Medical audit—a preliminary report from general practice

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SUMMARY. As three single-handed practitioners who work in the same health centre, we decided to review our work in clinical management and preventive medicine. We used data contained in a simple medical information system but, where necessary, referred to the original problem-orientated medical records. The results showed that we did not always reach standards which we considered satisfactory but we feel this type of review is worthwhile and could be applied in many general practices.

Introduction

INTEREST in methods of clinical review in general practice is increasing. Most published material, however, has concentrated on the theoretical basis of audit and possible methods of implementing it. The few results of clinical review in general practice which have been published mostly concern a single activity or condition in which the authors have a special interest.

As three single-handed general practitioners who work in the same health centre, we decided to examine various ways in which clinical review can be undertaken. We chose clinical management of problems and preventive medicine for study. In looking at clinical management we decided to study two specific conditions common in general practice, minor respiratory illness and urinary tract infection, and also some of the broader aspects of management as illustrated by prescribing patterns. We also chose two aspects of preventive medicine, the influenza vaccination programme and recording patients' blood pressure.

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Method

We all used problem-oriented medical records which, it is suggested, can assist clinical review (*British Medical Journal,* 1974). 'Active' problems were entered in a medical information system based on feature cards (Burchell *et al.,* 1975). Also recorded on feature cards were data describing patients, number of contacts, drugs prescribed, and certain baseline measurements such as blood pressure. Minor self-limiting problems were not recorded routinely on the problem lists.

This medical information system provided all the relevant information with the exception of the data on minor respiratory ailments, which fell into the category of minor self-limiting problems. By using the combination of an age/sex register and random numbers a sample of medical records was selected. From this sample 20 incidents of minor respiratory illness were identified for each doctor.

The average number of patients registered with each doctor during the study period was: Dr A, 1,530; Dr B, 1,650; Dr C, 1,390. All three of us hold a five-session hospital appointment and this accounts for the list sizes being smaller than the national average. The practices have similar age/sex structures, in general serving a young population, eight out of ten patients being under the age of 40.

Clinical management

1. *Minor respiratory illness*

Minor respiratory illness is the most common clinical problem in general practice. We admitted that we were uncertain about the indications for prescribing antibiotics in upper respiratory infections but agreed that we wished to restrict their use. We had mixed views about the use of cough suppressants, one of us (Dr C) claiming that he did not prescribe them because he did not consider they were effective.

The retrospective audit of 20 incidents, randomly selected, produced some unexpected findings (Table 1). A wide variety of diagnostic labels was used. These

Table 1. Minor respiratory illness.

	Total	Dr A	Dr B	Dr C
Number of episodes	60	20	20	20
Number of different diagnostic labels	17	6	9	9
Recorded positive physical signs	32	15	10	7
Number of patients receiving antibiotics	44	18	13	13
Number of different antibiotics prescribed	7	5	5	5
Number of patients receiving cough linctus	11	6	5	—

Table 2. Urinary tract infections.

	Total	Dr A	Dr B	Dr C
Number of episodes	60	20	20	20
Pre-treatment midstream specimen	46	17	14	15
Patients receiving antibiotics	33	10	12	11
Midstream specimen showing bacteriuria	11	3	1	7
Post-treatment midstream specimen	17	2	7	8
Number of different antibiotics prescribed	5	2	5	4

labels, in line with the finding of Howie (1978), did not predict treatment. Dr A recorded positive physical findings more than his colleagues, owing to his inclusion of information about the pharynx (for example "inflamed fauces"). Our main finding was that antibiotics were prescribed in over two thirds of the episodes and that the prescriptions covered a wide range of antibiotics. The table shows that only two of Dr A's patients were not prescribed antibiotics. Dr C was consistent in not prescribing cough suppressants, whereas Drs A and B used a wide range of 'cough bottles', Dr A prescribing five different preparations in six episodes, and Dr B five different preparations in five episodes.

Two main conclusions resulted from this audit. First, doctors may be prescribing antibiotics inappropriately, more often than necessary, and without any rational criteria. Secondly, the variation in use of 'cough bottles' highlights the need for a consistent policy in the management of minor conditions, in order to prevent patients being confused about treatment.

