

## *The accuracy of general-practice records*

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Research using general-practice records is affected by the quality of the data available and Dawes (1972) has shown how poor this can sometimes be. As a preliminary to other work, we have examined a sample of medical record cards for the accuracy of demographic information about patients, and for numerical accuracy for the purpose of calculating the population for which the practice is at risk. We also obtained information about the length of time patients had been registered with the practice as we wished to estimate the turnover. In addition, information was sought about family size and the extent to which other practices are involved in the care of families.

The practice is situated in a densely populated working-class area of South Liverpool, which is at present undergoing partial slum clearance and improvement of some existing housing. The practice team of three general practitioners, fully-attached health visitor, district nurse, and social worker cares for a list of about 7,000 patients.

### **Method**

On 1 May 1971 a ten per cent sample of patients was selected from the record files using random numbers. Each of the sampled records was marked and an interview schedule was placed inside. For each patient, details of the name, address, date of birth, sex, occupation and date of registering with the practice were recorded from the medical record which was then replaced in the file. During the next six months any patient with a marked record who was seen was asked the scheduled questions during the consultation. Information about children was obtained from a parent or another responsible member of the family.

The interview schedule included questions to check the accuracy of demographic data on the medical record cards, to check the year in which patients first registered with the practice, to ascertain the size of family unit in which they lived, how many members of the family were cared for by other practices and how many other practices were involved in the care of one family. Completed schedules were removed and the information checked against that obtained from the medical record envelope.

After six months, the 200 patients who had not been seen during a consultation were visited at their registered address and interviewed. Patients no longer living at the stated address were traced, and those still in the area interviewed. In all other cases the date on which the patient left the area was obtained from neighbours, relatives or corporation housing lists. Any patient whose name was deleted by the Executive Council within six weeks of the sampling day was counted as having left the area before the sample was drawn. Those deleted after six weeks and whose date of leaving the area could not be found were counted as part of the population risk on the sampling day.

### **Results**

During the year 1971, the registered list from the age-sex register fell from 7,075 in January to 6,976 in July, and rose to 6,997 in January 1972. The discrepancies between the age-sex register and the executive council records during the same period were +29 (0.4 per cent) in January 1971, +4 (0.06 per cent) in July 1971, and +50 (0.7 per cent) in January 1972, showing that the age-sex register is a reasonably accurate index of registered patients.

The records show that during 1971, 908 (13 per cent) patients were deleted from the list and 829 (12 per cent) joined. The percentages are based on the list size in July 1971.

Of the 699 members of the ten per cent sample, 581 (83 per cent) were interviewed. Of the remainder, we found that 62 (nine per cent) had died or left the area before the sample was

drawn. A further 14 (two per cent) could not be traced and were assumed to have left the area, as examination of their medical records showed that none had been in contact with the practice during the past eight years.

Thus, 11 per cent were not part of the population at risk at the time the sample was drawn. There were 42 patients (six per cent) known to be living in the area at the time, but who left before they could be interviewed. By the end of the seven-month interviewing period we had established that 123 patients (18 per cent of the sample) had left the area. Of these, 53 (eight per cent) had been deleted from the list by the Executive Council but 70 (ten per cent) were still nominally registered with the practice. These results show that for this practice between ten and eleven per cent of the patients registered at any time are not living in the area and are not part of the population for which the practice is at risk.

TABLE 1  
ACCURACY OF INFORMATION ON MEDICAL RECORD CARDS  
PERCENTAGES

	<i>Correct</i>	<i>Incorrect</i>	<i>Unrecorded</i>
<i>Sex</i>	99	1	—
<i>Date of birth</i>	95	5	—
<i>Marital status</i>	89	11	—
<i>Occupation</i>	67	12	21
<i>Address</i>	90	10	—

Number interviewed 581

#### *Sex, age, and marital status*

Table 1 shows the accuracy with which basic demographic details are recorded on the medical record cards. Three of the patients whose sex was incorrectly recorded were children, and the other an Asian. In each case the forename gave no indication of the patient's sex. All but one of the errors in date of birth were the day or month. The one major error in year of birth was where a mother had been incorrectly registered with her daughter's date of birth, although the daughter's record was correct. Marital status was inaccurately recorded particularly for males and for those who rarely came to the surgery. Ten per cent of patients had moved within the area and had not notified us of their changes of address.

