PRACTICE OBSERVED

Practice Research

Information systems for general practitioners for quality assessment: III Suggested new prescribing profile

ROBIN C FRASER, JULIE T L GOSLING

Abstract

The information that is supplied to general practitioners by the Prescription Pricing Authority and family practitioner committees has severe limitations if used for self audit of prescribing. We studied the demand for and the extent to which general practitioners would collaborate in developing a system for providing more pertinent information about patterns of personal and practice prescribing.

One hundred and eighty two doctors (36% of respondents to a questionnaire) who wished to learn more about their repeat prescribing were invited to help to generate this information and to create profiles of their personal prescribing rates based on a denominator of doctor-patient contacts. Nearly all of them translated intention into participation and also recruited 28 more doctors, since all partners in a practice had to take part. Overall, 202 doctors (40%) took part, 83% of whom participated in the combined study of repeat prescribing and rate of prescribing and 17% in the repeat prescribing exercise only. The examples of the new profiles that are provided show a more accurate representation of personal and practice prescribing patterns, differentiate between face to face contacts and repeat prescriptions, and are likely to stimulate improvements in personal or practice prescribing. We believe that this system should be offered to all practices in the United Kingdom.

General Practice Unit, Department of Community Health, University of Leicester

ROBIN C FRASER, MD, FRCGP, professor of general practice
JULIE T L GOSLING, DMS (CNAA), research assistant

Correspondence to: Professor Robin C Fraser, General Practice Unit, Clinical Sciences Building, Leicester Royal Infirmary, PO Box 65, Leicester LE2 7LX.

Introduction

Although British general practitioners prescribe less frequently than most of their counterparts on the Continent, they are constantly encouraged to prescribe more economically and more rationally.[1] To achieve these goals "future progress will be heavily dependent upon the continuous supply of good data on the prescribing habits of individual doctors and practices because clinical performance review is successful only if doctors have details of their own prescribing patterns and costs readily available to them."[2] Changes in some of the prescribing habits of doctors occurred when they were provided with feedback and with opportunities for discussion with their colleagues.[3] Within two years, however, doctors had mostly reverted to their previous pattern of prescribing, and it was thought that "a more sustained intervention is needed to bring about more lasting change."[4]

Since 1956 all British general practitioners have received annual extracts from the periodic report of the Prescription Pricing Authority (or equivalent bodies outside England[5]) distributed through the relevant family practitioner committee (or equivalent bodies outside England). The prescribing database consists of all prescriptions issued and dispensed in a family practitioner committee area during a sample month. These extracts (PD2[6]) essentially give details of the total number and unit costs of prescriptions issued by individual general practitioners and compare them with partnership, family practitioner committee area, and national averages. Estimates of the prescribing rates of individual doctors are also included, using the number of patients on the practice list as a denominator. More detailed reports that itemise every prescription (PD8) can be provided on request. The system was primarily developed as a means of cost control, but it might also be used for performance review.

There are, however, critical limitations in the data from the Prescription Pricing Authority if used in self audit. These create difficulties for doctors who wish to assess their own prescribing frequency and costs. It is not possible to distinguish between repeat prescriptions and those issued by individual doctors in face to face contact with patients. Furthermore, the system cannot identify the proportion of doctor-patient contacts in which no prescription is issued, which is vital in assessing personal prescribing habits. It may also be difficult to interpret accurately the data on the prescribing habits of individual doctors who practise in partnership and in practices that have trainees or locums because of multiple use of personalised prescribing pads.

Thus we decided to investigate the development of a scheme to provide general practitioners with more pertinent information to help them to assess their personal and practice prescribing. Since the doctors would need to contribute to the data collection we also wished to find out how willing they would be to collaborate. Lastly, we wanted to gauge how many doctors might not participate when stated intentions in the questionnaire needed to be translated into action.

TABLE I—*Face to face prescribing profile*

Source of prescription	Prescribing frequency (%)	Average cost per prescription (£)	No of items per prescription	Average cost per item (£)
Your practice:				
Dr A	92	5·9	1·6	3·6
Dr B	76	7·9	2·0	4·0
Dr C	71	3·9	1·5	2·6
Dr D	69	6·5	1·8	3·6
Dr E	56	5·0	1·5	3·5
Dr F	55	4·1	1·4	2·9
Others	48	4·1	1·4	2·8
Practice average	67	5·5	1·6	3·4
Participating practices in Leicestershire				
Individual doctors				
Average	66	5·3	1·5	3·5
Range	40-97	2·4-16·7	1·0-4·46	2·1-6·1
Practice				
Average	66	5·3	1·5	3·5
Range	40-87	1·9-8·3	1·2-2·2	2·5-4·9