The next stage of this review will be to achieve a consensus of opinion amongst the doctors about the management of minor respiratory illness. We therefore intend to repeat this audit.

2. *Urinary tract infections*

One of the clinical meetings in the health centre concerned the management of suspected urinary tract infection and attempts were made to arrive at a common management plan. It was agreed that, wherever possible, midstream specimens of urine should be obtained before starting antibiotic treatment. There was disagreement about when antibiotic treatment should be started, although it was considered mandatory to have a post-treatment midstream specimen in all cases where there was a proven urinary tract infection, or where a specimen had not been obtained before prescribing antibiotics.

The purpose of our clinical review was to find out how far this plan was being carried out. One of us initiated this prospective study without the knowledge of the other practitioners. The medical records of 20 consecutive patients with suspected urinary tract infections were examined. Patients with known recurrent urinary tract infections or pre-existing genitourinary abnormalities were excluded. As in the case of minor respiratory illnesses, the precise diagnostic label had no obvious influence on the subsequent management.

In three quarters of episodes an initial midstream specimen was sent to the laboratory and over half of the patients were treated with an antibiotic (Table 2). Two surprising findings were the low number of positive midstream specimens (11 out of 46) and the low number of follow-up specimens (17 out of 33), although it is interesting that in several instances the request for post-treatment midstream specimen was recorded but no sample was handed in by the patient.

We were remarkably consistent in our management of possible urinary tract infections. Co-trimoxazole appeared to be the drug of first choice with ampicillin or amoxycillin as second choice. Nitrofurantoin, nalidixic acid and sulphadimidine were each prescribed only once. On the whole, the management of urinary tract infection was less than satisfactory, with the stated aims not always achieved. As with minor respiratory illness, we hope that a change in doctor behaviour can be produced and the audit repeated.

3. *Drug prescribing*

In the supplement to this *Journal, Prescribing in General Practice,* Parish and colleagues (1976) stated that the two main groups of drugs prescribed are psychotropics (i.e. minor tranquillizers, antidepressants, hypnotics, and major tranquillizers) and antibiotics. Psychotropic drugs may now be the commonest group prescribed (Skegg *et al.*, 1977).

Our audit, however, revealed that antibiotics were prescribed more often than psychotropic drugs but this may simply have been a reflection of the young practice population. The pattern of prescribing was virtually identical for all three doctors (Figure 1). It was noted that almost half of the patients received at least one antibiotic in a 12-month period.

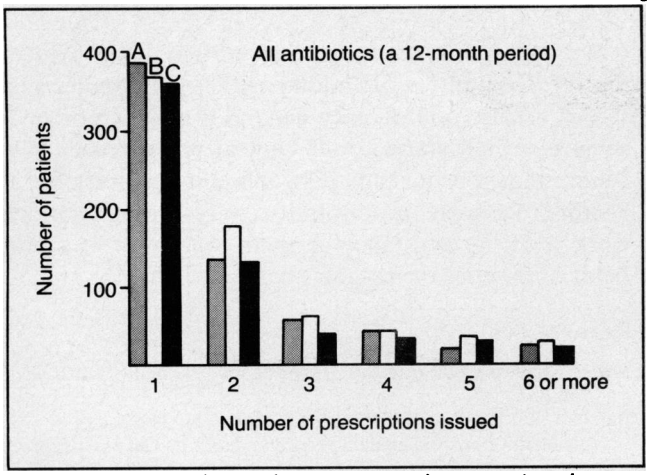

Figure 1. *Number of patients who received one or more prescriptions for antibiotics from Drs A, B, and C, in a 12-month period.*

