PRACTICE OBSERVED

Practice Research

Do patients who move to a new town consult their doctor more often?

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Abstract

A study was conducted to measure any difference in the consultation rate of patients from two new town housing estates compared with patients from the rest of the practice. Patients from the new estates consulted 15% to 20% more than those in other areas, but newly registered patients showed no difference compared with the indigenous population. It is suggested that patients who chose to move to new town rented accommodation bring with them a more casual attitude to the general medical service.

Introduction

Since 1970 Milton Keynes has grown rapidly. By 1980 two thirds of its 110 000 inhabitants had moved to the town during the decade. Patients in a new town are said to be more likely both to consult their doctor and to move again.¹ But moving itself is said to increase the consultation rate,² and areas with a high turnover are likely to have their figures seriously distorted by inaccuracies in their population denominator, as shown by the age-sex registers.³

This study was conducted to compare the consultation rates

of patients living in development corporation estates with patients living in other areas. Any difference had to be distinguished from the effect of different demographic characteristics of the population, as well as distortions due to the effect of moving and incorrect registration.

Method

The study was conducted throughout 1980 from a single health centre with six doctors in partnership. There were 17 000 patients on the age-sex register (excluding patients living in institutions), and 7762 of them lived in the main town of the practice (Stony Stratford), which is now part of Milton Keynes. Most of the other patients lived in villages outside Milton Keynes. Many private estates had been built throughout the area since 1960. In 1972 two estates were built in the main town of Stony Stratford by the Milton Keynes Development Corporation.

All face to face consultations were recorded on 42 sample days of the year, providing six examples of each day of the week, or a sample of 1:8.7. For each consultation it was noted whether it was a surgery consultation or a visit and what type of consultation it was (patient initiated, doctor initiated, fertility, out of hours, or failure to attend). The object of the analysis was to define any difference in the consultation rate in a year, firstly, between patients who lived in the corporation estates and those who lived elsewhere, and, secondly, between patients who had moved to the area recently and those who had lived in the area longer. The effect of these two characteristics on each other had to be defined, and in either case the effect of available demographic characteristics had to be taken into account.

The Oxford Community Health Project⁴ processed the information and produced consultation and matched population figures for each group within each variable. For every group there was a series of tables showing the number of consultations and patients as defined by every other variable available—namely, age, sex, accessibility, doctor with whom registered, duration of registration, and areas of residence. In the main town, where a household study had been conducted, the social class of patients was also known. Direct stan-

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standardisation of each area and each duration of registration group for all consultations and each type of consultation was therefore possible.

For any group the actual consultation rate is not only the result of its own characteristics but the effect of the other variables mentioned. On the basis of the known population structure in terms of the other variables the expected consultation rate of the group can be calculated. Expressing the actual consultation rate as a factor of the calculated expected consultation rate isolates the effect of the group itself, so that if the actual consultation rate is higher than the expected rate the factor will be more than one; if lower, it will be less than one. In this paper comparisons are expressed exclusively in these terms.

In the main town figures for the population structure of the incorrectly registered patients were available⁵ and it was possible to make accurate corrections of the actual and expected consultation rates for this potential error. Here, patients were categorised by area according to whether they lived in the corporation estates, had moved to new private estates available since 1971, or lived in houses that had been built over the centuries to 1972. Three categories of patients were defined according to duration of registration: the new patients, who had been registered for under three years; patients who had been registered for three to 20 years; and the indigenous population, defined as the patients and their children who had been registered with any doctor in the area for more than 20 years.

The stability of the four areas of the main town was measured to see whether there was any indication of a difference between the consultation rate of patients who come and stay and those who come but move again. The measure of stability was the proportion of patients still registered with the practice three and six years after first registration.

The χ^2 test was used to test the significance of differences in consultation rates found.

Results

The total consultation rate a year for the practice was 3.08, but this figure was greatly influenced by demographic factors, notably age and sex. An increase in consultation rate with age was due mainly to an increase in the visiting rate for elderly patients. The consultation rate of young women was more than twice that of young men, half of the increase being for fertility reasons.

Consultation rates according to duration of registration showed that the practice as a whole behaved in a similar way to patients in the main town. The same was true for patients in different areas; in this case patients in the established part of the main town behaved in a similar way to patients outside Milton Keynes. In the final analysis accessibility, doctor with whom registered, and social class had a small effect on the expected consultation rate because of the mix of the populations. Information on incorrect registration was available only in the main town, and, as the effect of this was large and data from the rest of the practice contributed no further information, the tables show only results from this part of the practice.

Analysis of the total consultation rates of patients of different durations of registration showed significant differences between the groups when the figures had been corrected for incorrect registration (table 1). Before the figures were corrected for incorrect registration there were no significant differences between the figures showed a misleadingly significant high rate ($p < 0.001$) for newly registered patients. Fertility consultations taken alone, however, showed differences that were greater and persisted after the correction for list inflation. In them it was found that those registered for an intermediate number of years consulted less than either the new patients or the indigenous population ($p < 0.001$) and the indigenous population consulted more than the new patients ($p < 0.005$).