#### *Occupation*

For the purpose of research, information about occupation was obtained so that the social class and socioeconomic group of patients could be determined according to the Registrar-General's classification. These classifications are based on the occupation of the head of the household. Therefore, if a working wife's own occupation was recorded in the records (as it usually was), that record was classed as incorrect for research purposes. By these criteria occupation was incorrectly recorded in 12 per cent of patients and not recorded at all in 21 per cent. One old lady was too confused to be able to give the necessary information. Of the patients interviewed, 83 per cent lived in families where the man was in employment, four per cent had been unemployed for three months or more, three per cent were students, and ten per cent were retired.

#### *Continuity of care*

Patients were asked how long they had been registered with the practice, and this was checked with their records. Twenty seven per cent of the patients had been registered since the start of the National Health Service, but 47 per cent had been registered for six years or less. Table 2 shows the age distribution of the patients according to how long they have been registered with the practice. If we consider that some categories in the 'years of registration' do not include the full life-span of the age group concerned, there is a similar distribution of age groups within

TABLE 2  
YEAR OF REGISTERING WITH PRACTICE BY AGE

Age in years	Per cent of age group registered in							Number of patients
	1949 or before	1950-54	1955-59	1960-64	1965-69	1970-71	Total %	
<1	—	—	—	—	—	100	100	19
1-4	—	—	—	—	87	13	100	38
5-14	—	—	16	47	30	7	100	86
15-24	10	15	8	6	36	25	100	87
25-44	35	2	6	14	33	10	100	135
45-64	48	2	9	8	23	10	100	134
65-74	49	2	6	9	25	9	100	47
75+	44	3	3	12	23	15	100	34
Number	159	21	45	83	185	88		581
Total patients %	27	4	8	14	32	15		100

each year group, except for those aged 15-24 where there are more than expected in the newly registered group. This could be explained by the fact that the practice area contains a high proportion of multiple-occupancy houses, bed-sitters and hostels, which attract young single working people, newly married couples and students, most of whom fall into this age group.

The pattern of registration of children under 15 suggests that most have been registered since birth. In the mobile 15-24 age group over 60 per cent have been registered for six years or less. There are equal proportions of long-term registrations and of registrations between three and six years in the 25-44 group. For all groups of 45 years and over most have been registered for 22 years or longer.

#### Families

In the schedule, the term 'family' was defined as all those living in the same household unit and eating together. There were 19 patients living in institutions, one with no fixed abode and

TABLE 3  
FAMILY SIZE OF PATIENTS BY AGE GROUP

Number in family	Age of patients																	
	<1		1-4		5-14		15-24		25-44		45-64		65-74		75+		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
1	—	—	—	—	—	—	4	5	6	4	14	11	12	31	10	33	46	8
2	—	—	1	3	2	2	11	13	10	8	53	41	17	44	6	20	100	18
3	8	42	7	18	7	8	27	31	27	21	24	18	8	20	5	17	113	20
4	4	21	11	29	25	29	23	26	48	37	21	16	2	5	6	20	140	25
5	5	26	6	16	22	26	10	11	19	14	10	8	—	—	2	7	74	13
6	2	11	8	21	20	23	4	5	11	8	6	5	—	—	1	3	52	9
7	—	—	3	8	3	4	6	7	1	1	1	1	—	—	—	—	14	3
8	—	—	1	3	3	4	—	—	4	3	—	—	—	—	—	—	8	2
>8	—	—	1	2	4	4	2	2	5	4	—	—	—	—	—	—	12	2
Total	19	100	38	100	86	100	87	100	131	100	129	100	39	100	30	100	559	100

two who refused to answer. These are excluded from the following tables. The way in which the sample was chosen means that patients living in families had a greater chance of being included but this effect is probably unimportant for a large sample.