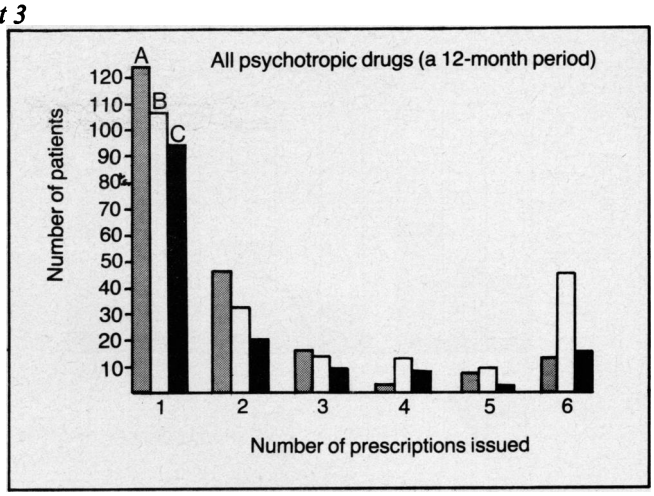

Figure 2. *Number of patients who received one or more prescriptions for psychotropic drugs from Drs A, B, and C in a 12-month period.*

A similar pattern emerged in the prescribing of psychotropic drugs, although Dr B had a significantly larger group of patients receiving six or more items (Figure 2). Analysis of the types of psychotropic drugs prescribed revealed an identical preference by all three doctors. Most commonly prescribed were minor tranquillizers, then hypnotics, thirdly, antidepressants, and lastly, major tranquillizers. The most valuable outcome of the audit was a desire to examine prescribing of antibiotics and psychotropic drugs in more detail.

Preventive medicine

1. *Influenza vaccinations*

In 1975, we decided to organize special clinics for influenza immunizations. We invited to the clinics those patients whom we identified on the feature cards as having chronic respiratory or cardiac problems and those over the age of 65 who were considered fit enough to travel to the health centre. The immunization required the administration of nasal drops on two occasions and it was found that 80 per cent of those attending the first clinic returned to complete the course. Patients not completing the course were excluded from Table 3. In 1976 and 1977 the immunization was offered as a single injection. In contrast to the report of Harden and Harden (1977), we had a higher acceptance rate for the injection than for the nasal drops. We felt that the total acceptance rate of about 50 per cent justified the cost of organizing the special clinics and we were encouraged to extend the service to the rest of the practices in the health centre.

Although in this review we were not strictly auditing doctor behaviour, we considered it important to examine whether it was worthwhile to offer this service to patients.

Table 3. Influenza vaccinations.

	1975	1976	1977
Percentage acceptance in chronic heart and lung disorders	*45*	*65*	*63*
Percentage acceptance in over 65s	*33*	*50*	*54*

2. *Hypertension—opportunistic case finding*

Tudor Hart (1975) has argued that, in view of the likely complications of untreated hypertension, general practitioners should undertake a screening programme. We therefore agreed a policy whereby we would use routine patient contact to establish a baseline blood pressure reading for all patients aged 20 years and over. We all saw more than 80 per cent of our patients in this age group during a two-year period (Figure 3). Tudor Hart (1970) recorded the blood pressure in half of his patients but his results were based on a six-year period.

Dr C recorded considerably more baseline blood pressures, particularly for males aged 20 years and over. When the records of women using oral contraceptives were studied, it was found that the proportion who had their blood pressure noted in the preceding two years was 43 per cent in Practice A, 42 per cent in Practice B, and 48 per cent in Practice C. These figures are misleadingly low because one third of the women on the Pill attend family planning clinics. The blood pressure recordings of this group are therefore not entered in the health centre records, although it is desirable that this should be done.

It seemed reasonable to expect that patients with known cardiovascular problems would have had their blood pressure taken within the two-year study period. However, we found that only just over half of such patients had had their blood pressure recorded in that period, although many may have had it noted previously.

We were surprised to discover our deficiencies in recording the blood pressures of the two groups known

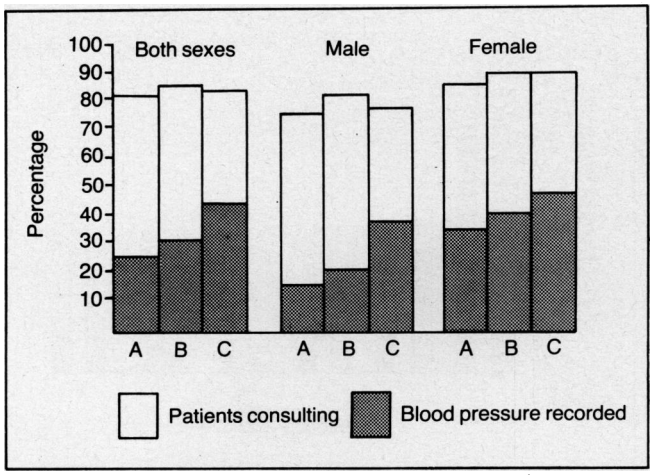

Figure 3. *Patients aged over 20 years who consulted over a two-year period and who had blood pressure recorded in the notes.*

to be at risk. We believe that the feedback of this information will lead to improvement. The quarterly workload figures for each practice have now been expanded to include blood pressure and other details which, we hope, will act as a further stimulus.