Method

A questionnaire was sent to all 669 general practitioner principals in Leicestershire and Lincolnshire, and 508 (76%) were returned. Details of the method have been reported.[7] Doctors who wished to learn more about their repeat prescribing were invited to participate in a study of their prescribing of one month's duration (November 1982). All doctors in a practice had to participate. With full cooperation from the Prescription Pricing Authority and the respective family practitioner committees participating practices were issued with prescription pads stamped with a large R. The doctors agreed to use these for all repeat prescriptions issued during the study and to adhere scrupulously to the use of their own personally stamped prescription pads for prescriptions issued during consultations and visits. The Prescription Pricing Authority kindly agreed to sort all prescriptions by signatory as an added safeguard and to separate prescriptions issued by trainees and locums. Doctors who required feedback on their face to face prescribing rates provided us with individual and practice counts of all their consultations and visits during the month of the study. Written instructions and tally sheets were issued to all participating practices. A repeat prescription was defined as a prescription for one or more items of repeat medication issued without a face to face consultation between a doctor and a patient.

Data for individual doctors and practices, separated into repeat and face to face prescribing, were returned by the Prescription Pricing Authority to the general practice unit where further manipulations of data were carried out. All participating practices were subsequently issued with detailed profiles of their prescribing and PD8 analyses. Full confidentiality was maintained, and no individual or practice data could be recognised by another individual or practice.

TABLE II—*Repeat prescribing profile*

Source of prescription	No of prescriptions issued	Annual prescribing frequency per 100 practice patients	Average gross cost per prescription (£)	Average No of items per prescription	Average gross cost per item (£)
Your practice	1695	161	8·15	1·95	4·20
Participating practices in Leicestershire					
Average		122	8·50	1·70	4·71
Range		17-234	5·60-10·80	1·17-2·13	2·69-7·34

TABLE III—*Practice prescribing profile of face to face and repeat prescriptions*

Source and type of prescription	No (%) of prescriptions issued	Average cost per prescription (£)	Average No of items	Average cost per item (£)
Your practice				
Face to face	2521 (59·8)	5·53	1·62	3·40
Repeat	1695 (40·2)	8·15	1·95	4·20
Total	4216 (100)	6·58	1·75	3·80
Participating practices in Leicestershire				
Face to face and repeat				
Average		6·20	1·60	3·92
Range		4·60-8·90	1·20-2·20	2·61-5·31

TABLE IV—*Practice repeat prescriptions* as a proportion of all prescriptions*

Source of prescription	Prescriptions issued (%)	Prescription costs (%)	Items issued (%)	Item cost (%)
Your practice	40	44	45	55
Participating practices in Leicestershire				
Average	36	44	39	57
Range	10-57	8-68	5-57	46-66

*Those issued on specially marked prescription pads provided for the study.

Results

One hundred and eighty two (36% of respondents) were invited to participate in the prescribing study. Only eight (4%) doctors who had intended to take part did not do so. The other participants persuaded a further 28 of their partners to join in—a net gain of 20—since all members of the practice had to take part. A total of 56 practices participated (34 (27%) in Leicestershire and 22 (22%) in Lincolnshire), representing 24% of all practices in those counties. Two fifths of all respondents took part, and of those, 83% (167 of 202) collected details of their contacts with patients throughout the month of the study.

Tables I-IV show some of the new prescribing profiles that were constructed and circulated to the participating practices. The figures relate to the same Leicestershire group practice throughout. Comparative data for Lincolnshire were provided for Lincolnshire practices. Prescribing frequencies (see table I) for the 167 doctors who monitored their doctor-patient contacts throughout the study period were calculated as follows: prescribing frequency = No of face to face prescriptions dispensed/No of doctor-patient contacts for that doctor. For the 35 other doctors the denominator used was patient list size.

Discussion

Before judging the extent to which doctors might be prepared to contribute to and participate in the system of prescribing feedback several factors need to be considered. The 182 doctors who had been invited to participate in the prescribing exercise had been indentified from their stated wishes in the questionnaire "to receive a breakdown of the number of (their) repeat prescriptions." Their only commitment then was to use specially marked prescription pads, which inferred a follow up practical exercise, but this was not stated in the questionnaire. The prescribing profiles that were circulated to the participating doctors gave a more interesting and useful insight into patterns of personal and practice prescribing than had originally been on offer. We believe that more doctors would have participated if they had been aware of this.

Nevertheless, 36% of respondents volunteered to participate and not only was their "fall out rate" negligible (4%) but they persuaded a further 28 of their partners to join in. We expect that "peer persuasion" will be increasingly important in carrying out audit activities in the future. The doctors who participated (40% of all respondents) seemed to be attracted by the offer of more useful data on their personal prescribing rates being supplied since 83% were prepared to undertake more recording to enable the necessary calculations to be made.

