Doctors' attitudes to information systems: a survey of Derbyshire general practitioners

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SUMMARY. This paper describes the results of a survey of all 365 general practitioners in Derbyshire. It deals in particular with their attitudes to information systems and the factors which affect them. The results show that there is much more interest in continuous data collection from primary care than is often supposed. This is particularly so among younger general practitioners. The survey thus describes the possible interest in information recording amongst a typical population of general practitioners.

Introduction

IN primary care in the NHS, that is, in general practice, there are between 180 and 250,000,000 doctor-patient contacts each year (King Edward's Hospital Fund for London, 1973). These contacts generate 334 million prescriptions, the arranging of nine million outpatient referrals, and the start of a process resulting in six million episodes of inpatient care.

The average for a single general practitioner is 12,800 prescriptions, 349 referrals, and 229 inpatient spells. The cost of the general medical and pharmaceutical services in 1974–5 was £610 million or 12·7 per cent of the whole NHS expenditure (Department of Health and Social Security, 1976).

It is an extraordinary fact that this large-scale activity is undertaken without any significant amount of data collection and analysis for management or planning either by the NHS, through its districts, areas, and regions, or by individual practices. It is interesting to note that any business which carried out this number of transactions for this amount of financial turnover would not only be unable to plan its operations properly but would be in breach of the law.

The lack of an information system in general practice reflects to some extent the historical concern for insulation of clinical practice from governmental control, while being inherent in the capitation system of payment. (The contrast with the information available in health care systems providing fee-for-item-of-service is striking.)

Nevertheless, there have always been, since the beginning of the Health Service and before, several practices who have developed, installed, and used information systems of various sorts for practice management, continuing education, and research. The list is a long one, through Pickles' (1939) 'score books' to the age/sex index and the E, W, and F Books pioneered by the College of General Practitioners (Eimerl, 1973), and on to the sophisticated feature card schemes at Livingston New Town (Gruer and Heasman, 1970) and computerized record systems at Southampton, Nottingham, and Exeter (Bradshaw-Smith, 1976). In two instances (the OPCS/RCGP Second National Morbidity Survey (1974) in 1970 and in the Weekly Return Service set up in 1967 (DHSS, 1969)) use has been made of facts collected from practice information systems for health care planning and management.

But most health care planning is concerned only with hospital service planning and neglects to take account of the fact that nearly all hospital care originates from general practice. Equally the general practitioner receives only limited feedback from the Health Service: his list size, sample analysis of his prescribing, and reimbursement for such items as cervical smears that are paid for by fees for item of service.

It must also be said that the grievous shortage of proper information systems in general practice is

compounded by the lowly place that medical records and medical information handling has on the educational 'totem pole', both at undergraduate and postgraduate level. The average general practitioner has never been taught the value of such systems nor how to set them up and gain benefit from them.

There are certainly difficulties in establishing information systems. The chief one is that gathering and processing information takes time, and time is expensive. Ultimately, of course, it is up to each individual doctor and practice to decide whether or not the time spent is worth the effort.

What is the potential market for widening such systems as already exist to include more general practitioners? Any attempt to answer this question falls into three stages. First, it is necessary to gauge the degree of interest in the concept of information systems amongst general practitioners; secondly, to see how often this interest is translated into an attempt to set up a system; and thirdly, to see how many think it is worthwhile to continue, and, if not, why not.

Aim

The survey in Derbyshire described in this paper attempts to answer the first two stages of this process. It is, so far as we are aware, the only attempt yet made to ask this question of a typical group of general practitioners.

Method

A questionnaire was sent out in February 1974 to all 365 general practitioners in contract with the then executive councils of Derbyshire and Derby County Borough with a covering letter which explained the aims and objectives of the survey and pointed out that its content had been fully discussed with the respective local medical committees. A prepaid reply envelope was also enclosed.

One month later, questionnaire and enclosures were sent out to those doctors who had not replied to the original ones or who had not signed a completed form.

The questionnaire (copies of which are available on request from the authors) asked questions about many aspects of practice organization, medical policy, and doctors' attitudes to medicosocial and political questions in addition to those concerned with information systems.

Results

The response rate was 87 per cent, which was gratifying. This represented 320 forms returned out of a possible 365, 259 (71 per cent) of which were returned after the first mailing.

An analysis of the replies shows that Derbyshire general practitioners are very similar to the national average as far as age, list size, and partnership patterns are concerned. Few, if any, had completed three-year vocational training at that time.