Conclusion

This is a preliminary report of an audit. The activities were chosen to provide examples of different aspects of the work of family doctors. On the whole, we were made to realize that we were not performing as well as we had assumed in some of our work. We did not have any special interest or skill in the conditions or activities analysed, and we suspect that the behaviour shown in our review is fairly typical of many general practitioners. It must be remembered that data in the feature card system were extracted from the written records and may not always have accurately reflected what happened in the consultation.

Doctors are sceptical of general practice studies done by research workers who, they believe, do not always fully appreciate the problems faced by family doctors in their everyday work. We agreed our own criteria, where appropriate, based on our own experience and as a result of discussions among ourselves. We set out to test our subjective impressions, using the most objective methods available. Through studying what was actually recorded, we showed that subjective views differed from objective analyses. Only by documenting patterns of doctor behaviour in general practice and identifying differences will it be possible to reach a consensus of views. We found that we behaved differently in similar situations and this has acted as an incentive to change. Clearly, local conditions always have to be taken into account, but some form of review is possible in every general practice.

We agree with the recommendations of the Ament Report (Committee of Inquiry, 1976) that studies such as this are essential in each general practice in order to achieve a high standard of clinical competence. "We believe that it is not only desirable but necessary for all doctors to assume responsibility for reviewing their own work with the assistance of their colleagues in similar fields of practice on a regular basis."

References

British Medical Journal (1974). Towards medical audit. Editorial, **1**, 255-257.

Burchell, K., Barclay, R. & Ryan, M. P. (1975). The use of problem-orientated medical record and feature cards in practice management and research. *Health Bulletin,* **33**, 210-213.

Committee of Inquiry (1976). *Competence to Practise.* Ament Report. London.

Harden, K. A. & Harden, R. McG. (1977). Response of patients offered influenza vaccination by injection and by nasal insufflation. *British Medical Journal,* **1**, 686.

Hart, J. T. (1970). Semicontinuous screening of a whole community for hypertension. *Lancet,* **2**, 223-226.

Hart, J. T. (1975). The management of high blood pressure in general practice. *Journal of the Royal College of General Practitioners,* **25**, 160-192.

Howie, J. G. R. (1978). The art and the epidemiologist. *Journal of the Royal College of General Practitioners,* **28**, 71-77.

Parish, P. A., Stimson, G. V., Mapes, R. & Cleary, J. (Eds) (1976). Prescribing in general practice. *Journal of the Royal College of General Practitioners,* **26**, Suppl. 1.

Skegg, D. C. G., Doll, R. & Perry, J. (1977). Use of medicines in general practice. *British Medical Journal,* **1**, 1561-1563.

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Prevalence of acne

A survey of 1,066 healthy women and 1,089 healthy men aged 18 to 70 years, performed to determine the prevalence of facial acne, showed that clinical acne was not confined to adolescents. Though it was more prevalent among men than women at 18, beyond the age of 23 clinical acne was more prevalent among women as the prevalence in men gradually declined. At 40 to 49 years three per cent of men and five per cent of women still had definite, albeit mild, clinical acne, and at 50 to 59 years six per cent of men and eight per cent of women had physiological acne.

The surprisingly high prevalence of acne in adults may be related to antibiotic treatment or, in women, to the use of oral contraceptives or cosmetics, though this survey did not study their influence. Further studies in different populations are needed to establish the prevalence of acne in the community, and its distribution.

Reference

Cuncliffe, W. J. & Gould, D. J. (1979). Prevalence of facial acne vulgaris in late adolescence and in adults. *British Medical Journal,* **1**, 1109-1110.