Patients who lived in the corporation estates consulted 15% to 20% more than patients who lived in any of the other areas. The

difference was significant whether the two estates were taken together or separately, or when the estates were compared with the other groups in the main town ($p < 0.001$; table 1), where figures for list inflation were available, or with the rest of the practice. All other areas had nearly identical consultation rates after correction for their population structure. Patients from the corporation estates consulted more than expected for every type of consultation except doctor initiated visits, which were significantly less frequent than expected ($p < 0.05$). With regard to patients from the corporation estates particularly frequent were out of hours consultation ($p < 0.0001$) and failure to attend without cancelling their appointment ($p < 0.01$; table 11).

TABLE 1—Consultation rates in different areas

	Population (corrected for list inflation)	Actual expected consultation rates
Milton Keynes Development Corporation Estates (opened 1972-3):		
Estates 1	1250	1.17
Estates 2	1018	1.13
Private houses available after 1971	1246	0.98
Housing available before 1972 (established town)	3826	0.98

The analysis of the proportion of patients in the main town who were still registered with the practice three and six years after first registration (table 1V) showed that the corporation estates were significantly different from each other ($p < 0.0001$). One was as stable as the established town, whereas the other was very unstable, with only a quarter of the patients still there six years after first registration. Another measurable difference between the two estates was that the more stable estate had a higher social class structure, with 18% classified as social class II compared with only 3% in the less stable estate.

Discussion

The study aimed at identifying any "new town" factor in the consulting habits of patients. To do this account had to be taken of the demographic characteristics of the population and incorrect registration. Furthermore, the effect of moving itself was investigated separately by studying the effect of duration of registration on consultation rate.

No statistically significant difference in consultation rate was found between patients of differing duration of registration, with the exception of consultations for fertility, where low consultation rates were found in those registered in the intermediate years. A similar trend was seen for other types of consultation but these were not significant. These findings are similar to those of Goodman and Crombie,⁶ who used a different approach. If incorrect registration had been ignored we would, like other workers,¹ have been misled by appreciably higher consultation rates among the recent immigrants.

The effect of area of residence showed that patients from the Milton Keynes Development Corporation estates consulted 15% to 20% more than patients from any other area. This higher rate was present in both estates, though they were different from each other in two other measurements we made: social class and stability.

TABLE 1—Consultation rates of patients who had been registered for different length of time

	Population on the register (duration unknown in 227 of 776 patients)	Uncorrected for incorrect registration	Corrected for incorrect registration
Indigenous population (registered for more than 20 years or born to indigenous patients)	1035	1.01	1.01
Intermediate (registered for between 3 and 20 years)	1191	0.97	0.97
New patients (registered for under three years)	2197	1.18	1.18

TABLE III—Effect of location on different types of consultation (corrected for incorrect registration)

	Surgey consultation and patient initiated visits—excluding those seen by the doctor on duty (82.4%)	Medical initiated (5.4%)	Out of hours (5.4%)	Non-attendance (5.4%)
Milton Keynes Development Corporation Estates	1.12	0.85	1.63	1.34
Private houses available after 1971	0.99	1.00	0.85	0.85
Housing available before 1972	0.96	1.00	1.04	1.04

TABLE IV—Turnover of patients in the four areas

	Percentage still registered with the practice three and six years after first registering		Population on the register		
	Three years	Six years	1971	1976	1980
Milton Keynes Development Corporation Estates:					
Estates 1	54.2	23.0	0	1180	1341
Estates 2	75.7	42.4	0	972	1088
Private houses available after 1971	91.2	86.3	3070	872	1299
Housing available before 1972 (established town)	73.7	55.7	3077	3627	4010

It is not clear from published papers whether patients from new towns consult differently.¹ Even the conclusion by Martin *et al*⁷ that there is a high incidence of mental disorders in a new town was questioned by Hare and Shaw,⁸ who found no difference between an established and a new area of Croydon. In other reports the uncertainty is compounded because the two issues of moving and moving to a new town, are not separated and the effect of incorrect registration not measured.¹¹ Our findings are clear: patients moving to new Milton Keynes Corporation estates consulted more than patients moving to other areas.

