Who controls repeats?

ARNOLD G ZERMANSKY

SUMMARY

Background. *The need for patients on long-term medication to be periodically reviewed is well documented, but until now there have been no large-scale systematic studies of the process of repeat prescribing.*

Aim. *To propose a model for the process and control of repeat prescribing in general practice, and to use this model to evaluate the management control and clinical control of repeat prescribing in 50 practices.*

Method. *Interviews were conducted with practice staff and the process of repeat prescribing was observed in consenting practices from 57 randomly selected practices in Leeds. A batch of repeat prescriptions was identified in each practice, and the patients' records were examined for evidence of clinical authorization and review. The records of 427 patients taking 556 drugs within three drug groups were studied. A subjective scoring system was used to assess quality of management control. Clinical control was assessed by noting the presence or absence of evidence in general practitioner records of doctor authorization of repeat status, and of clinical review of therapy for each drug.*

Results. Management control – *Many practices had inadequate controls of repeat prescribing, leading to unauthorized repeat prescriptions, poor compliance checks (or none at all), and inadequate systems, if any, for identifying patients in need of medication review, and for bringing them to prescribers' attention.* Clinical control – *66% of repeat drugs showed no evidence of authorization by a doctor; 72% showed no evidence of having been reviewed by a doctor in the previous 15 months.*

Conclusion. *Inadequate control of repeat prescribing is wasteful and potentially dangerous. Major improvement is required in the management and clinical aspects of the control of repeat prescribing in many practices. This will need changes in procedures and training, and may require more resources and the imaginative use of nurses and pharmacists.*

Keywords: repeat prescribing; prescribing analysis; management control; clinical control; authorization; reviews.

Introduction

REPEAT prescriptions are those issued without a consultation to patients on long-term treatment. They comprise at least two-thirds of all general practice prescriptions, and represent four-fifths of total prescribing drug costs — perhaps £2.4 billion a year in England.[1]

Patients change; their illnesses change; therapeutics changes. Treatment that was ideal last year may not be appropriate now. Periodic review and tight control are necessary to ensure effective treatment, minimize therapeutic misadventure and limit waste.

While the need for periodic review of patients on long-term medication has been stated several times,[2,3,4,5,6] and while there have been studies of individual practices[7,8] and individual drugs,[9,10] there has been only one other systematic study of the process of repeat prescribing,[11] and this examined only seven practices, which all used the same computer system. There is no indication of how they were selected.

A G Zermansky, MBChB, DObstRCOG, MRCGP, honorary senior research fellow, Academic Unit of General Practice, University of Leeds.
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A model of repeat prescribing

Repeat prescribing involves three tasks:

(1) Production. This is a straightforward task, usually delegated to a receptionist; it involves receiving requests and producing the prescriptions (usually on a computer). It will not be considered further in this paper.

(2) Management control. This is generally the practice manager's responsibility. It comprises four elements:

- Authorization check — ensuring that all repeats have been authorized as such by the doctor
- Compliance check — identifying patients who overuse or underuse their medication
- Review date — ensuring that every patient has a clear indicator of when therapy should be reviewed, and
- Flagging — ensuring that each patient due for review is brought to the prescriber's attention.

(3) Clinical control. This is the doctor's responsibility. It involves two tasks:

- Authorization — the decision that a repeat prescription is appropriate, the prescriber being satisfied that the drug is effective, well tolerated, and still needed.
- Periodic review — a review of the patient and the medication by the prescriber to ensure that the treatment is still effective, appropriate and well tolerated. The prescriber makes an informed decision as to whether medication should be continued, changed or stopped. A model for the process has been suggested by West Sussex Family Health Services Authority.[12] It must involve either a consultation or some communication with the patient, since without this any evaluation of the effects of the drug can only be speculative.

Method

Practices were selected randomly (by drawing their names from a cup containing the names of all 130 practices in Leeds), consecutively approaching them until 50 (88% of the 57 approached) had agreed to participate.