Table 1. Percentage of doctors expressing interest in feedback.

Item in question	Percentage interested
Consultation rate	*53.4*
Rate of referral to outpatient department	*50.6*
Certification rate	*49.7*
Analysis by diagnosis	*45.9*
Rate of referral to laboratory	*41.2*
Rate of referral to x-ray	*40.6*
Analysis by social class	*34.4*

In the section dealing specifically with information systems, doctors were asked if they were interested in the concept of the feedback to them of various items of practice information, as a result of a continuous data collection exercise. The results are shown in Table 1.

In addition to the general tendency for younger doctors to be more interested, one curious finding was that the youngest doctors of all in practice, particularly those born in or after 1945, who would still have been less than 30 when the survey was carried out, were considerably less enthusiastic than those with slightly more experience in practice.

The age of the doctor was found to be by far the most

Table 2. Effect of age on interest in diagnostic analysis.

	Interest in feedback	
Date of birth	Yes	No
1901–09	5	15
10–19	21	27
20–29	41	46
30–39	57	27
40–49	23	24
Total	147	139

34 respondents did not answer this question.
$\chi^2 = 17.94$; 4 d. f.: $p < 0.005$.

Table 3. Satisfaction with current records system.

Purpose	Percentage satisfied
Clinical care	*65.7*
Follow-up of cases	*29.7*
Identification of at-risk groups	*15.9*

Table 4. Percentage of doctors using a different or additional recording system (percentages in brackets).

Type of system	Yes	No	No answer
Age–sex register	74 *(23.1)*	226 *(70.6)*	20 *(6.2)*
Chronic sick register	41 *(12.8)*	258 *(80.6)*	21 *(6.6)*
Hospital referrals log	24 *(7.5)*	270 *(84.4)*	26 *(8.1)*
Diagnostic index	19 *(5.9)*	277 *(86.6)*	24 *(7.5)*
Register of patients in hospital	12 *(3.7)*	282 *(88.1)*	26 *(8.1)*
Family folder	8 *(2.5)*	287 *(89.7)*	25 *(7.8)*

important predictive factor in assessing his likely degree of interest in information systems (Table 2). Items found to have no predictive value included partnership/single-handed, list size, use of appointment systems, practice from a health centre, or possession of diagnostic equipment.

Questions were also asked about doctors' degree of satisfaction with the current records system in general practice, from the point of various objectives (Table 3).

These results suggest that just under half the Derbyshire general practitioners are interested in the concept of information systems and feedback. This could be said to represent the 'potential exploitable market'.

Further analysis shows that for each item there was a tendency for younger doctors to be more interested in receiving feedback (Table 2). This tendency was particularly marked in the case of analyses of diagnostic categories and social class.

These results suggest that while a majority of general practitioners are happy with the current system from the point of view of basic clinical care, they consider that the system is inadequate for other, particularly preventive, strategies.

The results showed that some doctors had translated this dissatisfaction into action by setting up a different or additional recording system in their practices (Table 4).

Perhaps not surprisingly, those doctors who had introduced such systems into their practices were much more positive in their attitude to feedback than doctors in general, particularly for analyses by diagnosis and social class.

At the end of the section dealing with information systems, the doctors were asked about the purpose for which they would use the information obtained from a continuous data recording system by means of an open-ended question, coded afterwards. The results are shown in Table 5.

Table 5. Use to which information would be put (percentages in brackets).

Negative and hostile response	105	*(32.8)*
Organizational	74	*(23.1)*
No answer	61	*(19.1)*
Comparison with other practices	38	*(11.9)*
Education	27	*(8.4)*
Political	15	*(4.7)*
Total	320	*(100.0)*
Summarizing the groups produces:		
Negative attitudes	166	*(51.9)*
Positive attitudes	139	*(43.4)*
Political	15	*(4.7)*
Total	320	*(100.0)*

Discussion

The result of this survey of a typical population of general practitioners shows that about half of them were interested in the concept of an improved information system for general practice. Amongst younger doctors, though not the youngest, there was a clear majority expressing an interest. It should be noted that none of them had completed three-year vocational training.

These findings contradict an often heard but ill-defined feeling alleging a total lack of interest about this topic. The answers show that the reasons for wanting the information fell into well-defined categories: educational, self-analysis and audit, clerical, organizational, and medicopolitical. They fit clearly the possible objectives of a continuous data recording process described earlier.

