An audit of prescribing by peer review

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SUMMARY. This study describes how a group of general practitioners were made aware of their own prescribing habits. This was done by analysing carbon copies of prescriptions and reporting the analysis to a meeting of the doctors. The effects of this knowledge on subsequent prescribing were monitored.

Introduction

THERE is growing evidence that doctors who work in groups feel the need to become better informed about what is happening in their practice (Birmingham Research Unit RCGP, 1977). Problems about sharing of information and compatibility of methods are likely to arise as soon as patients are no longer the responsibility of the single-handed doctor. More generally, the management of resources such as prescriptions, appointments and visits becomes a complex task as practices grow in size. A method of stocktaking becomes desirable and this in turn should be followed by policy decisions which are adopted by the group.

In the USA the need for stricter economy in the spending of public money is given as justification for monitoring physician services in the 'Medicare' and 'Medicaid' programmes. Sanazaro (1974) suggests that economy rather than safety has prompted the sampling of prescriptions in the UK. A feature of the British system which is similar to the monitoring of the 'Medicare' programme is that the audit is conducted by an outside body which can carry with it the threat of censure. The inherent disadvantages of this external 'threat' are recognized by Williams (1974) in the report of a working party on medical audit when he says, "Any system (of audit) must have the confidence of the doctors in active practice, must avoid the legal pitfalls of allegations of negligence, and avoid too the dangers of defensive medicine".

Mourin (1976), in a summary of audit in general practice, describes aspects of workload and clinical behaviour which might be studied and gives appropriate methods for doing so. Seidelman (1977) describes examples of "voluntary review" and evaluates where such reviews might be applicable in family practice. Deaths in general practice (Ashton *et al.*, 1976), booking of cases in a general-practice obstetric unit (Aylett, 1977) and the use of doctors' time (Floyd and Livesey, 1975) are examples of audit carried out by the practitioners themselves. Topics which can be recorded numerically are easiest to analyse.

The direction of desirable changes in practice may be indicated if the subject is simple enough for there to be easily agreed criteria of what constitutes good practice, or where the best method of treatment can be ascertained by research, for instance by randomized controlled clinical trial. However, this is not always possible in general practice.

The growth of group practice provides an opportunity for doctors to learn from each other. Pressure of everyday work, memory error over a series of cases, and the fact that doctors usually do not see each other practising, limit learning opportunities. It is necessary to complement hurried and often interrupted exchanges about patients with a system which provides easily accessible feedback on clinical practice, with planned discussion of defined aspects of work. Such a system, whilst having some constraints, for example the limitations of individual experience, and of the clinical problems encountered, can nevertheless offer an acceptable and safe way of considering and improving the quality of care. Discussions of this sort have been reported by Stott and Davis (1975) who claim that administrative and clinical review improve internal and external communication for the primary care team. Membership of the peer review in this paper is restricted to the doctors belonging to one practice and does not extend to the whole primary care team.

There have been other examples of audit not confined to the colleagues of one practice. Kirk and Lee-Jones (1976) described the benefits of a medical audit in which all the local general practitioners plus the senior nurses

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of a community hospital participated. In a more extended study Gruer and colleagues (1977) described a stage by stage approach to some of the problems that general practitioners, staff of accident and emergency departments, and ward staff have in diagnosing and managing acute abdominal pain.

Similar methods to these have been demonstrated in the surgical world. Irving and Temple (1976) described how the staff of a teaching hospital audited their work meeting at weekly intervals with a different surgeon as chairman. A "free and open discussion" took place, and provided that adequate secretarial help is available, this type of exercise both helps to maintain standards and has a positive educational role. Devitt (1973) described a peer review where breast operation statistics were scrutinized at intervals. He feels that this exercise in continuing medical education improved care over and above improvements already taking place. He notes that it is not enough to indicate to the individual participating clinician the deficiencies which prevail in the group as a whole, for he will attribute any faults to his colleagues. A personal profile for comparison is essential.

Aim

The aim of this study was to explore the feasibility of audit and peer review in general practice, using prescribing as the selected activity. Our hypotheses were:

1. that audit of a selected activity in general practice can be carried out by general practitioners themselves,

2. that if general practitioners have the opportunity to become aware of their own clinical behaviour within the secure setting of the colleagues with whom they work, this awareness will influence subsequent clinical behaviour.

