Repeat prescribing management — a cause for concern?

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SUMMARY

Background. *No existing studies of repeat prescribing management have been carried out on statistically adequate samples permitting an extrapolation of results with regard to the population of general practitioners (GPs).*

Aim. *To provide adequate regional evidence of the quality of repeat prescribing management for the profession and its administrators, and to test a scoring system for quality assurance in repeat prescribing practice.*

Method. *A semi-structured questionnaire was administered by one observer to a statistically representative population sample of Northern Ireland's general practices to investigate the extent to which they adopted recommended procedures for the management of repeat prescribing. Responses to 26 of these questions were used to score the quality of management. The subjects were a random sample of 57 practices stratified for number of partners, geographical area, and fundholding status.*

Results. *The main outcome measures were the percentage adoption of recommended procedures at the time of repeat prescription issue and at the review consultation, use of computing for repeat prescribing and the effects of fundholding; and quality assurance scores. During issue of repeats, essential checks are often omitted; the potential of computerization for improving management is often not realized. At review consultation, the opportunities for quality assurance are often missed. Fundholders manage repeat prescribing significantly better than non-fundholders, but in neither group is the mean management score exemplary.*

Conclusion. *We have identified and quantified serious deficiencies in repeat prescribing management in a representative sample large enough to permit extrapolation to the regional population of GPs. In response, we have devised guidelines that GPs might use to address this problem. We have tested and proved a scoring system for repeat prescribing evaluation.*

Keywords: repeat prescribing; general practitioners; scoring system.

Introduction

THE issuing of repeat prescriptions without consultation is an expedient compromise of best practice, the risks of which are described in a National Audit Office (NAO) report.[1] Good management of repeat prescribing may be defined as that which minimizes these risks.[1] There have been only two substantial studies of repeat prescribing management, both of which are flawed in design, reach limited conclusions, and are incapable of extrapolation to the population of general practitioners (GPs).[2,3] The present study, commissioned by the Department of Health and Social Services, Northern Ireland, aimed to provide adequate evidence of the quality of repeat prescribing management to support future administrative policy.

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Submitted: 16 January 1998; final acceptance: 2 December 1998.

Method

In January 1996, a semi-structured questionnaire was administered to the lead partner in each of a representative sample of Northern Ireland's general practices, to investigate the extent to which they (i) adopted the procedures recommended by the NAO report when issuing repeat prescriptions;[1] (ii) used the potential of computerization for efficient repeat prescribing management; (iii) had policies for repeat prescribing of high cost drugs; (iv) had arrangements with pharmacists and residential homes to facilitate repeat prescribing;[1] (v) monitored compliance; (vi) followed hospital recommendations on prescribing; and (vii) adopted recommended procedures for medication review during review consultations.[1] Items (i), (iv), and (vii) were recommended by the NAO.[1] Items (ii), (iii), (v), and (vi) were generated by the authors. The questionnaire was therefore novel and had not been used previously, nor were we aware of any equivalent.

A stratified random sample of 60 practices (a 1-in-6 sample of GPs) was selected using stratification factors comprising the number of partners, geographical area, and fundholding status; practices within each stratum were selected by random number tables. Dispensing practices were excluded from the survey.

Of the 60 practices approached, only three refused to participate, giving a response rate of 95%, thus largely avoiding self-selection. All interviews were undertaken by the same observer. Preliminary training was by role play. The same non-alerting introductory remarks were used for each practice. Anonymity was guaranteed. Doctors were prompted to elaborate their answers to open-ended questions. During data processing, the open-ended responses were coded into 'closed' categories and all the data were entered into a personal computer. Twenty-six of the 76 questions were used to score the quality of repeat prescribing management (Box 1). Prescribing frequency and costs for participating practices were extracted from the regional prescription pricing database.

The data were analysed using the SPSS for Windows 95 package; generally, the differences between fundholders and non-fundholders were examined by cross-tabulation and were tested for significance using the chi-squared test with Yate's correction. Where the data were parametric and internally scaled, the one-way analysis of variance (ANOVA) was used to test for significant differences between fundholders and non-fundholders.