To evaluate *management control,* I spent a morning in each practice, first observing the production and control of repeat prescriptions and then conducting a semi-structured interview with the practice manager or senior receptionist, recording details of the practice and its control of repeats. This enabled me to form a view of the quality of management control in the four areas outlined above, and to give each practice a score of between 0 and 3 in each area. This subjective method was used because the diversity of mechanisms and systems in use, and the varying extent of compliance with practices' stated policies, meant that a more objective scoring system was not possible.

To evaluate *clinical control,* I examined the prescriptions awaiting collection or signature (up to a maximum of 30) and identified patients taking one or more drugs in the following

three therapeutic groups. All three groups are commonly prescribed, and the particular reasons why treatment with each should be reviewed at intervals are stated.

- Ulcer-healing drugs (British National Formulary (BNF) Section 1.3) — these are fairly safe and well-tolerated drugs, but they are expensive.[13]
- Hypnotics and anxiolytics (BNF Section 4.1) — these are inexpensive but potentially habituating, and are not now recommended for long-term treatment.[13]
- Non-steroidal anti-inflammatory drugs (BNF Section 10.1) — these have a high prevalence of adverse effects and interactions. Adverse effects relate to duration of treatment.[14,15,16,17]

I examined each patient's file (including computer files) for evidence of authorization and the most recent review. There is no literature on which to base a recommended review interval for these drugs, but I took the view that it is good practice to review, at least annually, those patients who are taking them. However, patients recalled for review may not turn up immediately. The process of identifying them, telling them to make an appointment, perhaps reminding them, and their actual attendance can take a month or two. I therefore allowed three months' grace and used 15 months (actually 456 days) as the cut-off point for 'annual' reviews.

I accepted as evidence for a review any indication in the general practice records that the prescriber had considered the continuing need for the drug in question. This might be as little as 'OK on Brufen' or 'continue cimetidine'. I also accepted any review reported in a hospital letter.

Results

Management control

The total scores for each practice are illustrated in Figure 1. The aggregate scores in each area of control are shown in Table 1.

Authorization check. There were five practices in which receptionists added drugs to patients' repeat files purely on the basis that they had been prescribed before, and three in which hospital-initiated drugs were added without a doctor's authorization. In a futher seven practices there was no clear mechanism for authorization before entering drugs on the repeat file. (While all prescriptions would have to be signed by a doctor, it was clear that in these practices there was little or no consideration of the validity of the prescription before signing.)

Compliance check. This was the area in which fewest practices performed well. This often reflected the shortcomings of computer systems, which do not all give warnings of early or late requests. Some systems give dates of previous prescriptions; one gives a percentage score which is often not understood by receptionists. Only one computer system calculated the interval between previous repeats in days, though this did not appear on the screen but was printed on the right-hand side of the prescription form for the prescriber. Frequent instances were observed in which compliance information was not being passed on to the prescriber, and in some cases receptionists were even overriding on-screen warnings.

Review dates. To identify patients due for review, there should be either a review date for each patient or a limit on the number of issues authorized for each drug. Thirteen practices (26%) used review dates, including two that also used number of issues. Thirty practices (60%) used number of issues only. Seven (14%) did not use any review indicator, and in some that claimed to do so the sampled patients did not actually have reviews. Some receptionists renewed review dates without any review of the patient or records.

Flagging. Not all computer systems print overdue reviews on the right-hand side of the prescription, and it usually falls to the receptionists to flag the review to the doctor, usually by attaching a note to the prescription. The subjective scores reflect the consistency with which the flagging process was observed.

Hospital prescription changes. All but seven practices claimed to have a procedure for altering the repeat prescription file of patients discharged from hospital. The majority (29, or 58%) allowed changes by the receptionist after the doctor's approval, while in 12 (24%) the doctor altered the file. The practice nurse was responsible in one practice. Three practices admitted that receptionists changed medication automatically without doctors' involvement. In several other practices the degree of doctor involvement appeared cursory.