Of those doctors expressing an interest in the feedback of information, most wanted it for purposes of practice organization, which probably springs from the current debate about the most effective use of time in general practice. The next largest group considered that its main value would be in comparisons with other practices.

This is in a sense a form of audit analogous to the Hospital Activity Analysis (HAA) statistics received by hospital consultants. This includes information about case mix, length of stay, and comparisons between the workload of one consultant and his colleagues. More data are available on request. The reactions of hospital consultants to this procedure have been variable.

Twenty-seven doctors (8·4 per cent) put education and self-analysis as the chief reason for wanting the information. There is, of course, some degree of overlap between these categories, but it is clear that most doctors interested in more information want it to improve their day-to-day organization and clinical practice.

This finding is similar to the findings outlined in reports of the continuous data collection exercise in Livingston New Town (Duncan, 1973). One report from there states that "the patient surveillance and monitoring procedures are working well. However, the programmes which are directed towards self-evaluation are making almost no impact. The reception by doctors has been far from enthusiastic."

It is, however, quite possible to devise systems which allow the consumer to choose which items he wants, depending on his willingness to commit time. It is quite feasible to design a system which gives very basic information routinely, but more detailed information on request as desired. It is for the individual doctor to make this decision, based upon his particular motivation.

Will the degree of interest in data collection expressed by the answers to this questionnaire be carried out in practice? Another survey carried out of general practitioners in the Nottingham area showed that approximately half of them did in fact record details of their work for a one-week period (Nottingham University, 1975).

Whether general practitioners would be prepared to continue for longer seems to depend on what they themselves get out of the system. The high degree of interest amongst younger doctors surely has considerable and exciting policy implications for the future. It may well be, for example, that assumptions such as that in the National Morbidity Survey, that it is impractical to ask a random sample of general practitioners to record, may be invalid from now on.

There is evidence that, once initial problems have been overcome, the introduction of an improved information system into a practice has resulted in the improvement of patient care, and of an increased level of job satisfaction. It seems reasonable, at a time when the DHSS documents on *Priorities for Health and Personal Social Services in England* (1976) and *The Way Forward* (1977) stress the importance of primary care and call for its expansion, that a small amount of the extra funds might be used for a pump-priming exercise to get interested general practitioners over these initial difficulties.

The high level of interest discovered by this survey and the potential benefits to be gained by it suggest that this would be a worthwhile use of resources.

References

Bradshaw-Smith, J. (1976). *British Medical Journal,* **1**, 1395-1397.

Department of Health and Social Security (1969). *On the State of the Public Health for the Year 1968.* London: HMSO.

Department of Health and Social Security (1976). *Priorities for Health and Personal Social Service in England.* A consultative document. London: HMSO.

Department of Health and Social Security (1977). *The Way Forward.* A consultative document. London: HMSO.

Duncan, A. H. (1973). *The Livingston Project—the First Five Years.* Edinburgh: Scottish Home and Health Department.

Eimerl, T. S. (1973). *Medical Care,* **11**, No. 2, Supplement, 138-144.

Gruer, K. T. & Heasman, M. A. (1970). *British Medical Journal,* **2**, 289-291.

King Edward's Hospital Fund for London (1973). *Accounting for Health.* London: KEHF.

Nottingham University, Health Services Research Group, Department of Community Health (1975). *Interaction between General Practices and Hospitals.* Progress report.

Pickles, W. N. (1939). *Epidemiology in Country Practice.* Bristol: J. Wright.

Royal College of General Practitioners, Office of Population Censuses and Surveys and the Department of Health and Social Security (1974). *Morbidity Statistics from General Practice. Second National Study 1970-1971.* London: HMSO.

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NSPCC

The National Society for the Prevention of Cruelty to Children is entitled in legal proceedings to refuse to disclose the identity of a person who brings to it a complaint of a child being neglected or ill-treated, under promise of confidentiality. That protection applies not only in the process of discovery, in an action against the society, but also to evidence at the trial; for though the society is a voluntary body, and not an organ of central Government, it is a person 'authorized' under the Children and Young Persons Act 1969 to bring care proceedings in respect of children.

Reference

The Times (1977). Law Report, 3 February.

MRCP: 1977

Now for the philosophy. I believe that this is, and ought to be, élitist. We are trying to identify the best medical graduates in Britain who wish to go on to a hospital career, the high fliers with the intellectual capacity and motivation to make a successful career in the British Health Service as consultants.

Reference

McNicol, G. P. (1978). *British Medical Journal,* **1**, 217.