PRACTICE OBSERVED

Practice Research

Information systems for general practitioners for quality assessment: I Responses of the doctors

ROBIN C FRASER, JULIE T L GOSLING

Abstract

A questionnaire was sent to all general practitioner principals in Leicestershire and Lincolnshire (n=669) to determine (a) the extent to which they would participate in quality assessment activities based on objective evidence of performance and (b) the personal and professional characteristics of interested doctors. The overall response rate to the questionnaire was 76% (508 replies). The highest response rates were recorded by trainers (100%), principals in training practices (94%), and younger doctors (80-86%), the lowest by overseas graduates (59%) and older doctors (65%).

Distinctive patterns of interest and participation in three types of audit activities were clearly evident. Overall, 61% (310) of respondents wished to be provided with profiles of practice activity from their family practitioner committees, 36% (183) volunteered to participate in a prescribing study, and 34% (172) expressed interest in carrying out an audit in depth. Proportionately, the most enthusiastic and active groups were trainers (88%, 70%, 62%), principals in training practices (74%, 49%, 47%), and members or fellows of the Royal College of General Practitioners (71%, 50%, 45%). Also active were younger doctors, vocationally trained doctors, and principals in large group practices.

These figures suggest that roughly 15 000 general practitioners in the United Kingdom would be prepared to participate in performance review activities using information provided by external agencies, 10 000 would if they had to generate some of the information, and 7500 would if they had to produce all the information themselves.

General Practice Unit, Department of Community Health, University of Leicester
ROBIN C FRASER, MD, FRCGP, professor of general practice
JULIE T L GOSLING, BMS (SNAA), research assistant

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

Introduction

In articulating the need for the "quality initiative" that was launched by the Royal College of General Practitioners Irvine described quality of care in general practice as "our outstanding problem." He called on British general practitioners to incorporate setting standards and carrying out systematic performance review into their daily work. "Although a number of individuals have caught the spirit of the initiative and see the need for it, the overall impression so far is one of continuing complacency. . . ." It has even been suggested that "the future outlook for audit in general practice is bleak" and that there is "little likelihood of an improvement in the immediate future unless new techniques can be developed to make audit more acceptable."[1]

In seeking to stimulate more voluntary activity in the United Kingdom Irvine warned that ". . . we have talked about improving the quality of care in general practice for long enough. We should now adopt a policy which can turn hopes into reality. . . ." Although a wide range of approaches to audit in general practice is currently in operation, no single framework has emerged.[2] This series of three papers will describe the particular approach to audit that has been pursued in Leicestershire and Lincolnshire following earlier activities.[3-6]

Our approach is based on conceptual and pragmatic considerations as follows:

(1) If performance is to be improved it must first be measured since there are gaps between *actual* and *assumed* levels of both knowledge and performance.[7] Either such objective evidence will have to be collected by general practitioners themselves or ways found to provide it for them. In any event "better information services are an essential prerequisite of self audit."[8]

(2) Providing feedback on their own performance—and that of their peers—will stimulate many doctors to enter, and complete, the cycle of audit. "The value of feedback in the modification of behaviour cannot be doubted. It is a fundamental biological process: it is the basis of all learning, of profiting from experience, of learning from mistakes."[9]

(3) If audit exercises are to make a major impact in improving the quality or cost effectiveness of general practice, or both, ways must be found to involve the mass of general practitioners. There is little point in devising schemes which will interest only super-obsessionals. It is essential, therefore, to canvass the opinions and intentions of general practitioners. If potential participants have played a part in determining future developments they are more likely to become actual participants.

(4) Since many general practitioners remain wary of medical audit,[7] it is essential to start at an uncomplicated level.

(5) Participation in audit by most practitioners is more likely to happen if they can be protected from a heavy burden of data collection.

Already a huge volume of numerical data on general practice and the clinical activities of all general practitioners working in the National Health Service is routinely collected by outside agencies—for example, family practitioner committees and the Prescription Pricing Authority. Little is known of how useful these data are or the extent to which they are or might be used by doctors or practices for performance review. Furthermore, in other important activities there is at present no external routine collection of data on doctors or practices—for example, hospital referrals and use of laboratory and technical services.