Results

Interviews

There was no evidence that the responding doctors felt threatened by the procedure. No responder objected to or refused to answer any question. The minimum time for an interview was 25 minutes, the maximum was 45 minutes (one practice).

Issuing repeat prescriptions

Table 1 shows that a substantial proportion of doctors did not

Issue of prescriptions. Do you:			
Consult patients' records?	Always/usually = 1	All other = 0	
Check quantity and dose?	Always/usually = 1	All other = 0	
Enter exact dose instructions?	Always/usually = 1	All other = 0	
Check time since last review?	Always/usually = 1	All other = 0	
Check number of repeats?	Always/usually = 1	All other = 0	
Use of computer. Do you use the computer to:			
Issue prescriptions?	Always/usually = 1	All other = 0	
Monitor repeats?	Yes = 1	No = 0	Software inadequate = 0
Check if repeats are requested?	Early/late/yes = 1	No = 0	
To embargo the system used?	Yes = 1	No = 0	
To send a reminder letter (review)?	Yes = 1	No = 0	
To check for adverse drug reactions?	Yes = 1	No = 0	
To override controls?	Never/sometimes = 1	Often = 0	
Do you have a policy for high cost drugs?	Yes = 1	No = 0	
Do you approve of chemists dispensing before prescription issue?	Strongly against = 1	Other opinion = 0	
Compliance. Do you have a:			
System to encourage compliance?	Yes = 1	No = 0	
System to assess compliance?	Yes = 1	No = 0	
System to prevent waste?	Yes = 1	No = 0	
Do you have arrangements for repeats in residential homes?	Yes = 1	No = 0	
Do you ever change hospital prescribing to generic?	Yes = 1	No = 0	
Review consultation. Do you ask:			
If still taking the drug?	Yes = 1	Depends/no = 0	
If they remember the dosage?	Yes = 1	Depends/no = 0	
If they notice any benefit?	Yes = 1	Depends/no = 0	
If they experience side-effects?	Yes = 1	Depends/no = 0	
If they are taking any other medicines?	Yes = 1	Depends/no = 0	
If they have any queries?	Yes = 1	Depends/no = 0	
If they know what the medicines are for?	Yes = 1	Depends/no = 0	

Box 1. Construction of a 'good repeat prescribing' indicator from the 'scorable' sections of the questionnaire.

routinely carry out essential quality assurance procedures.

Computer use in repeat prescribing

Software. Fundholding requires fast and comprehensive practice administration computing, and it was not surprising that every fundholding practice used one of the three more advanced practice management software packages (VAMP, EMIS, or GENISYST), while 71% of non-fundholding practices used the older GPASS system. The difference was significant: chi-squared test with Yate's correction; $P<0.0001$. Table 2 shows that the potential of computers to improve repeat prescribing management is often underused.

Monitoring repeat prescribing at the review consultation

Most GPs would accept that every review consultation for patients on long- or medium-term treatment should be used to assess their medication. The seven, patient-centred aspects of chronic medicine-taking recommended by the NAO[1] (Box 1) were used to assess the extent to which responding GPs did so. Table 3 shows a reasonable compliance, apart from the important question about taking other medicines and the invitation to ask about the medication.

Assessing and encouraging patient compliance in medicine-taking

Table 2 shows that 72% of responders routinely used their computer to monitor compliance. Twenty-eight per cent of responders encouraged compliance only in the early stages of treatment, but another 30% reinforced the message at review consultations.

Quantities of medicines issued on repeat prescriptions, number of repetitions permitted, and the influence of 'special' clinics

Repeat prescribing may be justifiable when the patient is well stabilized on therapy or prophylaxis, is asymptomatic, and may not need a monthly review consultation. The present study was designed to show, in 10 therapeutic categories, how GPs varied the quantity of drug(s) issued per repeat prescription and the number of repeats permitted before review: Table 4 summarizes these results (columns 2 and 3). While the mean duration of repeat prescriptions appears reasonable in safety terms for well-stabilized patients, the evidence that some GPs issued five and six months' worth of supply of medication in ranks 3–8 should be a matter of concern.

