PRACTICE OBSERVED

Practice Prescribing

General practitioners to prescribe oxygen concentrators

M HAMID HUSAIN

From 1 December 1985 general practitioners can prescribe oxygen concentrators for patients at home who need long term oxygen treatment—that is, 15 hours or more a day. Oxygen concentrators are electrically driven machines which separate a high proportion of nitrogen and other components of ambient air and deliver gases enriched in oxygen. The use of concentrators may be the most convenient way of delivering oxygen, thus relieving patients of the delivery and storage of many cylinders each day. Concentrators are expensive and are cost effective only if used for long term treatment.[1] The Department of Health and Social Security therefore assumes that general practitioners will exercise responsibility and see that patients are assessed properly before prescribing, bearing in mind that the injudicious use of concentrators could be counterproductive.

Use and cost

It has been estimated that roughly 50 000 patients in the United Kingdom use oxygen each week from the traditional standard F sized (1360 ml) oxygen cylinders. Roughly 85% are only occasional users and require fewer than 20 cylinders of oxygen a month, but 500 to 1000 patients may need long term treatment. Findings from two studies, carried out by the Medical Research Council and the National Institutes of Health in the United States,[2,3] showed that long term oxygen treatment improved the survival time of patients who had chronic obstructive lung disease with hypoxaemia. After being pressured by respiratory physicians in the UK the DHSS commissioned a study of oxygen use at home which showed that oxygen concentrators were the most cost effective way of providing high users with oxygen.

It is estimated that the National Health Service spends £8m to £9m a year on oxygen treatment of patients at home. Over a fifth of this is spent on 1% of patients who are high users. Given that some patients who have chronic obstructive lung disease and hypoxaemia use up to 15 cylinders of oxygen a week, costing £2000-£3000 per patient a year, the use of concentrators, which cost roughly £700 per patient a year, would save the NHS up to £1m a year.

Suitable patients

The patients who are likely to benefit from long term oxygen treatment are those with chronic obstructive airways disease in which hypoxaemia can be demonstrated. The minimum criteria that are considered necessary to show this are a forced expiratory volume in one second (FEV$_1$) of <1·5 litres, a forced vital capacity (FVC) of <2 litres, an arterial oxygen tension of <7·3 kPa (55 mm Hg), and an arterial carbon dioxide tension of >6·0 kPa (45 mm Hg). Tests should be carried out when the patient is in a stable condition so that all reversible factors such as infection, cardiac disease, and reversible airways disease have been treated appropriately. The stability of patients may be ensured if the spirometric measurement of arterial blood gases is repeated at an interval of not less than three weeks and if there is a variation of not more than 20% on the spirometric measurement and of 0·6 kPa (4·5 mm Hg) in the arterial oxygen tension. If these variations are exceeded then the tests should be repeated again after another three weeks.

Other patients who might benefit from using oxygen concentrators are those with refractory asthma and those with cystic fibrosis, though neither may show hypercapnia, and oedema may not be evident. Furthermore, patients with other respiratory conditions that are associated with severe arterial hypoxaemia but not hypercapnia—for example, late stages of fibrosing alveolitis, occupational lung fibrosis, sarcoidosis, and some other collagen disorders—might also benefit from palliative long term treatment, though this would not necessarily prolong survival.

Supplying concentrators

One contractor in each of nine geographical areas of England and Wales will be selected by the DHSS by competitive tender to supply concentrators. Under a contract devised by the department the contractor will be expected, on receiving a telephone message from the prescribing general practitioner, to supply a concentrator and equipment (cannulas/mask, humidifier, etc), install it at a time convenient to the patient, and service the equipment regularly. The contractor will also be expected to train the patient in the use of the machine, to respond to any emergency call within a time limit (probably 10 hours), and provide back up oxygen equipment whenever required. The contractor will remove the concentrator when instructed by the family practitioner committee when it is no longer required.

The family practitioner committee will enter into a contract with the contractor in each area, ensure that the contractor's standards are maintained in accordance with the contract, and pay the contractor. The family practitioner committee will also arrange for the transfer of suitable patients from cylinders to concentrators on the advice of the patients' general practitioners.

The amendments to the NHS (General Medical and Pharmaceutical Services) Regulations requiring every family practitioner committee to arrange for oxygen concentrators to be provided under pharmaceutical services will be in effect from 1 December 1985. On that date oxygen concentrators will become a listed appliance which general practitioners may prescribe on FP10 prescription forms.