We believe that we have identified a receptive and highly motivated minority of doctors who seem to value this approach to prescribing self audit. Because of the general increase in interest in prescribing in general practice that has occurred since our data were gathered it is likely that most doctors would now be prepared to participate.[7]

Our study was concerned with providing useful feedback on prescribing patterns for performance review and not with doctors' prescribing habits, and so we do not comment in detail on that information. Tables I-IV, however, show large variations in all categories of prescribing activity, not only among doctors in the same practice but also among practices. These variations therefore demand critical review, particularly when most of the data come from training practices because the differences might be even greater in non-training practices.[8] Thus ways need to be found to encourage more doctors to review their prescribing.

The advantages of this system are:

(1) In assessing prescribing patterns a distinction can be made between repeat and face to face prescriptions. This is important for accountability since repeat prescriptions are usually a collective responsibility of the practice, whereas face to face prescriptions usually reflect the personal decisions of a doctor.

(2) The information more accurately represents personal prescribing patterns of doctors. Thus the feedback would be of more relevance to an individual doctor and more likely to induce change.

(3) The information has a high potential of identifying possible problem areas in personal or practice prescribing, thus helping to pinpoint the reasons for discrepancies between personal or practice data and the figures for local colleagues. Consequently, it is more likely that review will be carried out.

Table I shows, for example, that Dr A can readily determine that he has a high prescribing rate (92%), compared with the practice (67%) and averages for Leicestershire (66%). But his prescribing costs and items per prescription are close to average. Thus Dr A should concentrate on reviewing the reasons for issuing so many prescriptions. Once the decision to issue a prescription has been taken his prescribing pattern then becomes similar to practice and area averages.

On the other hand, Dr B can deduce that he has a higher prescribing rate, as well as substantially higher than average prescribing costs and numbers of items per prescription. He should review his initial decisions to issue the prescription, consider using cheaper but equally effective drugs, and scrutinise the number of items ordered.

The information may be used for self audit and for peer audit in singlehanded practices or among several practices. For example, Dr E and Dr F may be asked to justify their below average prescribing rates, and Dr C may be able to explain how he can keep prescribing costs low. Individual and practice prescribing habits can be assessed from time to time with the long term feedback supplied from the Prescription Pricing Authority and the family practitioner committee. The methods of using the information contained in tables II-IV, which are concerned with practice data rather than individual data, are essentially the same as described.

Although numerical data will not provide all the answers, they are a starting point for identifying areas of concern. The crucial test of the effectiveness of this form of prescribing audit is evaluating how the data can be used to change doctors' behaviour and lead to improved standards of patient care and not merely generate information.

We recommend the following:

(1) Specially marked prescription pads for repeat prescriptions only should be available to all practices that wish to use them.

(2) Practitioners who wish to receive valid feedback on their personal prescribing should use only their personalised prescription pads.

(3) Special prescription pads should be introduced for individual trainee general practitioners so that they may receive accurate feedback on their prescribing, helping to inculcate prescribing review as a lifetime habit.

(4) Feedback on the frequency of face to face prescribing based on a denominator of the number of patients seen should be available to all practices whose doctors wish to provide the necessary information.

References

1 Turner P. Local formularies and good patient care. *Br Med J* 1984;288:348
2 Irvine DH. *The profession's approach to responsible prescribing. Quality in practice.* Bulletin 13. London: Royal College of General Practitioners, 1985
3 Harris GM, Jarman B, Woodman E, *et al. Prescribing—a suitable case for treatment.* London: Royal College of General Practitioners, 1984. (Occasional paper 24.)
4 Harris GM, Fry J, Jarman B, *et al.* Prescribing—a case for prolonged treatment. *J R Coll Gen Pract* 1985;35:284-7.
5 Fraser RC, Gosling TTL. Information systems for general practitioners for quality assessment: I Responses of the doctors. *Br Med J* 1985;291:1473-6.
6 Baker R. Comparison of standards in training and non-training practices. *J R Coll Gen Pract* 1985;35:150-2.

(*Accepted 21 October 1985*)

This is the last of three papers.

100 YEARS AGO

On Sunday, November 29th, a mad dog ran about the streets of a French village, and bit six people, including a police-sergeant. The preliminary precautions were taken, and the six patients were conveyed to M. Pasteur's laboratory. There are sixty-two people now under M. Pasteur's treatment; they have travelled from all parts of the world after reading his communication to the Academie des Sciences. We are authorised to state that M. Pasteur will receive for treatment anyone who has been bitten by a mad dog, and is in danger of being seized by hydrophobia. (*British Medical Journal* 1885;ii:1124.)