Method

One of us (P.M.R.) and a member of the practice invited the others to take part in a study of prescribing. The practice is staffed by four full-time practitioners and four part-time practitioners with academic appointments; nursing staff, two health visitors, and a social worker are attached to the practice. The doctors meet together on a regular basis to discuss clinical and other practice matters. The staff have had previous experience of taking part in research (McCready and Reilly, 1977; Reilly *et al.*, 1977).

All the prescriptions issued during the week beginning 21 March and ending 27 March inclusive were recorded. This was done by interleaving carbon-paper sheets under each prescription sheet. It is normal routine in the practice for prescription sheets to be prepared in advance by the clerical staff with the patient's name and address. The sheet is inserted in the record card either for use at appointment in the surgery, or when the cards are taken on home visits, or for use in the reissuing of prescriptions. All the copies were retrieved from the record cards before those cards were filed after use. Additional information was taken from the record card and transferred to an information sheet. For every item and medication prescribed the information shown in Table 1 was recorded.

Table 1. Information sheet.

Day of week
General practitioner's number
Patient's number
Patient's age
Patient's sex
Patient's civil status
Patient's problem (using RCGP modification of the *ICD*)
Medication (using DHSS therapeutic classes and numbers 1–88)
How medicine procured Directly, first time, or subsequently Indirectly, first time, or subsequently
Amount of medication whether tabs, caps, fluid (ml), weight (g) or individual items
Cost (in £ and p) using Monthly Index of Medical Specialities *(MIMS)*. February issue 1977 used in both surveys for comparison
Whether proprietary or non-proprietary name used
Number of items of medication prescribed per patient

As information sheets were completed for each item prescribed, patients consulting during the survey week could have more than one information sheet. The completed information sheets were then transferred to punchcards. A single computer analysis was then used to describe the main characteristics of the prescribing activity.

Discussion of the prescribing survey was included in the agenda of the next practice meeting. The results were presented and with the permission of the group, the meeting was tape-recorded. Transparencies of results were shown on an overhead projector. The content of the first meeting was limited to a description of the general pattern of prescribing in the practice, including information about how medicines were procured, by what sort of patient, in response to which problems, and the types, amounts, and costs of medication.

The group requested a second meeting to present a detailed analysis of the prescribing behaviour of individual members. Both these meetings were conducted informally, without a chairman and without recording minutes for future reference. At the time of these

Table 2. Prescribing characteristics.

	First survey March 1977	Second survey May 1977
Doctor–patient contacts: direct and indirect	882	811
Number of information sheets processed, i.e. all items of medication recorded *plus* those sheets showing *no* medication given	1,366	1,149
No prescription given	170	145
Percentage doctor–patient contacts not leading to medication being prescribed	*19.2*	*17.8*
Number of items of medication prescribed	1,196	1,104
Number of items of medication per prescription issued	$\frac{1,196}{(882-170)}=1.7$	$\frac{1,004}{(811-145)}=1.5$
Average cost of each item of medication*	£1.65	£1.60

*This figure is obtained by taking the mean of the cost variable in Table 1. Cost per prescription is not easily obtained in these surveys because of the method of computing used, particularly as we chose item of prescribed medication as the variable to which we related costs rather than the prescription.

Table 3. Proportion of medication prescribed indirectly.

	Direct		*Indirect*	
How items of medication procured (percentages)	First time	Subsequently	First time	Subsequently
First survey (March 1977)	*38*	*16*	*14*	*32*
Second survey (May 1977)	*41*	*17*	*10*	*32*

meetings no mention was made of the fact that the study week would be repeated.

The taped discussion was then analysed. The criteria used to determine the importance of topics to the group were: length of discussion, the number of participants in a discussion, agreement or disagreement on a topic and the strength of feelings expressed, the illustration of topics by material, value judgements that practice was good or bad, and group decisions to alter subsequent prescribing behaviour. Predictions were made from this analysis about the degree and direction of change in prescribing behaviour that might be anticipated.

The survey was then repeated three weeks after the discussion of the findings. The findings of the second survey were then compared with the findings of the first survey. The predictions made from the analysis of the group discussion were tested against the degree and direction of change observed in the findings.

