctor). A limited amount of research has been conducted on prescriptions issued directly to patients but never dispensed (primary non-compliance). One study found that 20% of prescriptions were not cashed (Rashid, 1982) but others have found lower rates (2.6–7.6%) (Waters *et al.*, 1976; Winter, 1982; Begg, 1984; Stuart, 1985; Beardon *et al.*, 1993). No study has concentrated on prescriptions requested by the patient but then not collected from the practice.

Although uncollected prescriptions are only a small proportion of the total issued, there is a lack of knowledge about why they are not collected and what, if anything, should be done with them. Their

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non-collection could be an administrative or a compliance problem. We wished to explore this issue.

## Method

We undertook a descriptive cross-sectional analysis to identify what types of prescription items were uncollected and whether the prescription was acute or a repeat. Ethical Committee and Research Governance approval were obtained. Data were collected between November 2003 and March 2004.

All 33 practices in the Gateshead Primary Care Trust (PCT) were invited by letter to take part. We used a definition of a repeat prescription as 'one printed by a practice computer from its repeat prescribing programme within a given period' (Harris and Dajda, 1996). List size data and the number of principals in each practice were obtained from computer records at the Gateshead Primary Care Trust.

There is no agreed definition of an uncollected prescription. For the purpose of this research, it was defined as 'a prescription that had not been collected for at least four weeks from the issue date and which the practice did not now expect to be collected'. Data on uncollected prescriptions issued from at least four up to eight weeks previously were collected from 16 practices. In three practices that destroyed their prescriptions promptly at the end of each calendar month, a month's worth of prescriptions that these practices believed would not be collected was recorded instead.

A researcher (MS) visited each participating practice and recorded the items on each uncollected prescription by British National Formulary (BNF) subsection (see Box 1). A frequency list of all items (by BNF subsections) prescribed over the same period was obtained in each practice from the practice computer. The counts of prescription items from each chapter (eg, cardiovascular, respiratory) were compared to the corresponding counts from the rest of the drugs in the study and a  $\chi^2$  test performed to see if the differences were significant.

Drugs were also ranked according to the Belfast Classification (McGavock and Wilson-Davis, 2000; McGavock, 2004), which is based on a GP's declared certainty of diagnosis at the moment of prescribing (see Box 2). There are three cate-

## Box 1 Prescription data recorded from uncollected prescriptions

- Practice identification number.
- Prescription number for that practice.
- Patient's age on the day prescription issued.
- Own home or Aged Person's Home/Nursing Home.
- Name of drug, dose and instructions.
- Quantity supplied.
- Length of prescription in days where possible to determine.
- BNF category of drug.
- Whether repeat or acute.
- Number of drugs on repeat (determined either from written information on the prescription or from computer data).

gories that usually include about 85% of all items prescribed:

- Drugs in the *specific diagnosis category* include anticoagulants, antidepressants, anticonvulsants, heart preparations, hypoglycaemic, antiparkinsonian, and thyroid/antithyroid agents.
- Drugs in the *symptomatic diagnosis category* include minor analgesics, antacids, hypnotics and laxatives.
- Drugs in the *often presumptive diagnosis category* include acid suppressants, antimicrobials, anxiolytics and vaginal preparations.

We evaluated whether there was a statistical association between the Belfast Classification score and collection of the prescriptions by  $\chi^2$  test. Finally, the data were grouped into the number of items collected and uncollected in each BNF chapter.

To attempt to find out why prescriptions were uncollected, 10 practices were revisited. Eight of the 10 practices were visited between one month and five months after the initial visit. The remaining two practices had destroyed most of their prescriptions on the researcher's first visit. Both practices agreed to the selection of suitable patients for interview, so both tasks (ie, collection of basic data and identification of patients for interview) were done during the same visit in these two practices. Identical data were collected in all the practices, patient records examined and all patients who appeared to have no obvious reason for an uncollected prescription

**Box 2 Belfast Classification**

Category 1 – Specific diagnosis >90% ‘certain’	Specific prescribing	There is always an accurate diagnosis and the drug must be known to intervene in a specific, well understood and beneficial way, eg, insulin for type 1 diabetes.
Category 2 – Symptomatic diagnosis >90% ‘certain’	Symptomatic prescribing	The drug relieves symptoms with little or no effect on the disease process, eg, antacids.
Category 3 – Often presumptive diagnosis >50% ‘uncertain’ or ‘probable’	Often presumptive prescribing	Drugs are potent therapeutic agents that are used at least 50% of the time on the basis of a presumptive diagnosis or a ‘therapeutic trial’, eg, antihistamines.