The range in Table 4, column 3 reflects, partly, the duration/quantity of each repeat (column 2). (Practices who give almost all their repeat prescription patients one or two months' supply at a time, whatever the condition, may be justified in giving four or more repeats before reviewing.) Nevertheless, there is clearly a wide variation in reviewing policy between practices. Whether or not the mean number of repeats permitted for each indication is acceptable, may be tested approximately by multiplying it by the mean duration: the product is the mean time in months between review consultations for each of these conditions (Table 4, column 4). The review interval for well-stabilized patients on antidepressants and anti-asthmatics is probably acceptable practice, as is the review interval for otherwise healthy women on oral contraception or hormone replacement therapy. However, there is evidence of inadequate frequency of reviewing patients on oral hypoglycaemics, ulcer-healing drugs, cardiac drugs, anti-rheumatics, anti-parkinsonian drugs, and

Table 1. Issuing repeat prescriptions.

Question	Number (%) of responses		
	Always	Usually	Not routinely
Before signing a repeat prescription, do you:			
Consult the patient's records?	17 (35)	10 (17)	30 (53)
Check the quantity and dosage?	35 (61)	10 (35)	2 (4)
Enter the exact dosage instructions?	21 (36)	18 (32)	18 (32)
Check when the patient's last review was?	23 (40)	10 (17)	22 (39)
Check the number of repeats issued since last review?	28 (49)	12 (21)	16 (28)

Table 2. Computer use in repeat prescribing (53 of the 57 practices were computerized: GPASS = 30, VAMP = 12, EMIS = 9, GENISYST = 2).

Questions (all computerized practices)	Responses (% of all practices)			
	Always	Usually	Sometimes	Never
Do you use the computer:				
For repeat prescribing?	24 (2)	22 (39)	4 (7)	3 (5)
To monitor compliance: early/late repeat prescription requests?	23 (40)	18 (32)	3 (5)	9 (16)

Questions (practices with more advanced software = 23)	Yes	No
Do you know if your software can:		
1. Embargo issue of repeats after a set number?	19 (33)	4 (7)
If 'yes', do you use it for this purpose?	3 (5)	16 (28)
2. Generate review invitations letters?	15 (26)	8 (14)
If 'yes', do you use this facility?	8 (14)	7 (12)
3. Check for drug interactions?	11 (19)	12 (21)
If 'yes', do you use this facility?	1 (2)	10 (7)

Table 3. Checking on medication at the review consultation.

	Usually n (%)	Occasionally		Rarely/never n (%)
		n (%)	GP's commonest reason	
Did the GP ask the patient:				
Are you still taking the medicine(s)?	39 (68)	14 (25)	If expected therapeutic result is not being achieved	4 (7)
Can you remember the dosage(s)?	24 (42)	27 (47)	In elderly and confused patients only	6 (10.5)
Do you notice any benefit from your medicine(s)?	33 (58)	20 (35)	In the early stages of maintenance therapy only	4 (7)
Are you having any unpleasant effects from your medicine(s)?	33 (58)	20 (35)	Reluctant to raise doubts in patients' minds; ask in early stage of treatment	5 (9)
Are you taking other medicine(s)?[a]	5 (9)	26 (46)	If unexpected effects are reported	26 (46)
Do you remember what you medicine is for?	14 (25)	35 (61)	Most patients on long-term medication know this	7 (12)
Do you want to ask me anything about your medicine(s)?	8 (14)	17 (30)	If patients seems dubious about medicine taking	31 (54)

[a]Over-the-counter, herbal, or 'old' medicines.

Table 4. Mean duration of each repeat prescription, number permitted before review, and interval between review consultations.

Therapeutic group	Mean duration of repeats in months (range) A[a]	Mean number of repeats before review (range) B	Mean interval between reviews in months A ´ B
1. Antidepressants	1.3 (1–3)	1.3 (1–6)	1.7
2. Anti-asthmatics	1.8 (1–3)	2.4 (1–12)	4.2
3. Ulcer-healing agents	1.8 (1–6)	3.4 (1–12)	6.1
4. Anti-rheumatics	2.2 (1–6)	4.3 (1–12)	9.2
5. All cardiac drugs	2.4 (1–6)	2.6 (1–12)	6.2
6. Oral hypoglycaemics	2.5 (1–6)	2.3 (1–6)	5.7
7. Anti-parkinsonian drugs	2.5 (1–6)	3.9 (1–12)	9.9
8. Anti-epileptics	2.6 (1–12)	4.4 (1–12)	11.3
9. Hormone replacement therapy	5.2 (3–12)	1.0 (1–6)	5.4
10. Oral contraceptives	5.6 (2–7)	1.6 (1–6)	9.2

anti-epileptics. Many doctors commented that it was difficult to assess precisely the numbers of repeat prescriptions given before review, since patients often required a consultation or home visit for their condition or an intercurrent illness, at which stage there was often some review of medication.