We decided to study the feasibility of systematically providing NHS general practitioners with basic numerical data which they could use to assess their personal performance or that of their practice. The first step was to identify the level of interest in such an approach, to determine the personal and professional characteristics of interested doctors, and to assess the extent to which practitioners would contribute to and participate in performance review activities based on new information systems. The second article describes the information preferences of practitioners, and the last presents a new scheme to provide general practitioners with pertinent information to help them to assess their personal prescribing.

Method

With the full support of the respective local medical committees a 15 page postal questionnaire was sent to all general practitioner principals who were in contract with the Leicestershire or Lincolnshire family practitioner committees in July 1982. The content and acceptability of the questionnaire had been tested in a pilot study of a random sample of 50 general practitioner principals in Nottinghamshire. In the main study two postal reminders were sent to non-respondents.

The questionnaire was designed to elicit personal and professional details of the doctors and their practice, the use made of available information and the preferences for new information, and the doctors' willingness both to participate in a prescribing study and to grant us permission to gain access to their family practitioner committee files to enable us to construct profiles of their practice activities.

Results

The initial response rate of 56% to the questionnaire was increased to 76% after two postal reminders. There was little difference between the rates for Leicestershire (77%) and those for Lincolnshire (75%).

Tables I and II compare selected characteristics of the respondents with those of all principals in Leicestershire and Lincolnshire and in England and Wales. Although the characteristics of the study population were closely similar to national figures, certain characteristics of the respondents differed from those of the study population. The highest response rates were achieved by trainers, partners in training practices, and younger doctors, whereas the poorest response came from overseas graduates and older doctors. All these differences were significant. Patient list size, location of practice, sex of doctor, whether a dispensing practice or not, and membership or fellowship of the royal college had no differential effect on response rates. Of the respondents, 38% (193) had been vocationally trained (18% one year trainee, 14% three year scheme, and 6% self organised three year programme), but it was not possible to calculate rates of response for this group because of difficulties in identifying an accurate denominator.

Of the respondents, 345 (68%) wished to be provided with a numerical profile of selected items relating, for example, to claims for cervical smears and immunisations. Written permission from all partners in a practice was required for such practice profiles to be constructed from family practitioner committee records. A permission slip was included in the questionnaire, and 61% of respondents completed it. (Confidentiality was guaranteed, and details of remuneration were specifically excluded.) For logistical reasons the construction of practice profiles had to be restricted to practices in Leicestershire. Of the 316 Leicestershire respondents, 210 (66%) gave permission. Because of the need for unanimity within the practice, however, some interested practitioners had to withdraw, and others who had not originally given permission were included, having been persuaded by their partners.

In the questionnaire the doctors were asked if they wished to receive a breakdown of the number of repeat prescriptions that they issued, but those who did would be required to write their prescriptions on a specially marked prescription pad, which would be provided for them. One hundred and eighty two doctors (36% of respondents) were invited to participate in a month long prescribing study (see the third article), though a requirement was that all doctors in a practice had to participate. In the event only eight (4%) doctors who said that they would take part did not do so, but the others persuaded 20 more of their partners to join in. 40% of respondents—that is, 30% of all doctors in Leicestershire and Lincolnshire—took part in the prescribing study.

TABLE I—*Characteristics of doctors who responded to questionnaire compared with those of two larger populations*

Characteristic	General practitioners: Respondents %	Leicestershire and Lincolnshire %	England and Wales %
Age (years):			
< 39	40	37	37
40-49	25	25	25
50-59	24	26	25
60 and over	10	12	13
No of principals in a practice			
1-2	25	27	30
3-4	46	45	44
5 or more	28	28	26
Country of qualification:			
UK/Eire	88	86*	85†
Other	11	14*	15†
Appointed trainer	10	7·5	9
Member or fellow of the Royal College of General Practitioners	31	31	32‡
No of patients on list per doctor (approximately)	2200	2100	2150
Total No of doctors	508	669	24217
	100%	100%	100%

*Country of birth.
†Country of birth and qualification.
‡UK figure.