(eg, reissue of prescription, hospital admission) were invited to participate in a telephone interview. Patients for whom such an invitation may have caused embarrassment or distress were excluded, eg, people with mental health problems or those with an uncollected oral contraceptive pill prescription. Semi-structured telephone interviews were carried out with those who responded. An audit was also carried out on patients from the lead authors own practice for whom there was an uncollected prescription: they were telephoned and the purpose of the audit explained and with their permission their comments recorded.

Face-to-face semi-structured interviews with open-ended questions to allow unstructured responses were also held with a member of the primary health care team (PHCT) from each practice who knew about their current system.

Interviews with patients from other practices and the PHCT were transcribed and entered into a qualitative database (QSR NUD\*IST) (Scolari, 1995). Codes, categories and themes were identified in PHCT members’ and patients’ narratives. Comments from the lead author’s own patients were entered into an Excel database and analysed.

**Results****Collection and analysis of basic data from the practices**

Twenty of the 33 practices in the PCT agreed to participate. Data collection was satisfactory in 19. In one practice there was an uneven spread of prescriptions suggesting many of the earlier pre-

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scriptions had been destroyed: this practice’s data were therefore excluded from the analysis.

These 19 practices covered 134 056, ie, 63.9% of the total number of patients in the Gateshead Primary Care Trust and 66% of Gateshead GPs. The practices appeared to be a representative sample although there was a slightly lower proportion of single-handed practices than in the PCT as a whole (15% versus 24%).

**Proportion of uncollected prescriptions**

The total number of items issued by the 19 practices was 165 155, of which 823 were not collected (0.5%). The proportion that was uncollected ranged from 0.032% to 2.4% among practices. Of the uncollected, 214 were acute, 587 repeat and 17 automatic (ie, printed automatically by the computer each month without being requested); the status of five was not recorded.

**Belfast Classification**

The BNF sections were divided into therapeutic groups based on the certainty of diagnosis according to the Belfast Classification. Of the total number of items issued, 85% could be categorised in this way (see Table 1).

There was a statistically significant association between the collection of prescriptions and the classification score ( $\chi^2 = 13.21$ ,  $df = 2$ ,  $P = 0.001$ ), with drugs for more specific diagnoses being more likely to be collected.

**Analysis by BNF chapters and subsections**

Dermatological and respiratory drugs were most likely to be uncollected and cardiovascular

**Table 1** Number of prescription items ranked according to the Belfast Classification

	Prescription items collected	Prescription items uncollected	Total	% uncollected
Specific diagnosis – 1	82 887	398	83 285	0.48
Symptomatic diagnosis – 2	30 914	168	31 082	0.54
Presumptive diagnosis – 3	25 074	168	25 242	0.67
Total of classified items	138 875	734	139 609	0.53
Unclassified	25 457	89	25 546	0.35
Grand total of all prescription items	164 332	823	165 155	0.5

**Table 2** Uncollected items by BNF chapter

BNF chapter number	Type of drug	Number not collected	Total number prescribed	Percentage within the group (%)	$\chi^2$ test statistics	$\chi^2$ test P-value
1	Gastro-intestinal system	72	15 103	0.48	0.02	0.88273
2	Cardiovascular system	165	47 526	0.35	36.44	<0.001
3	Respiratory system	123	12 176	1.01	64.13	<0.001
4	Central nervous system	165	31 570	0.52	0.12	0.72864
5	Infections	45	8912	0.50	0.01	0.94337
6	Endocrine system	44	11 749	0.37	4.57	0.03257
7	Obstetrics, gynaecology and urinary system	23	3127	0.74	3.15	0.07575
8	Malignant disease and immunosuppression	4	856	0.47	0.03	0.86052
9	Nutrition and blood	25	4757	0.53	0.02	0.88046
10	Musculoskeletal and joint diseases	43	8021	0.54	0.46	0.49886
11	Eye	4	2683	0.15	6.97	0.00831
12	Ear, nose and throat	6	1690	0.36	0.80	0.37014
13	Skin	65	6929	0.94	25.80	<0.001
14	Immunological products and vaccines	1	6856	N/A	36.58	<0.001

and endocrine drugs least likely to be uncollected compared to the rest of the drugs in the study (see Table 2).