Table 1. Management control of repeats.

	Number of practices scoring:			
$n = 50$	0	1	2	3
Authorization	5	7	6	32
Compliance check	8	13	13	16
Valid review date*	14	2	3	31
Flagging	14	3	4	29

* or number of issues left.

Clinical control

Initiation. The records of 427 patients who were taking 556 drugs in the three groups were studied. The initiator of drugs is shown in Table 2.

Forty-four per cent of ulcer-healing drugs are initiated by a hospital doctor, confirming the frequently expressed view of general practitioners (GPs) that this is the case, though not neces-

Table 2. Initiator of treatment.

	Ulcer-healing drugs		Hypnotics and anxiolytics		NSAIDs		Totals	
Who initiated	Number	%	Number	%	Number	%	Number	%
General practitioner	63	41	139	72	154	74	356	64
Hospital doctor	68	44	19	10	35	17	122	22
Not recorded	18	12	33	17	14	7	65	12
Records missing	5	3	3	1	5	2	13	2
Total	154	100	194	100	208	100	556	100

sarily justifying the argument (also frequently expressed) that GPs have no control over the use of these drugs. Out of the 68 hospital-initiated prescriptions for ulcer-healing drugs, there were 20 patients for whom there was no indication (even in hospital letters) why the drug was started, nor even a diagnosis that might explain it: the GP had authorized a repeat regimen without recording (and perhaps without knowing) the reason for the drug. Eleven had been on the drug for more than a year — three of them for more than five years.

Authorization. In 311 (56%) of 556 prescriptions there was no evidence in the records of a clinical decision to confer repeat prescription status for the drug.

The initiation of the drug was recorded, but there was no subsequent evaluation of the efficacy, acceptability or need to continue treatment before conferring repeat status. There are significant differences between the drug groups in the percentage showing evidence of authorization. Drugs initiated by a hospital doctor were more likely to show evidence of authorization (Table 4).

Review. The number of reviews in the 15 months before the practice visit are shown in Table 5. (Although 556 drug items were studied, only those which had been taken for more than 15 months would have needed review; there were 401 such items.)

Practices in the percentage reviewed within 15 months were examined for a number of attributes, including size, whether or not they were fundholding, whether they were training or non-training practices, whether they had a prescribing protocol, and