Table 3 shows the family size of patients according to age. As expected, most new-born babies were members of three-person families, but two babies had five other persons in the household. Three of the children between one and 14 had only one parent, and 15 of them lived in families of more than six persons. The proportion of those living alone rose from five per cent of the 15-24 and 25-44 age groups, to 31 per cent of the 65-74 group, and 33 per cent of those aged 75 and over, reflecting the increased likelihood of bereavement with advancing age. In the other age groups, family size followed the expected pattern.

TABLE 4  
PATIENTS WHO HAVE OTHER MEMBERS OF THE FAMILY REGISTERED WITH ANOTHER PRACTICE

<i>Number of people in family registered with another practice</i>	<i>Number of patients</i>	<i>Per cent</i>
None	414	74.0
One	112	20.0
Two	22	3.0
Three	4	0.7
Four	2	0.4
Five	3	0.5
Six	2	0.4
TOTAL	559	100.0

Table 4 shows how other practices were involved with patients' families. In 74 per cent of cases the practice looked after the whole family. The two per cent of patients with three or more of their family cared for elsewhere were all men who had remained with the practice on marriage, although their wives and children were registered with other doctors. When asked how many other practices were involved with the medical care of the family, 137 (25 per cent) said one and eight (one per cent) said two other practices.

#### Discussion

It is well known that the accuracy of the demographic information available on standard medical record cards is suspect unless a continual effort is made to keep it up to date (Lees and Cooper, 1963). A survey of records carried out by Dawes (1972) showed that ten per cent of cards had no date of birth recorded, 99 per cent of males had no marital status recorded, and 60 per cent had no occupation recorded. Kalton (1968) pointed out that usually special surveys are needed to gain accurate information for general-practice research. The research unit of the Royal College of General Practitioners has done much to encourage higher standards in record keeping, but this study shows that even in a practice committed to research, records still show deficiencies.

Information is most accurately recorded for factors such as sex and date of birth which never change. It is reasonably correct for data such as address or change of name, which is accepted by both patients and doctors as being necessary for medical care, but it is unlikely that information about occupation or marital status will be recorded accurately, if at all, unless special efforts are made by the practice team.

Many authors have pointed out that records held by the doctor are not a true indication of the number of patients for whom he is at risk. Firstly, there is inevitably a discrepancy between the list registered by the Executive Council and the records held by the doctor (Lees and Cooper, 1963). This study shows that with determination such errors can be reduced to less than one per cent. Secondly, there will always be records held by the doctor for patients who have died and not been deleted from the list, or who have left the area and not registered with another doctor (Shepherd *et al.*, 1966).

Morrell (1970) has shown the difference produced in consultation rates when the denominator 'population at risk' takes account of or ignores these absent patients. This problem is accentuated in an urban area with a highly mobile population like Liverpool. Our practice list is

inflated by at least ten per cent by patients who have left the area but not the list. A third source of error is the number of potential patients in the area who are unlikely to register with the practice until they fall ill (Morrell, 1970).

In an inner urban area such as ours this number is likely to be exaggerated by the local Executive Council's policy of not advertising practice vacancies when they occur, but dispersing these practice lists to compensate the resident doctors for the effects of depopulation. However, when a local doctor ceases to practise an unknown number of people, long resident in the area, fail to re-register until they fall ill. It has been suggested that these patients are balanced by the patients who have left but not been deleted, but this is only true if a list size is fairly static, and our practice list is gradually falling.

As well as the research aspects of these changes in practice population, there are implications for the quality of care. In a deteriorating urban area the population is more mobile than in a settled suburban area. The concept of continuous care of patients over long portions of their life span becomes unrealistic.