TABLE II—*Characteristics of doctors and response rates*

Characteristic	North Leicestershire and Lincolnshire No	Questionnaire respondents: No	%	Significance
Sample size	669	508	76	
Appointed trainer	50	50	100	p < 0·001
Principals in training practice	140	132	94	Significant p < 0·001
Age (years):*				
< 30	47	32	86	Trend significant p < 0·01
30-39	210	168	80	
40-49	170	128	75	
50-59	171	120	70	
60 and over	81	53	65	
No of principals in practice†				
1	64	44	69	NS p < 0·5
2	114	80	70	
3	120	97	81	
4	180	140	78	
5	100	78	78	
6 or more	91	67	74	
Country of qualification:				
UK/Eire	573‡	451	79	Significant p < 0·001
Other	96‡	57	59	
MRCGP or FRCGP	207	155	75	

*Age of seven doctors not stated.
†Practice size not stated by two doctors.
‡Country of birth.

We also indicated that "we could also help those of you who are interested in carrying out a clinical or organisational audit of your own choice. If sufficient doctors are interested in a similar topic we could supply what help was required to the nominated audit groups." One hundred and seventy one (34%) doctors said that they were "interested in participating in such an audit in depth," 63% said they were not, and 3% gave no reply.

Table III gives the relative rates of interest or participation in these three audit activities in respect of several doctor characteristics compared with the composite rates of the respondent doctors. Thus 88% of trainers who responded to the questionnaire also requested family practitioner committee profiles, 70% participated in the prescribing study, and 62% expressed interest in participating in audit in depth, and so on. Distinct patterns of participation are clearly evident. After the trainers the highest relative rates of participation were for principals in training practices and members or fellows of the royal college. Young doctors and principals in large group practices were proportionately more interested than old doctors and doctors in singlehanded or two partner practices respectively. The age gradient was replicated among the subgroup of college members or fellows. Vocationally trained doctors were prominent and doctors who qualified overseas participated proportionately more than UK and Eire graduates in some instances. Patient list size had no differential effect.

Since the trainers had a 100% response rate to the questionnaire the results for the trainers also represent absolute values for all trainers in Leicestershire and Lincolnshire, but this is not the case for other categories in which the absolute values will always be smaller. For example, in the prescribing study, making the assumption that all questionnaire non-respondents would also be non-participants, the overall rate of volunteered participation was 36% of respondent doctors and 27% (182 of 669) of all doctors in Leicestershire and Lincolnshire and 50% of respondent college members or fellows but 36% (75 of 207) of all college members or fellows in Leicestershire and Lincolnshire. The figures for doctors who qualified overseas and for UK and Eire graduates were 46% and 26% (25 of 96) and 36% and 27% (156 of 573) respectively.

TABLE III—*Characteristics of doctors and relative rates of participation in audit*

Characteristic	Relative rates of participation (%): Family practitioner committee profiles	Prescribing study	Audit in depth
All respondent doctors	61	36*	34
Trainers	88	70	62
Non-trainers	58	34	32
Principals in training practices	74	49†	47
Principals in non-training practices	56	34	31
MRCGP or FRCGP	71	50	45
Not MRCGP or FRCGP	56	32	30
Practice size:			
6+ principals	70	47	52
3-5 principals	63	39	37
1-2 principals	50	30	27
Age of doctors (years):			
< 30	83	46	47
30-39	72	44	43
40-49	60	39	37
50 and over	47	28	25
Country of graduation:			
UK/Eire	62	36	33
Overseas	56	46	42
Vocationally trained	67	45	45
Not vocationally trained	57	33	33
Sample size: n=	508	182*	171

*Totals eventually rose to 202 (40% and 64%) respectively.

TABLE IV—*Current monitoring of practice activity: n=508*

Items counted (in previous two years)	Frequency: No	Frequency: %	Application*: % 1	2	3
Workload—for example, count of consultations, visits, etc	294	58	24	25	5
Any aspect of prescribing	138	27	8	13	1
Any aspect of morbidity	93	18	10	5	2
Referrals to hospital—for example, outpatients, diagnostic facilities	85	17	9	3	3
Other activities	40	8	2	4	1

*1=Evaluated or discussed findings, or both, but took no further action. 2=Used the findings to change practice procedures or policies. 3=Found no practical use for the information.