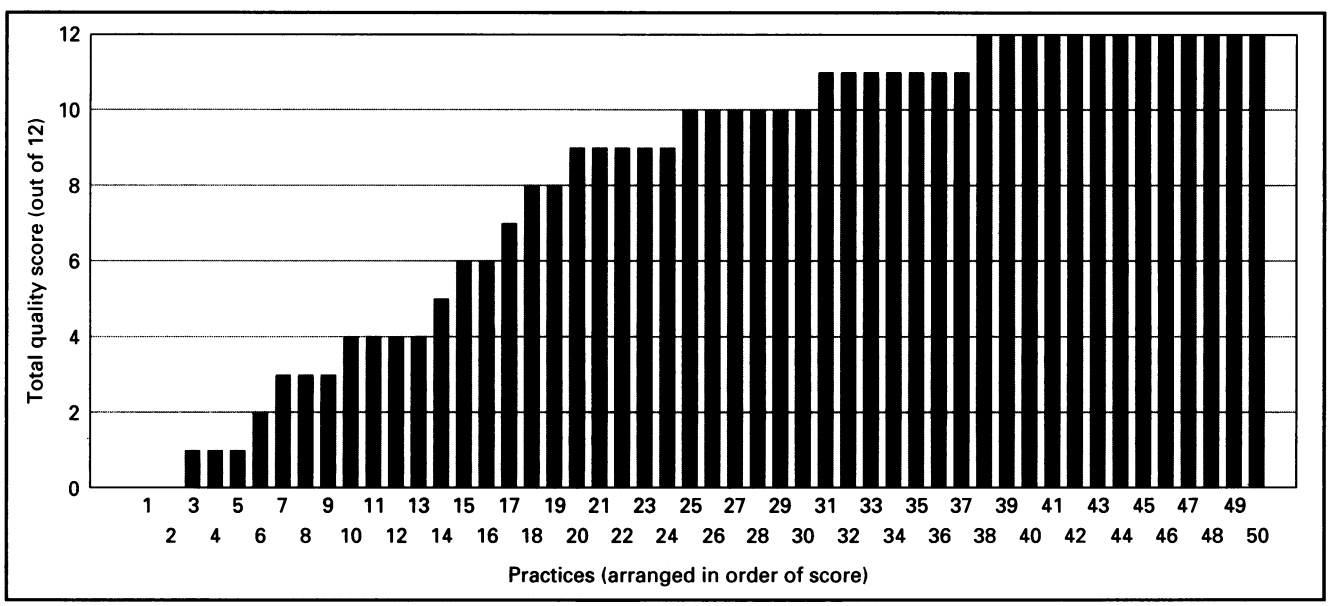

Figure 1. Management control quality scores by individual practice.

Table 3. Evidence of authorization as repeats.

Evidence of authorization?	Ulcer-healing drugs		Hypnotics and anxiolytics		NSAIDs		Totals	
	Number	%	Number	%	Number	%	Number	%
Yes	73	47	65	34	107	51	245	44
No	81	53	129	66	101	49	311	56
Total	154	100	194	100	208	100	556	100

Chi-square test: $P<0.001$.

Table 4. Authorization by initiator.

Evidence of authorization?	Prescription initiated by:				
	Hospital doctor	GP	Not recorded	Records missing	Total
Yes	76	156	12	1	245
No	46	200	53	12	311
Total	122	356	65	13	556

Chi-square test: $P<0.0001$.

Table 5. Drugs reviewed in the 15 months before practice visit.

Drugs reviewed in 15 months	Ulcer-healing drugs		Hypnotics and anxiolytics		NSAIDs		Totals	
	Number	%	Number	%	Number	%	Number	%
Reviewed	29	32	33	20	52	36	114	28
Not reviewed	63	68	131	80	93	64	287	72
Total	92	100	164	100	145	100	401	100

Chi-square test: $P<0.001$.

Table 6. Drugs reviewed by training and non-training practices.

Drugs reviewed in 15 months?	Training practice		Non-training practice		Total	
	Number	%	Number	%	Number	%
Reviewed	24	40	90	28	114	28
Not reviewed	36	60	251	72	287	72
Total	60	100	341	100	401	100

Chi-square test: $P<0.031$.

their level of deprivation. The only practice attribute showing a statistically significant difference in the percentage reviewed was whether the practice was a training practice (Table 6). Stretching the review interval to 2 years only increased the percentage of drugs reviewed from 28% to 34%.

Discussion

Management control

Although the extent and quality of management control of repeats varied greatly between practices, more than half of the practices scored well, demonstrating that good control can be achieved. The preparation of repeat prescriptions for drugs for which repeat status has not been authorized puts patients at risk, and it is a matter of concern that this should have occurred in nearly a third of the practices studied. Practice protocols and receptionist training should ensure that only authorized medication can be repeated.

Poor compliance scores reflect in part the shortcomings of some computer systems, and in part inadequate receptionist performance, training or supervision. Computers should warn receptionists of early or late requests with a message that has to be overridden. There should be a report of the intervals, in days, between prescriptions. Dates of previous repeats require receptionists to work out the intervals — an unrealistic expectation.

Whatever the system, it is vital that receptionist training explains the importance of compliance and how to check for it. A compliance report printed on the right-hand side of the prescription has the advantage of being visible to the signing doctor without the need for the receptionist to attach a note to it. Few computer systems can produce one.