Results

A prediction was made from the analysis of the taped discussion of the practice meeting that there might be a decrease in the amount of prescribing. The volume of prescribing was discussed for some minutes, all members participating. There was general agreement that overprescribing was taking place. Anecdotal material was used to demonstrate how doctors were put into a position in which this could happen, and it was felt that this was undesirable. No explicit decisions were made, however, to limit future prescribing, and the practical implications of patients hoarding prescriptions were not discussed.

The second survey week shows a slight reduction in the items per prescription issued (Table 2).

The second survey week also shows a slight reduction in the numbers of prescriptions given indirectly (Table 3).

The cost of prescribing yielded the longest discussion to which all members contributed. Explanations were offered about high and low cost and anecdotal material was used freely to reinforce these explanations. Members demonstrated their involvement by asking for requests on personal information. Anxiety was expressed about the amount of money spent on prescriptions each week in the practice. A decision was made to reduce prescribing for self-limiting upper respiratory infections. A prediction was made that the cost of prescribing might be reduced in the second week. The second survey week shows a reduction in cost because of the fall in the number of prescriptions issued, and also because of a reduction in the average cost of each item of medication.

Table 4. How selected categories of medication were procured in each survey (actual number of items of medication).

	Direct		*Indirect*		
First and second surveys (second survey in brackets)	First time	Subsequently	First time	Subsequently	Percentage of *all* prescriptions
Psychotropic drugs: DHSS therapeutic classes 24–27 inclusive	19 (13)	38 (33)	5 (4)	72 (75)	*12.5 (14.7)*
Cardiovascular drugs: DHSS therapeutic classes 9–11 inclusive	7 (9)	24 (38)	0 (0)	50 (31)	*8 (9)*
Antibiotics: DHSS therapeutic classes 39, 40, 43–45 inclusive	96 (90)	3 (8)	43 (26)	4 (4)	*13.4 (14.9)*
Prescriptions for gastroenteritis: DHSS therapeutic classes 4 and 8	6 (3)	0 (0)	4 (2)	0 (1)	*1.2 (1.3)*
Cough mixtures: DHSS therapeutic class No. 17	92 (61)	6 (2)	38 (19)	17 (9)	*14.3 (10.6)*

In both survey weeks the great majority of individual items of medication cost less than £2 each. There was a slight shift in the second survey week toward the middle range of prices with a reduction in both high and low cost items. The reduction of low cost items appears to be associated with fewer idiosyncratic patterns of prescribing in the second survey week. A few very high cost items of medication (between £10 and £15 per item) had been prescribed in the first survey week, some of them indirectly. One explanation put forward was that some patients were under hospital supervision, and prescribing was neither initiated nor controlled by the general practitioner. In the second survey week no general practitioner prescribed expensive items of medication directly or indirectly for the first time.

There was general agreement that the volume of indirect prescribing was undesirable, in particular in so far as the recipients were elderly or living alone. This was the single biggest category of patients managed in this way, in the first survey week. Some doctors feared that the number of consultations might rise dramatically if the indirect issuing of medications was curtailed. Anecdotal material was offered to illustrate cases in which indirect prescribing was justified, even on the patient's first contact. The danger of long-term repeat prescriptions to the elderly, however, was emphasized and one member suggested the use of cards in the patients' records which listed the medications in amounts and frequency of repetition, so that more possible interactions and side-effects might be anticipated and the patients recalled at intervals. Repeat prescription cards were already in use in the practice, so that the change did not need much administration. The second survey week showed that it had not been adopted. There was a tendency to prescribe less indirectly, though this did not reach statistical significance. The management of elderly patients did not change.

Five types of prescribing were selected on the basis of the degree of discussion in the group meetings. These were prescribing of psychotropic drugs, cardiovascular drugs, antibiotics, prescribing for gastroenteritis and the prescribing of expectorants and cough suppressants (Table 4). These items stimulated considerable exchanged clinical views. The doctors who are most heavily involved with children defended prescribing for gastroenteritis, and also indirect prescribing of antibiotics on first contact for some children—these strategies were seen as part of good patient management when families were anxious—as also was the issuing of prescriptions for cough suppressants. Doctors less involved with this particular population of patients questioned the strictly clinical efficacy of these measures. Howie and colleagues (1971) note: "patterns (of management of illnesses) are demonstrated where there is argument to justify a statement of policies of treatment for educational and training purposes, whereas other patterns of illness (e.g. influenza) point to the need for future prospective trials".