Discussion

Since the personal characteristics and those of the practices of the study population closely resembled national patterns the results obtained in this regional study could be expected to be duplicated at national level. It is gratifying to record a 76% response rate to a lengthy postal questionnaire which "took 23 minutes to complete." The results confirm that many general practitioners are enthusiastic about a practical and realistic approach to audit and seem to be prepared to participate. A higher level of participation may be expected if information can be supplied from external sources rather than be generated in the practices. This is not surprising in view of the low levels of data collection in the practices (see table IV). The highest demand was for family practitioner committee profiles (68% of respondents, 52% of all practitioners), which required least effort, although 61% of respondents in Leicestershire and Lincolnshire and 66% of respondents in Leicestershire would allow us access to highly confidential and sensitive information. This was followed by participation in the prescribing study (40%, 30%) which required some effort in the practice, and the least popular was audit in depth (34%, 26%), which required the greatest effort and commitment by the practitioner and practice. Nevertheless, even if all non-respondents to the questionnaire could be assumed to decline participation in any of these schemes national participation would still be considerable in absolute numbers. A minimum of 15 000 general practitioners would wish to be provided with—and presumably use—profiles; roughly 10 000 doctors would participate in a study of their prescribing; and 7500 would undertake audit in depth. This would require a substantial infrastructure to provide both information and advice to enable participants to gain more confidence, expertise, and independence in these review activities. It would also need to be geared to attract and accommodate new participants.

The clusters of practitioners who appeared to be most interested tended to separate out as the most motivated when intentions were translated into action. In both of these groups trainers and principals in training practices were pre-eminent, which is encouraging since training practices will exert the most powerful influence on the attitudes and actions of future practitioners because of compulsory vocational training. The fact that younger vocationally trained doctors were more enthusiastic than older doctors who had not been vocationally trained suggests that vocational training already plays a positive part. Furthermore, though doctors who had qualified overseas had an appreciably poorer rate of response to the questionnaire than their counterparts in the UK, those who did respond showed a proportionately higher level of activity than UK and Eire graduates in the two audit exercises that required most effort. All these findings are in contrast to those reported from the Doncaster study, which described poor responses from past trainees, little age difference between participants and non-participants in audit, and a "disturbing" rate of participation by doctors qualified overseas (7% v 26% in the present study).[4]

The less than average response rate of college members and fellows to the questionnaire was disappointing, but those who responded showed proportionately higher levels of interest and participation across the board than non-members of the college. Nevertheless, in absolute terms the rates of participation of members and fellows in the family practitioner committee profiles, the prescribing study, and the audit in depth as a proportion of all college members and fellows in Leicestershire and Lincolnshire were 34%, 36%, and 33% respectively and compared unfavourably with the rates for trainers of 88%, 70%, and 62%. It is encouraging that the younger college members showed most enthusiasm and

commitment. This study was also conducted before the launch of the college's "quality initiative" and publication of the recent college report, which recommends that "performance review should be incorporated into every member's professional life" and that "incentives should be developed to encourage doctors to participate in performance review."[2]

The trend towards more participation in audit by members of group practices is healthy since the average size of partnerships is increasing and is now four. Conversely, the poor participation by singlehanded doctors and two doctor practices may be offset in the future to some extent by their diminishing numbers. It is disappointing that these practitioners registered least interest, since they are most likely to be at risk of professional isolation and lack of feedback.

Target groups of practitioners and practices at which future effort may be directed have now been identified. We share the cautious optimism expressed in an editorial in the *BMJ*: "What the advocates of audit now need to do is to convince the sceptics and the silent, indifferent majority that the effort is worthwhile. . . . The enthusiasts should recognise, however, that many general practitioners will want to 'move at their own pace.' . . . If medical audit passes the . . . test, it will become routine within a generation."[7]

On the other hand, recent government curbs on deputising arrangements, the imposition of restricted prescribing lists, and the suggested introduction of compulsory performance review for teachers suggest that there may be a need for urgency in putting our own house in order while we still can.