General practitioners' role

General practitioners may still prescribe oxygen cylinders. Oxygen concentrators may be prescribed for any patient who is considered suitable for long term oxygen treatment and has been assessed according to the criteria above. When there is uncertainty about this patients should be assessed by those who can give opinions on suitability for oxygen concentrators.

The role of general practitioners will be confined to the following: (*a*) Identifying patients who may require long term oxygen treatment. (*b*) Making arrangements for patients' assessment when required. (*c*) Writing a prescription on FP10 for concentrators. (*d*) Informing the contractor by telephone to supply a concentrator. (*e*) Informing the family practitioner committee when the concentrator is no longer needed.

Barbot Hall, Carr Hill, Rotherham S61 4QL
M HAMID HUSAIN, MB, FRCPGLAS, general practitioner

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Practice Research

Information systems for general practitioners for quality assessment: II Information preferences of the doctors

ROBIN C FRASER, JULIE T L GOSLING

Abstract

In this part of the study we intended to determine (*a*) the extent to which currently supplied information was used by general practitioners to assess their performance and (*b*) the preferences of the doctors for new information. Four aspects of professional activity were investigated: prescribing, practice activity as shown by family practitioner committee quarterly returns, hospital use, and audit in depth. The results are from 508 (76%) questionnaires returned from the 669 general practitioners circulated in Leicestershire and Lincolnshire.

The prescribing habits of most doctors are influenced both by factual information about drugs from many sources and by feedback on their personal prescribing or that of their practice, which is supplied by the Prescription Pricing Authority, particularly regarding prescribing costs. Little use is made of data from the family practitioner committee. A distinct pattern of preferences for particular items of information emerged. Most doctors wished to receive information that would enable them to compare their personal performance or that of their practice with their local colleagues from the Prescription Pricing Authority (66%), the family practitioner committee (58%), and hospital sources (57%).

Because doctors chose particular items of information that they would like to have, systems that are developed to provide such information are likely to be used. The need to incorporate comparison with peers is particularly important.

Introduction

The first article in this series showed that many British general practitioners are likely to participate in audit activities that are based on the use of information on their actual performance. Furthermore, more doctors will participate if they are supplied with information than if they are required to generate the information.

We therefore sought to establish: (*a*) The extent to which general practitioners use the information that is currently supplied to them. (*b*) The preferences for particular items of information that they would wish to have. (*c*) The extent to which they would be prepared to collect information if it could not be supplied from external sources. (Use of hospital data only.) (*d*) The topics on which they would prefer to carry out an audit in depth.

Four major professional activities were investigated: prescribing, practice activity as shown by family practitioner committee (or equivalent bodies in other parts of the United Kingdom) quarterly returns, hospital use, and audit in depth. The data were derived from the 508 questionnaires returned out of 669 sent to all general practitioner principals in Leicestershire and Lincolnshire (response rate 76%). Full details of the method were reported in the first article.

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.

Results

PRESCRIBING

Table I shows the extent to which the prescribing habits of practitioners are influenced by three different sources of factual information about drugs. The information from the Department of Health and Social Security compares relative costs of drugs presented in histograms. The other two sources provide more general therapeutic information on a variety of topics mainly in review format—for example, "the treatment of hypertension in pregnancy." Respondents were most influenced in their prescribing by the DHSS cost comparison charts, followed by the *Drug and Therapeutics Bulletin*, both of which are sent to all general practitioners in the National Health Service, and least by the regional service.

The Prescription Pricing Authority (or equivalent bodies in other parts of the United Kingdom) provides, through the family practitioner committees, all NHS general practitioners with details of their personal and practice prescribing for a sample month every year. These details include the number and cost of prescriptions issued and comparisons with area and national averages. According to responses on the questionnaire about these annual statements respondents always read carefully (60%), usually read carefully (21%), usually scan briefly (15%), and do not read or other (4%). Two hundred and seven (41%) doctors stated that the information had altered their prescribing habits. Of these, 85% (175) attempted to reduce the cost of their prescriptions, 50% attempted to reduce the number of their prescriptions, and 14% had studied their prescribing in detail. (More than one course of action could be given.) Of the 286 (56%) doctors who said that their prescribing habits had not altered, 73% (208) said it was because their "prescribing always seemed about average," 23% (66) that "no account was taken of their practice characteristics," 28% (80) that "a doctor should be able to prescribe as he thinks fit," and 10% (28) that their prescribing costs were "already below average."