A disproportionate number of patients were receiving psychotropic drugs such as antidepressants, tranquillizers, and hypnotics indirectly. This situation was considered undesirable. It was noted that many of the items given indirectly were apparently being continued for many months. In discussion, issues such as long-term dependence and the tendency to 'symptom' diagnosis and treatment were noted. The group did not propose any remedy to these general problems.

However, it was noted that less than 0.5 per cent of all medications prescribed were for barbiturates and that this figure represented a big fall over the past few years. Some of the above points are very ably reviewed by Parish (1971) and again by Parish and Austin (1976).

The proportion of patients being recalled and receiving cardiovascular drugs directly had increased in the second survey, although the point had been made in discussion that many of these patients remain stable enough to be managed indirectly for longer periods of time (i.e. every six months instead of every month).

Discussion

The aim of the study was to see whether this kind of audit would lead to a change of behaviour. It has been demonstrated that certain aspects of prescribing behaviour changed between survey weeks one and two though the degree of change was not sufficiently big to be statistically significant (Tables 2, 3 and 4). Slightly fewer prescriptions were issued and they were slightly cheaper. There was some reduction in first-time indirect prescribing. Information is already available in this practice on weekly doctor-patient contact, and levels of direct and indirect prescribing, which supports the view that the observed change is greater than the normal weekly fluctuations. However, the survey is at present being repeated to test whether the behaviour is also being maintained, as it is possible that the influence of group discussion would be temporary and that doctors would return to former levels of prescribing. If this is the case, methods must be explored of reinforcing new patterns of behaviour.

How easily can this method of audit and review be used by practitioners? The facilities available for research in the practice in which the study was carried out are good in that clerical staff are available and the member of the practice responsible for the study holds a part-time academic appointment, which gives time for research and access to computer staff. The medical staff already hold regular meetings, and because this is a teaching practice they are conscious of the need for information. However, even without these advantages, simple methods of recording and retrieving information can be used. In this study carbon was used easily and effectively. A total population (all prescriptions) was studied. This is always easier than a sample, if the population of what is being recorded is small enough to be managed at the stage of analysis, which in many practices will be hand counting.

In this study the complex topic of prescribing was selected because it was known to be of considerable interest in this practice. The involvement of all concerned is obviously essential, and yet it should be seen that it does not artificially influence that which is being studied. In this research the dimensions of prescribing that would be subject to analysis were not discussed in any detailed way in advance.

One member presented the results at the practice meeting and these were discussed in an informal way. Modifications to this procedure have not been tried, although members used the meeting more effectively when the main factual material was circulated in advance and when a structure was imposed on the meeting by one of the group acting as a chairman. Information about personal performance was made available only when it was requested. Such information could be made available in advance in such a way that each would view only his own personal performance and the general pattern of the group, thus minimising the threat posed by other types of audit; but it was felt that in groups used to meeting and working together, such as the group in this study, the opportunity of making direct comparisons between individuals should be used. This additional refinement could, for example, show the range of drugs used for one condition with no apparent reason for the wide variation between individuals—similarly the rate at which certain drugs, e.g. diazepam ('Valium'), are prescribed. Furthermore, direct comparisons might well motivate group members to improvements and hence greater degrees of change might be observed. The minuting of decisions is another strategy that proved effective in the repeat of this study as only selected items of the two to three hour discussions were remembered.

Certain features of audit by peer review remain a problem. Change will not necessarily follow group discussions even when verbal agreement has been expressed. There may be factors other than those which can be counted, analysed, and discussed which are important in maintaining a particular pattern of behaviour or avoiding the adoption of an apparently desirable practice. Balint and colleagues (1970) have sensitized doctors to the non-rational elements in clinical behaviour, and exploration of these would not normally be part of the peer review.

Furthermore, there can be no guarantee that only good practice will be adopted. For example, if others in the group are seen occasionally taking certain risks, the anxiety about these risks decreases even when these are acknowledged as undesirable. Also, the tendency for people to feel most comfortable when they are acting in a similar way to colleagues may inhibit experimental methods and lead to the curtailing of good but idiosyncratic practice. The repeat week in the study, for instance, showed a much narrower range in the cost of prescriptions used.