Every practice should have a method of identifying patients whose medication is due for review. Seven practices did not use a review indicator; patients in these practices have no effective limit on the number of repeats allowed — perhaps the most alarming finding of this study. Reviews flagged by limiting the number of issues of individual drugs are cumbersome because different drugs are used at different rates and become out of step, thus duplicating review dates. It is preferable to use a single review date, printed on the right-hand side of the prescription, and to review the complete repeat regimen at one consultation. However, a cumbersome review system is infinitely better than no system at all.

Automatic recall of the patient can be inefficient, since many patients whose review date comes up have been seen in the interval by a doctor or nurse. These patients may not need a review, but merely a new review date. Computer systems should prompt the prescriber to review medication during consultation, and record it.

Clinical control

In more than half (56%) of the prescriptions studied there was no evidence of a doctor taking a clear decision that the drug should be continued in the long term. Hospital-initiated drugs seem particularly prone to be added without clinical appraisal. Formal authorization of repeat prescriptions is not standard behaviour among GPs. Although the need for it has been proposed by the Audit Commission,[6] no mechanism for ensuring such authorization has been described. If computer systems allowed drugs to have an intermediate status of 'provisional repeat drugs', unauthorized drugs would be readily identifiable. None of the current systems seem to have this facility. Regardless of computer facilities, the discipline of clinical authorization needs to be adopted by prescribers. I hope this paper will encourage it.

For most repeat prescriptions (72%) there was no evidence of a periodic review in the past 15 months. (The prevalence of unreviewed hypnotic and anxiolytic prescriptions is particularly high at 80%.) The statistics are hardly better (66%) if the criterion is broadened to 2 years. Many patients take tablets for years without any recorded clinical re-evaluation. This is the stark conclusion of this study.

The variation in the frequency of review between different types of practice is insufficient to be of practical significance. Training practices can draw little comfort from the fact that they review 40% of prescriptions compared with 26% for non-training practices. Some individual practices performed well, indicating

that it is possible to organize a safe and efficient repeat review system.

General practitioner records are often telegraphic, but most doctors record most important transactions. It is possible that more reviews take place than are recorded, but the fact that only three practices (6%) had reviewed all the sampled repeats in a two-year period, and that only 12 (24%) had reviewed the majority of them, suggests that review was failing to happen, not merely failing to be recorded.

My impression from reading many records (though I could not quantify it) is that reviews tend to focus on drugs being taken for the condition for which the patient is seen. Conditions not presented at the time are often ignored. Given the nature of general practice workload, this is not surprising. It is not uncommon for a patient to be taking as many as six drugs. To explore efficacy, appropriateness, adverse effects, interactions, value for money, compliance, and the patient's understanding of the treatment[12] in a 10-minute consultation is a tall order. To tag it onto the end of a seven-minute consultation about something else is impractical.

Regular medication review requires either longer or additional consultations, and has major workload implications. At a conservative estimate, the average general practitioner has 300 patients taking regular repeats. Since about a third of items are reviewed already, the doctor would have to offer 200 more consultations to review all medication annually; this represents an extra week's work each year per doctor. Reviewing repeats is an expensive task.

Could it be delegated? Pharmacists' training gives them a knowledge of drugs, but not necessarily the clinical skills to review medication. Community pharmacists often have good relationships with patients, but their reliance on dispensing fees and their often competitive relationship with each other would create difficulties in attachment to a local practice. A pharmacist with hospital clinical experience might be attached to a practice and conduct reviews with patients, though this would be treading new ground and would need careful evaluation.

Practice nurses have little training in therapeutics, their current involvement generally being limited to asthma, diabetes and vaccines. Much of their education is organized by the pharmaceutical industry and is seldom directed towards critical appraisal of medication. Nonetheless, with appropriate training and guidelines they could take on much of the work involved in reviewing medication.