Patients from the corporation estates had an exceptionally high rate of failure to attend an appointment without cancelling it, and a very high rate of consultations out of hours. This suggests that patients from the estates have a more casual attitude to the medical service and this might well explain their high consultation rate. The reciprocal "doctor initiated" visiting rate might mean that the patients who are less thoughtful in their use of the Health Service may find it less caring. An alternative reason for the differences is that there is a difference in the incidence of sickness. This seems unlikely. The low doctor initiated visiting rate indicated that the doctors did not think so, and a relatively small change in the reporting of illness might have a big effect on the consultation rate as there is a considerable reserve of unreported symptoms in the community.¹² Differences between communities have been shown before¹³ and a general lowering of the threshold of consultation in recent years was an important finding of the two national morbidity studies.¹⁴

If a more casual attitude towards the medical services is the cause of a higher consultation rate the question is whether the corporation estates create a social setting that causes the differences. It seems more likely that those who select themselves to move to these estates bring with them attitudes towards the medical services that cause a high consultation rate. This attitude may run through every aspect of their life and include a different attitude to the public services in general. The differences are not big. Thirty years ago Taylor observed that 15% of patients caused 50% of the work.¹⁵ It would require only 6% of those who seldom consult a doctor to join those who often consult to account for the differences we observed.

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Estimating list inflation in a practice register

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Abstract

The reason why patients were incorrectly registered in an age-sex register was studied. Whereas underregistration was caused by patient delay in registering with a doctor, the much greater overregistration was caused by administrative delays in removing their names from the register. It is suggested that it would be possible for the software of a computer system designed to estimate list inflation to population size and structure for estimated list inflation.

Introduction

However carefully a practice age-sex register is maintained it cannot exactly represent the population at risk because a proportion of the population is always moving. From a study of incorrectly registered patients we have tried to understand the way population movement produces incorrect registration. The importance of this is that to discover incorrectly registered patients directly is so laborious that it is rarely attempted, even when such figures are crucial to establish a correct population denominator.

In a stable practice the time interval caused by delay in registering with a doctor, and the resulting underregistration, would be expected to be counterbalanced by the same delay after moving away before registering with another doctor that causes some overregistration. Nearly all age-sex registers, however, have more overregistration than underregistration, and, consequently, list inflation. This is not surprising as patients' names are rapidly added to the register when they present their cards to a practice,¹ whereas when they move away and present their cards to another doctor their names have to be processed by a lengthy administrative machinery (fig 1).

FIG 1—Effect of patient movement on the accuracy of an age-sex register.

We test here the following hypotheses:

- (a) The underregistration rate is a consequence of the registration rate and the time patients take to present themselves to the practice.
- (b) Overregistration is the outcome of the removal process, so

that patients who are overregistered will be similar in structure to those removed. In a stable practice the structure of patients removed will be sufficiently similar from year to year to use the previous year's removals for comparison. At any one time these will be the most up to date figures available to a practice.

Method

A single electoral district was studied in April 1980 as part of a study on consultation rates in Milton Keynes.² The age-sex register was in day to day use and was regularly updated and checked. Over-registered patients were identified by finding patients in the register who were no longer living in the area, and underregistered patients were people living in the area who were not registered with a local doctor. The identification process included a household study, a proportion of the population is always moving.

Little is known about underregistered patients except their address, which limits their comparison with no registrations. The time taken for patients to register was measured by asking 670 consecutive new patients their date of moving to the practice area. As much is known about overregistered patients as other patients, and they and patients removed during 1979 were registered according to demographic data.

Finally, there was an opportunity to study the registration characteristics over several years of a small local boarding school, which had moved to the practice area (though outside the electoral district under study) at the same time as the computer register had been started. Every boy was registered on the day of his arrival and the number of boys at the school each term was known.

Results

At the time of the study 646 of the 7774 patients on the register in the electoral district were found to be living outside the practice area (overregistered); 240 people were found to be living in the town but not registered with a local doctor. As 8.3% of the town were registered with other local practices, the practice was considered to be at risk to care for 221 of them (underregistered).

Registration and underregistration.—Of the 670 consecutive patients registering with the practice who were asked how long they had been in the area, 70.4% had moved to their new home less than two months before, and within a year of arriving 94.9% were on the register. Only two had been in the area for more than three years. Analysis showed that on average a patient was not in the area for three months before registering with a local doctor. This delay in registration was shown to account for all the underregistration found. A quarter (three months) of the new registrations during 1980 in each of the four areas in the district were found to be very similar to the number of underregistered patients found (table 1).

Removal and overregistration.—The numbers removed during 1979 were 669, and, although a different group from those overregistered, they were very similar in age, sex, type of housing, social class, and doctor with whom registered. Table 11 shows the number of patients in each age group for those overregistered and removed the year before. Also shown is an exception: there was a relative absence of children under 5 among the overregistered population.

The similarity in structure just described was absent when the patients were grouped according to duration of registration. Figure 2 shows the proportion of the remaining registered population that were overregistered or had been removed in each of five duration of registration groups. An unexpected pattern emerged, which is shown in fig 2. Patients are most likely to move again during the first six years after registration. As the years go on the remaining population is progressively less likely to move again. If overregistration was caused simply by delay in removal of former patients' names the pattern of overregistration would be expected to follow removal, but a few months later, reflecting the administrative delay. If this was true, and

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