By BNF subsection, antihistamines, compound alginates, corticosteroid inhalers, beta agonist inhalers and emollients were the most likely to remain uncollected, while cardiac drugs (nitrates, ACE inhibitors, calcium channel blockers, diuretics, statins), biguanides and broad-spectrum antibiotics were less likely than average to be uncollected. Some drugs, eg, benzodiazepine hypnotics, were always collected.

## Qualitative data

### Telephone interviews with patients

From the 10 practices, 254 people had an uncollected prescription (445 items). For 50 people,

there was an apparent reason, eg, reissued by the receptionist at least once on the same day (28%), another issued by the receptionist within seven days either prospectively or retrospectively (40%), the patient had had frequent prescriptions and it could be assumed that they had plenty of medication (10%), the prescription had been issued later in a consultation (6%), the prescription belonged to the practice (6%), temporary resident (2%), locum gave patient a prescription they did not want (2%), patient admitted to hospital (2%), father bought OTC medication for the child (2%), doctor told patient to pick up prescription 'if need be' (2%).

Twenty-four people were deemed unsuitable to contact and 180 people were therefore invited for telephone interview. The response rate was poor: only 10 agreed to be interviewed. Of these, nine said that they had got a prescription and their

medication. Only one acknowledged that he had forgotten and had not obtained the medicine.

#### *Interviews with members of the primary healthcare team*

Interviews were held with a member of staff from each of the 20 practices, the 19 practices and the lead author's practice (12 managers/administrators, 6 receptionists and 3 GPs). In one practice, a doctor was interviewed initially followed by the senior receptionist who knew more about their system. There were therefore 21 interviews. Several administrative reasons for non-collection were identified, eg, if a prescription was missing, misfiled, awaiting signature, at a branch surgery, stuck to another prescription or a current item split from repeat, then it would be reprinted. Practices that relied heavily on pharmacists picking up prescriptions (to be later collected from the pharmacy by the patient) tended to have fewer uncollected prescriptions, whereas practices who asked patients to order well in advance or who printed some items automatically tended to have more. Few practices had a formal system for dealing with uncollected prescriptions and most practices shredded them with no further action. No one could recall any problems other than administrative ones resulting from uncollected prescriptions. Generally, uncollected prescriptions were not perceived as a problem.

#### *Interviews with patients from the author's practice*

In 31 out of 103 consecutive uncollected prescriptions in MS's own practice a reason was apparent (the majority were administrative). Of the 69 people eligible to contact, 57 were successfully telephoned and all were willing to comment. Over three quarters (43/57) claimed to have obtained their medication. Fourteen patients had not obtained their medication: two of these may have benefited from treatment (iron tablets and antihypertensives) but both had shown continued poor compliance in the past. Only seven people reported forgetfulness.

## **Discussion**

Uncollected prescriptions are a small but common problem that varies among practices. Drugs

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that are linked to a specific diagnosis (and may be essential for the patient's health) are least likely to remain uncollected. This could be because patients realise the importance of compliance or because people on essential medications who may be elderly, frail or have cognitive impairment have their prescriptions delivered by the pharmacist or have carers who ensure good compliance. Dermatological and respiratory drugs are significantly less likely to be collected than other drugs, perhaps reflecting their common use as necessary.

Many causes for uncollected prescriptions appear to be administrative rather than compliance issues and are rarely due to patient error or forgetfulness. Most of the patients interviewed were certain that they had obtained or had not run out of their medication, though we could not confirm this. No patient or PHCT member could recall any harm resulting to a patient from an uncollected prescription.

Although no work was identified on uncollected prescriptions, two British studies on undispensed prescriptions in 1976 (Waters *et al.*, 1976) and in 1993 (Beardon *et al.*, 1993) found that cardiovascular system drugs were rarely rejected. Research in the USA studied prescriptions (most automatically transmitted to a pharmacy) that had not been claimed at the pharmacy by the patient. This system is very different from that in British General Practice and is probably nearer to the situation whereby a patient is handed a prescription but does not bother to get it dispensed. Medications most frequently unclaimed were anti-infectives (differing from Britain where these are usually prescribed during a consultation). Interestingly, many similar drugs to this study, analgesics, dermatological, anti-inflammatory, respiratory and cough, cold and allergy drugs, were also unclaimed (Craghead and Wartski, 1991; Farmer, 1992; Kirking and Kirking, 1993; Hamilton and Hopkins, 1997; Secnik, 2000).