Could patients review their own medication? Many patients with asthma and diabetes are knowledgeable about their condition and adjust their own treatment. With suitable instruction they might be relied upon. Unfortunately, many lack both the knowledge and the critical faculty to make valid therapeutic judgments.

The prescriber is responsible for the prescription. Reviewing medication is therefore the GP's responsibility, though it is important that the workload entailed is recognized in the resourcing of general practice.

Conclusion

Practices are good at producing prompt, accurate repeat prescriptions, but management control varies a great deal and is sometimes totally lacking. Some failures of control can be blamed on the shortcomings of computer systems and should be addressed in the requirements for accreditation, but users are more in need of remedial change than the systems themselves. Better training and supervision of reception staff are essential.

The most disturbing shortcoming of repeat prescribing lies firmly in the doctor's domain. Much repeat prescribing seems not to be under adequate medical control. This is wasteful, inefficient and potentially dangerous. It should be remedied. While primarily a task for individual practices, the educational and logistic implications have a national and even political dimension.

References

1. National Audit Office, Comptroller and Auditor General. *Repeat prescribing by general medical practitioners in England.* No. 897. London: HMSO, 1993.
2. Consumers' association repeat prescribing – is it necessary and can it be safe? *Drug Ther Bull* 1986; **24:** 54-56.
3. Bolden KJ. Repeat prescription systems [Letter]. *J R Coll Gen Pract* 1980; **30:** 378.
4. Drury VWM. Safe practice in repeat prescribing. *Practitioner* 1990; **234:** 127-128.
5. Goodricke I. A new approach to easing the burden of repeats. *Prescriber* 1995; **6:** 31-33.
6. The Audit Commission. *A prescription for improvement. Towards more rational prescribing in general practice.* London: HMSO, 1994.
7. Madeley J. Repeat prescribing via the receptionist in a group practice. *J R Coll Gen Pract* 1974; **24:** 425-431.
8. Parker EJC and Schrieber V. Repeat prescribing – a study in one practice. *J R Coll Gen Pract* 1980; **30:** 603-606.
9. Ryder SD, O'Reilly S, Miller RJ, *et al.* Long-term acid suppressing treatment in general practice. *BMJ* 1994; **308:** 827-830.
10. Steele K, Mills KA, Gilliland AEW, *et al.* Repeat prescribing of non-steroidal anti-inflammatory drugs excluding aspirin: how careful are we? *BMJ* 1987; **295:** 962-964.
11. Purves I, Kennedy J. The quality of general practice repeat prescribing. Sowerby Unit For Primary Care Informatics, University of Newcastle.
12. West Sussex FHSA. Ten points to cover during a review of a patient receiving a repeat prescription. In: The Audit Commission. *A prescription for improvement. Towards more rational prescribing in general practice.* London: HMSO, 1994.
13. British Medical Association and Royal Pharmaceutical Society of Great Britain. *British National Formulary.* No. 29 (March 1995). London: BMA/RPSGB, 1995.
14. Gabriel SE, Jaakaminen L, Bombadier C. Risk of serious gastrointestinal complications related to the use of non-steroidal anti-inflammatory drugs. *Ann Intern Med* 1991; **115:** 787-796.
15. Garcia Rodriguez LA, Jick H. Risk of upper gastrointestinal bleeding and perforation associated with individual non-steroidal anti-inflammatory drugs. *Lancet* 1994; **343:** 769-772.
16. Langman MJS, Weil J, Wainwright P, *et al.* Risks of bleeding peptic ulcer with individual non-steroidal anti-inflammatory drugs. *Lancet* 1994; **343:** 1075-1078.
17. Laporte J-R, Carne X, Vidal X, *et al.* Upper gastrointestinal bleeding in relation to previous use of analgesics and non-steroidal anti-inflammatory drugs. *Lancet* 1991; **337:** 85-89.

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Address for correspondence

Dr A G Zermansky, Dib Lane Practice, 112a Dib Lane, Leeds LS8 3AY.