The following proportions of respondents wished to receive routinely from the Prescription Pricing Authority "a summary of the number and cost of the drugs they prescribed": (*a*) By major therapeutic group—for example, all drugs acting on the nervous system—59% (298). (*b*) By all therapeutic subgroups—for example, subgroups of drugs acting on the nervous system would include hypnotics, tranquillisers, and anticonvulsants—50% (255). (*c*) On repeat prescription, 36% (182). (This would necessitate writing repeat prescriptions on a specially marked prescription pad.) (*d*) By selected therapeutic subgroup only—for example, antidepressants, diuretics, and antibiotics—18% (91). (*e*) A comparison of any of the above (*a-d*) with the average per principal in the family practitioner committee area: 66% (333).

DATA FROM FAMILY PRACTITIONER COMMITTEE

Each quarter all committees provide practices with data on the registered practice population and patient moves and a financial statement detailing the total payments to which practices are entitled, based on claims made by the practices for the services that attract itemised fees. Doctors used these data "to assess some practice activity—not merely for accounting—over the previous two year period" as follows: number of patients currently on list (38%); number of contraceptive claims (27%); maternity services (23%); cervical smears (23%); night visits (22%); number of patients removed; registrations (21%); immunisations (21%); and number of patients removed including reasons for removing (14%).

The doctors were asked whether they would wish the family practitioner committees to provide practices in the future with the actual numbers of claims that they make "to compare their level of activity from year to year, both within their practice and with other doctors in the family practitioner committee area." Three hundred and forty five (68%) doctors said "yes," 21% were "interested," but of those two thirds thought it would be "irrelevant to my day to day clinical practice" and one third "could see no way of making use of the information," 3% were "not at all interested," and 7% gave no reason.

Table II shows the rank order of preferences for particular items of information in new practice profiles provided by the family practitioner committee. Roughly 60% of respondents expressed equal interest in all items with the exception of "patients removed with reasons" (37%).

TABLE I—*Effects of DHSS cost comparison charts, Drug and Therapeutics Bulletin (DTB), Trent Regional Health Authority periodic drug circulars (Trent RHA) (n=508 respondents)*

	DHSS %	DTB %	Trent RHA %
Prescribing influenced	85*	71	61
Prescribing not influenced	13	20	32
Do not read	1	8	4
Not known	1	1	3

*Prescribe cheaper drug (almost always 13%, occasionally 72%).

TABLE II—*Information preferences in new family practitioner committee profile (n=508)*

Item of information	Frequency requested %
Number of	
Immunisations	63
Cervical smears	61
Patients currently on list	61
Contraceptive claims	60
Night visits	60
Maternity service claims	58
Patients removed and registrations	57
Patients removed with reasons	37
Comparison of any of the above items with the average per principal in your family practitioner committee area	58

USE OF HOSPITALS

At present there is no mechanism for providing practitioners with information on their use of hospital services. Table III gives the respondents' preferences for information and indicates whether they would collect the information in their practice if it could not be supplied. For all items the demand for information diminished if it could not be provided. Strongest interest was expressed in counts of outpatient referrals (62%); four fifths of those doctors were prepared to collect the information and would welcome advice on how best to do it.

Table IV summarises the most frequently requested items of information relating to prescribing, family practitioner committee data, and use of hospitals. The figures in the right hand column indicate that even if all non-respondents showed no interest 40-50% of all general practitioners would still wish to receive the listed items. It is noteworthy that comparisons with the performance of local colleagues appear in all three categories.

TABLE III—*Information preferences for a new use of hospital profile (n=508)*

Item of information	Frequency requested if provided %	Prepared to collect within practice %
Number of		
New outpatient referrals	62	50
Emergency admissions	56	39
Radiology requests	52	36
Haematology tests	49	30
Specialist domiciliary visits	47	33
Bacteriology tests	47	27
Cervical smears	46	35
New referrals to accident and emergency department	39	25
Histology tests	33	18
A comparison of any of the above with the average per principal in your area	57	—

AUDIT IN DEPTH

Table V gives the topics of interest to 171 (34%) respondents when asked to choose their own topics for clinical or organisational audit in depth. Three choices only were allowed. It was made clear that help to carry out the audit could be provided.

Discussion

The answers given by the doctors indicate a high degree of selectivity both in their stated use of currently supplied information and in their information preferences. This makes their choices more meaningful than if, for example, they had merely asked to be supplied with every possible item of information suggested to them. This in turn suggests that the doctors know what they want and that efforts to provide them with improved flows of information which reflect their choices are likely to be rewarded by high levels of use.