Special clinics in general practice

Practices now commonly offer special clinical sessions devoted to patients with a particular health problem. Forty-three (75%) practices held such regular clinics, with, on average, three different clinics per practice. Sixty-seven per cent of non-fundholding practices and 93% of fundholders ran special clinics, usually asthmatic, diabetic, and cervical cytology clinics. Three non-fundholders ran five different clinics. Most doctors commented that these special clinics allowed a more structured review of patients on chronic medication.

Policies for repeat prescribing high cost drugs

Predictably, fundholding practices were significantly more cost-conscious than non-fundholders. Fourteen out of 15 fundholders had policies for high cost drugs, while only 20 out of 42 non-fundholders had such policies: χ^2 (with Yate's correction) = 10.76; df = 1; $P<0.005$.

Liaison with community pharmacists and nursing/ residential homes in repeat prescribing management

Eighty-four per cent (48) of practices had arrangements with pharmacists to assist in repeat prescribing. Most commonly, the pharmacist regularly collected repeat prescription forms from the practice for the elderly and infirm and delivered the medicine(s) to the patients. In two remote areas, repeat prescriptions were initially faxed to the pharmacist.

Ninety-eight per cent of practices (56) prescribed for patients in residential or nursing homes, of whom 54 had an arrangement for repeat prescribing (usually a calendar request for all repeat prescriptions), but in four practices the doctors signed the drug Kardex at the home.

Hospital-initiated prescribing

Eighty-nine per cent (51) of practices generally or always continued a hospital-recommended prescription, but 48 (82%) practices routinely changed it to a generic, where appropriate. Three practices sometimes continued the prescription while two practices stated that they always checked hospital prescriptions for errors and to see whether there were any therapeutically important differences between a patient's previous maintenance therapy and what had then been recommended.

Dose adjustment and termination of repeat prescriptions

Dosages would be increased by 98% of responders if the therapeutic response were inadequate, and reduced if intolerable side-effects were present, and, where appropriate, reduced and then stopped if the patient was in long remission. The same percentage would stop a repeat prescription if side-effects remained intolerable or the patient declared non-compliance; 24% would stop a prescription if abuse were suspected, but only 7% (four practices) cited 'no therapeutic response' as a reason for stopping.

Differences in repeat prescribing between fundholding and non-fundholding practices

Fundholding practices used more advanced computer software and a much higher proportion reported running special clinics and having formal practice policies for high cost drugs. Our access to Northern Ireland's prescription pricing database allowed us to confirm that these policies were translated into economic reality. Fundholders had significantly lower prescribing costs per 1000 patients (one-way ANOVA; $F = 5.3571$; $P<0.02$) and frequency ($F = 5.9943$; $P<0.018$) for all prescriptions than non-fundholders. The difference was greater than 40% in both cases. The mean cost per 1000 patients for the survey month was £10 485 for non-fundholders and £5929 for fundholders. The prescribing frequency (items per 1000 patients) for that month was 1317 for non-fundholders and 727 for fundholders.

In the 10 selected therapeutic groups (Table 4), most fundholding practices issued two months' treatment as a matter of policy. For the same drug groups, non-fundholding practices were divided almost equally between those issuing two months' supply at a time and those issuing three months' supply. The majority of practices in both groups issued only one month's supply of antidepressants and, for oral contraceptives and hormone replacement therapy, both groups tended to issue six months' supply.

Scoring repeat prescribing management

The quality of repeat prescribing management was calculated for each practice using the 26 parameters in Box 1. This is not a measure of the clinical quality of the prescribing. Figure 1 shows a wide variation in the quality of repeat prescribing management, ranging from two practices that achieved a score of 24 (maximum 26) to five practices who scored less than 12.