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References

1 Irvine D. Quality of care in general practice: our outstanding problem. *J R Coll Gen Pract* 1983;33:521-3.
2 Anonymous. Quality in general practice—again [Editorial]. *J R Coll Gen Pract* 1984;34:187-8.
3 Fraser, WHR, Kelly J, Lunn JE. Attitudes to audit. *J R Coll Gen Pract* 1981;33:263-6.
4 Wood J. Medical audit in general practice: In: *Medical audit, community medicine and health*. Occasional Paper No 5. Manchester: Unit for Continuing Education, University of Manchester, 1982:31-36.
5 Fraser RC. Audit at work—in Lincolnshire. *Br Med J* 1981;282:1128-30.
6 Fraser RC. Audit at work—the future. *Br Med J* 1981;282:1199-200.
7 Exact B, Jackson RN. Moneymed: a game to develop management skills in general practice. *J R Coll Gen Pract* 1981;31:735-9.
8 Ryan MP, Buchan IF, Buckley EG. Medical audit—a preliminary report from general practice. *J R Coll Gen Pract* 1979;29:719-22.
9 Anonymous. Audit in general practice: report on GMSC/RCGP joint conference. *Br Med J* 1980;281:1460-2.
10 McInerny N, Popper K. The critical attitude in medicine: the need for a new ethos. *Br Med J* 1983;287:1919-23.
11 Anonymous. *Towards quality in general practice: a council consultation document*. London: Royal College of General Practitioners, 1985.
12 Anonymous. Audit in general practice [Editorial]. *Br Med J* 1980;281:1475.

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This is the first of three papers.

Evaluation of long term thyroid replacement treatment

SWANSEA VOCATIONAL TRAINING SCHEME

Abstract

A group study was designed to test the need for the continued prescribing of thyroid replacement treatment. Seven doctors who were attending the vocational training scheme at Swansea studied a total of 75 patients. A withdrawal test for 21 days was used to assess the need for continued prescribing of thyroid medication. Sixty per cent (45) of the group studied had had either the wrong diagnosis or an incorrect maintenance dosage, 28% (21) did not need thyroid treatment after the withdrawal test, and 32% (24) had been prescribed an incorrect maintenance dosage of thyroxine as judged by the results of the initial estimation of thyroxine concentration. The medical and economic consequences of an appreciable rate of misdiagnosis and treatment are apparent.

Introduction

Thyroid treatment has often been started for reasons which now seem inappropriate. These include, for instance, infertility, obesity, depression, alopecia, menstrual disorders, and lymphoedema. It is also known that transient hypothyroidism occurs after surgery, radioactive iodine treatment,[1] pregnancy,[2] and viral thyroiditis.[3]

To test the hypothesis that not all patients who receive long term thyroid replacement treatment require it, an audit was carried out on the prescribing of thyroxine in a randomly chosen group of patients.

Alan Jones, director of study and course organiser; and trainees, D G Corbett, Janet B Davies, Jennifer J Hilliard, E K Joseph, A P Moore, Anne M Rees, and J C Taneja.

Correspondence to: Dr Alan Jones, Gorseinon Health Centre, Swansea, West Glamorgan SA4 2US.

Patients and methods

Patients who were taking thyroxine were assessed clinically and biochemically before and after 21 days of withdrawal of thyroxine.[4] After the patient was identified an explanatory letter was sent to the patient, who was then visited either at home or in surgery. A base line assessment using the standard Crooks[5] test for hypothyroidism was completed.[6] A simple questionnaire specifically designed for computer analysis was then completed.

Blood was taken for free thyroxine, thyroid stimulating hormone, and thyroid antibody estimation. All blood samples were transported to singleton Hospital, Swansea, within four hours of collection and analysed at the same biochemistry laboratory to minimise observer error. Thyroid stimulating hormone was measured using the Immophase kit (Corning Medical). Free thyroxine was measured using the Amerlex free T4 kit (Amersham International). Thyroid antibodies were measured by the Thymune-T-M kit (Wellcome) for thyroglobulin and thyroid microsomal antibodies.

The prevalence of hypothyroidism in the general population has been reported as 2·4-4·0/1000, women outnumbering men by about 10:1.[7] Each trainee was asked to evaluate the withdrawal test on the first 12 patients who requested a repeat prescription for thyroxine, and as seven trainees took part in the study, the maximum number of patients expected was 84. Signed consent was obtained from patients and treatment discontinued for 21 days. Any patient who felt that the symptoms of hypothyroidism had returned during the 21 day withdrawal period was advised to consult the doctor. All patients who had the following clinical conditions were excluded from the trial: cretinism in childhood, previous surgery for carcinoma of the thyroid, pituitary disease, and pregnancy.

At 21 days the same doctor examined the patients using the Crooks' index,