Each group's potential is influenced and limited by the clinical experience of its members. Equally important is the fact that the dynamics—that is, the pre-existing pattern of leadership, competitiveness, and dependence within the group, will influence the manner in which individuals will work together. Audit which highlights different aspects of effective clinical practice may lead to discussion which will not only provide reinforcement for the behaviour in question but will also increase positive feelings between group members. Audit which exposes vulnerable topics may increase

resistance to change. In instances where consensus follows discussion and a decision is made within the group to alter behaviour, unless the practical implications are spelt out and administrative procedures are set in motion, the persistence of habit makes change unlikely.

References

Ashton, J., Oliver, G., Grant, A. & Taylor, G. K. (1976). *Update,* **12**, 1019-1022.

Aylett, M. (1977). *British Medical Journal,* **2**, 28-29.

Balint, M., Hunt, J., Joyce, D., Marinker, M. & Woodcock, J. (1970). *Treatment or Diagnosis.* London: Tavistock Publications.

Birmingham Research Unit of the Royal College of General Practitioners (1977). *Journal of the Royal College of General Practitioners,* **27**, 265-270.

Department of Health and Social Security (1977). *Health and Personal Social Services Statistics for England and Wales, 1976.* London: HMSO.

Devitt, J. E. (1973). *Canadian Medical Association Journal,* **108**, 1279-1281.

Floyd, C. B. & Livesey, A. (1975). *Journal of the Royal College of General Practitioners,* **25**, 425-431.

Gruer, R., Gunn, A. A. & Ruxton, A. M. (1977). *British Medical Journal,* **1**, 957-958.

Howie, J. G. R., Richardson, I. M., Gill, G. & Durno, D. (1971). *Journal of the Royal College of General Practitioners,* **21**, 657-663.

Irving, M. & Temple, J. (1976). *British Medical Journal,* **2**, 746-747.

Kirk, C. & Lee-Jones, M. (1976). *Journal of the Royal College of General Practitioners,* **26**, 143-146.

McCready, P. E. & Reilly, P. M. (1977). *Journal of the Royal College of General Practitioners,* **27**, 527-530.

Mourin, K. (1976). *Journal of the Royal College of General Practitioners,* **26**, 726-733.

Parish, P. A. (1971). *The Prescribing of Psychotropic Drugs in General Practice. Journal of the Royal College of General Practitioners,* **21**, Supplement No. 4.

Parish, P. A. & Austin, G. (1976). In *Prescribing in General Practice. Journal of the Royal College of General Practitioners,* **26**, Supplement No. 1, 24-31.

Reilly, P. M., Patten, M. P. & Moffett, J. (1977). *Journal of the Royal College of General Practitioners,* **27**, 289-293.

Sanazaro, P. J. (1974). *British Medical Journal,* **1**, 271-282.

Seidelman, W. E. (1977). *Canadian Family Physician,* **23**, 77-81.

Stott, N. C. H. & Davis, R. H. (1975). *Journal of the Royal College of General Practitioners,* **25**, 888-896.

Williams, D. L. (chairman) (1974). *Report of a Working Party on Medical Audit by Peer Review.* G.M.S. 39. London: British Medical Association. (unpublished).

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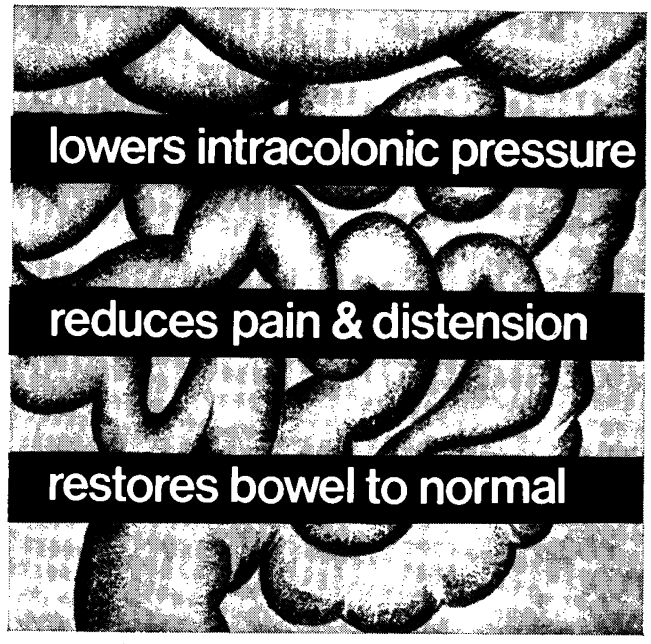

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