One study in the USA studied prescriptions handed in by patients to the pharmacy but later unclaimed: many had obtained their medication elsewhere or had enough left (Hamilton and Hopkins, 1997). Three further studies in the USA, though in a hospital setting, also found that the much apparent non-compliance could be explained either by administrative reasons or by obtaining correct medication in other ways



(Kirking *et al.*, 1995; Dong *et al.*, 1998; Kinnaird *et al.*, 2003).

### Strengths and limitations of this study

This study collected almost complete data from the participating practices and is likely to reflect the true extent of the problem. The interview response rate from patients other than the lead researcher's own was extremely poor and it is likely that those who were interviewed were a very biased sample making it difficult to draw conclusions. Nevertheless, their responses were supported by those of the other groups of interviewees.

The limited data suggest that the causes of uncollected prescriptions are often administrative rather than compliance issues, that patients will ensure that they obtain essential medication and that patients do not come to harm as a result. Current common practice of disposing of uncollected prescriptions therefore seems to be safe.

Further research could focus on securing more interviews and of confirming patients' statements to have accessed their drugs when there is no record of a prescription. In the future, the introduction of direct electronic transfer of prescriptions to a pharmacy may shift the burden of unclaimed prescriptions to the pharmacy.

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### Ethics Committee

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### Competing interests

None.

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### References

- Beardon, P.H.G., McGilchrist, M.M., McKendrick, A.D., McDevitt, D.G. and MacDonald, T.M. 1993: Primary non-compliance with prescribed medication in primary care. *British Medical Journal* 307, 846–48.
- Begg, D. 1984: Do patients cash prescriptions? An audit in one practice. *Journal of the Royal College of General Practitioners* 34, 272–74.
- Craghead, R. and Wartski, D. 1991: An evaluative study of unclaimed prescriptions. *Hospital Pharmacy* 26, 616–17 and 632.
- Dong, B.J., McCart, G.M. and Lynch, S.S. 1998: Reducing unclaimed prescriptions through pharmacist intervention. *Hospital Pharmacy* 33, 841–46.
- Farmer, K.C. and Gumbhir, A.K. 1992: Unclaimed prescriptions: an overlooked opportunity. *American Pharmacy NS* 32, 10, 55–59.
- Hamilton, W.R. and Hopkins, U.K. 1997: Survey on unclaimed prescriptions in a community pharmacy. *Journal of the American Pharmaceutical Association* 3, 341–45.
- Harris, C. and Dajda, R. 1996: The scale of repeat prescribing. *British Journal of General Practice* 46, 449–53.
- Kinnaird, D., Cox, T. and Wilson, J.P. 2003: Unclaimed prescriptions in a clinic with computerised prescriber order entry. *American Journal of Health-System Pharmacy* 60, 1468–70.
- Kirking, M.H. and Kirking, B.S. 1993: Evaluation of unclaimed prescriptions in an ambulatory care pharmacy. *Hospital Pharmacy* 28, 90–91.
- Kirking, M.H., Zaleon, C.R. and Kirking, D.A. 1995: Unclaimed prescriptions at a university hospital's ambulatory care hospital. *American Journal of Health System Pharmacy* 52, 490–95.
- McGavock, H. 2004: Prescription-related illness – a scandalous pandemic. *Journal of Evaluation in Clinical Practice* 10, 491–97.
- McGavock, H. and Wilson-Davis, K. 2000: The Belfast Classification – aggregating drugs according to the specificity of their use in general practice. *Handbook of drug use research methodology*. United Kingdom Drug Utilisation Research Group, Newcastle Upon Tyne.

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- Rashid, A.** 1982: Do patients cash prescriptions? *British Medical Journal* 284, 24–26.
- Secnik, K., Pathak, D.S.** and **Cohen, J.M.** 2000: Postcard and telephone reminder for unclaimed prescriptions: a comparative evaluation using survival analysis. *Journal of the American Pharmaceutical Association* 40, 243–51.
- Stuart, I.** 1985: Do patients cash prescriptions? *British Medical Journal* 291, 1246.
- Qualitative Solutions and Research Pty Ltd.** 1995: *Users guide to QSR NUDIST*. Scolari, London.
- Waters, W.H.R., Gould, N.V.** and **Lunn, J.E.** 1976: Undispensed prescriptions in a mining general practice. *British Medical Journal* 1, 1062–063.
- Winter, J.A.C.** 1982: Do patients cash prescriptions? *British Medical Journal* 284, 287.