### *Turnover*

In a recent study of Camden (Sidel *et al.*, 1972), it was suggested that practitioners interested in whole-family medicine are unlikely to be attracted to poor areas where mobility of the population and diminishing numbers of family groups hinder this type of practice, and that there would inevitably be a deterioration in the quality of care in such areas. If percentage additions to and deletions from the list are summated, the resulting figure which we have called turnover, is an indication of the total patient mobility in the practice. Our results showed a 25 per cent turnover of the practice population in one year, which compares with figures of 20 per cent, 17 per cent and 18 per cent in three other Liverpool practices (personal communication, Liverpool Executive Council), and between 18 per cent and 37 per cent for practices in Bristol quoted by Whitfield (1972).

In spite of this high turnover, 53 per cent of the patients have been registered for seven years or more, and 27 per cent for 22 years or more. We also found that 74 per cent of patients live in family groups of three or more, and that 74 per cent of patients are members of families totally cared for by the practice. Thus whole-family medicine is not only possible, but is still the usual pattern of practice in this inner urban area.

### *Living alone*

Patients living in a poor physical environment, as here, have an excess of social problems, which frequently present medically (Sylph *et al.*, 1969). Shepherd *et al.* (1966) showed that psychiatric morbidity is greater in men who are single, widowed or divorced, and women who are divorced or widowed, and it is likely that many patients in these categories live alone. We consider that people living alone, one-parent families and large, poorly housed families with young children are particularly at risk for psychiatric or social disorders, and our results show that 15 per cent of the patients in our sample were members of these vulnerable groups. Thus, it is important that a high standard of family medicine should be maintained and actively encouraged in these urban twilight areas, in order to support these identified, high-risk groups of patients.

### **Summary**

A ten per cent sample of a practice population was traced to identify the proportion which had left the area, to check the accuracy of information on the medical records, and to provide background information about the families of the patients and how they relate to the practice.

Between ten and eleven per cent of the recorded practice population are no longer in the area at any time, and therefore not part of the population at risk. The accuracy of information on the records was 95 per cent for date of birth, 90 per cent for address, 89 per cent for marital status, and 67 per cent for occupation. Differences between the number of records held by the Executive Council had been reduced to less than one per cent.

Fifty-four per cent of patients have been registered with the practice for seven or more years and 27 per cent have been registered since the start of the National Health Service. Family groups are still the norm, but 15 per cent of patients live outside family units which puts them

at risk for higher morbidity. The practice team is responsible for the total care of 74 per cent of families. The implications of these for medical care in a poor urban area are discussed.

#### Acknowledgements

We wish to thank Drs Muriel Yates and G. Yates, Mrs Pam Ratoff and Miss N. Anderson for their help in interviewing patients at home, and Miss Arkell and the surgery staff for the clerical assistance. We also want to thank Mrs Valerie Hillier, Miss Jock Hua Lim and Mrs Carol Yeardley for help in preparing data. We gratefully acknowledge the financial support of the Department of Health and Social Security for this project.

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#### WAR PENSIONERS

At the end of 1972 the Department of Health and Social Security was paying 481,000 war pensions for disablement or death due to service at an annual cost of £158,000,000.

Of the pensions being paid 104,000 were for the 1914-18 war and 377,000 for the 1939-45 war and subsequent service.

From 2 October 1972 the 100 per cent rate for a private soldier was £11·20 a week, and for a subaltern £679·00 a year. The standard rates for war widows' pensions for these ranks are now £8·80 weekly and £519·00 a year respectively.

War pensions, in common with social security benefits, are now reviewed annually, and it is proposed that the 100 per cent disablement pension will be increased on 1 October, 1973 to £12·80 weekly for a private soldier and £762·00 a year for a subaltern. The corresponding rates for war widows' pensions will then be £10·10 and £587·00 respectively.