Generally speaking, more interest was expressed in data from the family practitioner committee than any of the other categories of information. Furthermore, many doctors would welcome comparing their personal or practice performance, or both, with that of their local colleagues, and this holds true for information feedback from family practitioner committees (58%), the Prescription Pricing Authority (66%), and hospital (57%) sources. This emphasises the importance general practitioners assign to peer consensus.

Clearly, little use is made of data supplied by the family practitioner committee to assess practice activities. The quarterly statement from the committee, however, reflects practice activity only in terms of aggregated entitlement to fees and on a basis of claims made. It does not record the number of services provided for which claims for payment are made. It would be possible for practices to calculate some of these, such as cervical smears, but not others because of differential rates of payment for immunisations, for instance. Since rates of payment also change from year to year it is impossible to make comparisons in levels of activity over time, based on financial statements. A new numerical profile, which would be relatively easy to introduce, would be more useful, and this is reflected in the demands made by the doctors (see table II).[1] Furthermore, it would be advantageous to identify separately the different immunisation procedures, such as rubella, polio, and pertussis, instead of aggregating them as at present.

On the other hand, general practitioners pay attention to, and are influenced by, the information that they receive about drugs and prescribing in general, particularly in relation to costs. Although the Prescription Pricing Authority is the only source of feedback on personal and practice prescribing, it appears that less than half of the doctors were influenced sufficiently by the figures to alter their prescribing. Nevertheless, 83% of those who did not alter their prescribing were influenced by the figures, which indicated to them that their prescribing frequency and costs were "about average" (73%) or "below average" (10%). This is another example of the impact of peer data. Undoubtedly, the feedback provided by the Prescription Pricing Authority has a powerful influence on prescribing habits. Thus we believe that it would be worth while to devote considerable effort to maximising the unrealised potential which this system has. This requires changes in the way that the information is collected and presented, which in turn requires the collaboration of general practitioners. (See the third article in this series.)

TABLE IV—*Major information preferences*

Information source or category	Information requested	Doctors: Respondents No.	Doctors: Respondents %	Doctors: All doctors in Leicestershire and Lincolnshire %
Family practitioner committee	Practice profile of selected items such as immunisations	345	68*	52
	Practice profile with local comparisons	293	58	44
Prescription Pricing Authority	Individual or practice prescribing profile with local comparisons	333	66	50
	Prescribing profile by major therapeutic group	298	59	45
Hospitals	Individual doctor outpatient referral profile	316	62†	47
	Individual doctor outpatient referral profiles with local comparisons	290	57	43
	Individual doctor emergency admission profiles	284	56	42
Total No ‡		508	100	669 100

*Written permission to gain access to family practitioner committee records to construct these profiles was given by 61% of all doctors in Leicestershire and Lincolnshire and 66% of Leicestershire doctors.
†Half of the doctors were prepared to collect this item of information for themselves.

TABLE V—*Audit in depth topics of expressed interest*

Rank	System or topic	No	%
1	Cardiovascular	46*	19
2	Prescribing	30	12
3	Endocrine	28†	11
4	Practice organisation	27	11
5	Respiratory	24‡	10
6	Prevention	23	9
7	Psychiatry	17	7
8	Obstetrics/gynaecology	16	7
9	Musculoskeletal	12	5
10	Others	23	9
	Total	246	100

*Thirty one related to hypertension.
†Twenty related to diabetes.
‡Eleven related to asthma.

As expected, fewer doctors were prepared to collect data on their clinical and analytical referrals to hospitals compared with those who wished to be provided with the information. Nevertheless, half the doctors were prepared to count their own outpatient referrals, perhaps realising that providing such information from outside sources is likely to prove difficult. In the wide range of topics identified for audit in depth most were clinical and not organisational, and many were related to important chronic diseases such as hypertension and diabetes, the long term management of which is often the responsibility of the general practitioner.[1]

Our findings have practical consequences. A strong demand for information preferences in several categories has been established, and now systems need to be developed to collect the relevant data, convert them into information formats that are both relevant and useful, and communicate them speedily to target groups. The increasing use of computers in general practices, family practitioner committees, and the Prescription Pricing Authority will greatly facilitate this, particularly as a "two way" flow of information is envisaged. Confidentiality must be maintained throughout for individual practitioners and practices. An advisory service will be required to help practices to interpret the information and to take appropriate actions.[4] A library of information packages on how to carry out clinical audits in depth will also need to be developed.

The infrastructure and personnel should preferably be based on family practitioner committees with joint control with local medical committees (an information advisory unit?). This would fit in well with the increased responsibilities of the newly independent and increasingly computerised family practitioner committees. One or two such units should be set up to evaluate their effectiveness.

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This is the second of three papers.