Fundholders form a separate population, scoring-wise, to non-fundholders, and the difference is highly significant. While fundholders are seen to manage their repeat prescribing somewhat better than non-fundholders, a mean score of 18 for fundholders and 15 for non-fundholders, out of a possible score of 26, is a matter for concern considering that the parameters used for scoring are not ideals but basic good practice.[1]

Discussion

Previous studies of repeat prescribing management have been limited in scope and design. The semi-structured questionnaire, administered to an adequate stratified population sample, is a recognized technique for investigating opinions, attitudes, and intentions, and if the sample is adequate the findings can be extrapolated to the entire community.[4] The questionnaire's weaknesses are that responders may under-report their use of practices that they know to be sub-optimal and over-report using acknowledged good practices, and that there is no way of avoiding or

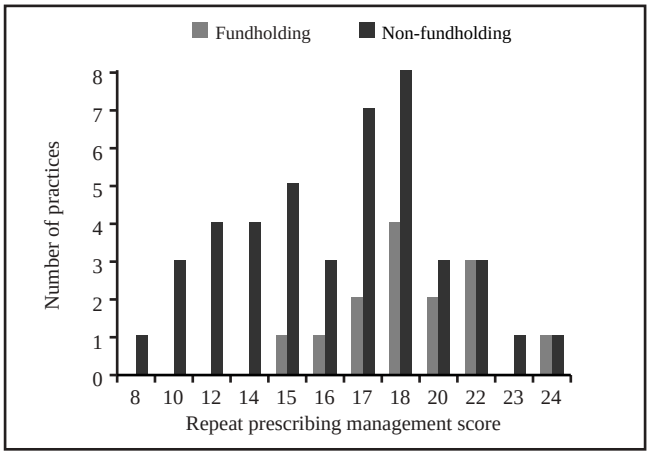

Figure 1. Repeat prescribing management (t = 3.12; df = 55; P = 0.003).

quantifying these sources of error. However, the pace of the interviews was brisk and left responders little time to contemplate individual responses. At worst, this study reports the minimal incidence of inadequate repeat prescribing management and the actual incidence for those survey items not seen by responders as judgmental. By interviewing the senior or managing partner, we hoped to obtain a true record of opinion, attitudes, and intentions.

The main finding of this study is that, in a substantial proportion of practices, repeat prescribing is poorly managed. During the issue of repeat prescriptions, mandatory checks are often omitted. The potential of computerization is often not realized. At the review consultation, the opportunities for quality assurance are often missed. Even allowing for the exigencies of general practice and remembering that responders had been asked to consider only well-stabilized patients, the mean review intervals appear excessive for cardiac patients, non-insulin-dependent diabetics, arthritis sufferers, and patients taking ulcer-healing agents.

The finding that only 30% of doctors saw the encouragement of compliance as a continuing necessity, reinforces the recommendations of a recent national working party report.[5] Our results should generate great concern among GPs and their administrators. In response to our findings we have produced repeat prescribing guidelines, suitable for most United Kingdom (UK) practices, without unduly increasing doctors' workload;[6] these fulfil the requirements of the NAO,[1] and the standard questionnaire for use at review consultations would protect doctors from both administrative and legal challenge.

It was encouraging to find that the superior practice management skills required for fundholding are translated into somewhat better repeat prescribing management, including the desirable practice of issuing no more than two months' supply of most repeat medications. Unfortunately, we cannot say whether that was the result of fundholding or whether fundholders were continuing their pre-fundholding better practice.

A scoring system can be said to be satisfactory only if it uses a sufficient number of adequately representative parameters and if it can discriminate between different groups in the scored population. On both counts, we believe the scoring system described here is valid and can be recommended for use in future studies. Unfortunately, the new scoring system demonstrated how relatively poorly most doctors managed repeat prescribing.

Conclusion

We have identified and quantified serious deficiencies in many aspects of repeat prescribing management in a large and representative sample of general practices in one UK region, and have designed guidelines that doctors might use to rectify this problem.

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Acknowledgements

We thank the 57 GPs who took part; the Central Services Agency, Belfast, for prescription pricing data; and the Department of Health and Social Services for commissioning this study.

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