Audit Reports

Thiazide treatment in elderly patients: the metabolic cost

The metabolic consequences of thiazide treatment are well documented in certain populations. The elderly, who commonly receive these agents,[1] may be particularly at risk because of the failure of homoeostatic mechanisms, poor diet, and the concurrence of other diseases.[2] The recent interest in treating hypertension in elderly patients is likely to increase thiazide usage, making it imperative to define the long term metabolic cost, particularly as the benefits of treatment are less certain in these patients.

To measure this risk we studied the elderly population of a Somerset village. Of the 345 (17%) people aged 65 and over, 54 were on chronic thiazide treatment (bendrofluazide 2·5 mg plus potassium 7·7 mmol). Forty seven patients participated (33 with hypertension, 14 with heart failure) and were matched for age and sex with healthy normotensive control patients who were not ill and were taking no medication. Two patients were excluded from analysis; one was diabetic and the other was taking a cation-retaining diuretic. None of the remaining 45 patients had diseases that were likely to affect their metabolic status: 20 were taking thiazides alone; others were receiving β blockers (13), α methyldopa (15), digoxin (3), and calcium antagonists (3). Potassium and magnesium are predominantly intracellular cations, therefore both plasma and erythrocyte cation content were measured. The mean plasma potassium concentration was significantly lower in the patients taking thiazides (3·94 mmol/(mEq)/l) compared with the controls (4·22 mmol/l) ($p=0·03$). The 32 patients who were not taking β blockers had the lowest concentration (3·82 mmol/l) ($p=0·0005$). The plasma magnesium concentration was similarly reduced in the patients taking thiazides (0·69 mmol/l) compared with the controls (0·77 mmol/l) ($p=<0·0001$). Both erythrocyte potassium and magnesium concentrations were significantly reduced in the patients taking thiazides, suggesting true depletion rather than redistribution. Overall, 28% of the patients taking thiazides were hypokalaemic, and 48% were hypomagnesaemic. This metabolic cost should be considered carefully before such agents are used. We thank the Bath Medical Research Trust for financial support and Mrs Barbara Stentaford for secretarial assistance.—MICHAEL PETRI, senior registrar, RICHARD BRYANT, general practitioner trainee, and PETER CUMBER, senior house officer, Department of Geriatric Medicine, St Martin's Hospital, Bath, and The Surgery, Coleford. (Correspondence to Dr M Petri, Poole General Hospital, Poole, Dorset.) (*Accepted 30 October 1985*)

1 Williamson J. Prescribing problems in the elderly. *Practitioner* 1978;220:749-55.
2 Macleod CC. Nutrition of the elderly at home: III. Intake of minerals. *Age Ageing* 1975;4:49-57.

Measles immunisation

In our suburban practice of five partners and 12 864 patients the records of all the children who were born between 1 January 1977 and 31 December 1983 were examined for evidence of measles immunisation and infection. Of a total of 817 children, 128 (16%) had not been immunised. Thirteen (2%) of these non-immunised children had had confirmed measles infection after the age of 2 years and were not considered further, leaving 115 (14%) children who needed to be immunised.

These children were discussed at meetings of the practice health visitors, treatment room nurses, and general practitioners to decide on who was the most appropriate member of the team to contact each child's parents. All members of the team agreed to use the recommendations contained in the 1984 edition of the Department of Health's memorandum *Immunisation Against Infectious Disease*.[1] Although most parents (60%) said that they had been advised against having their child immunised in the past, not one of these 115 children had a valid DHSS contraindication. As a result of a campaign and approaching parents personally 96 (12%) further children were immunised and the measles immunisation rate in the practice for children born over the seven years increased from 84% to 96%.

This is the highest rate published from a British general practice. Previously the best figure reported was 90% by Ross in Glasgow for children born between 1975 and 1980.[2] This exercise suggests that even though many parents have decided not to have their children immunised against measles in the past most are prepared to reconsider and consent when encouraged to do so by a known member of the primary health care team. If this rate of measles immunisation or something close to it could be reproduced nationally then Britain might become free of measles.—PATRICK ANDERSON, general practitioner, Balmore Park Surgery, 59A Hermdean Road, Caversham, Reading RG4 7SS. (*Accepted 30 October 1985*)

1 Joint Committee on Vaccination and Immunisation. *Immunisation against infectious disease.* London: Department of Health and Social Security, 1984
2 Ross SR. Childhood immunisation-prophylaxis: achievements in a Glasgow practice. *Health Bull* 1983;41:253-7.