

## THE PATTERN OF MIGRATION

A survey of some ecological factors affecting a general practice during the first ten years of the National Health Service.

TEVIOT S. EIMERL, *D.S.C., V.R.D.*, M.D.

Penketh, Lancashire

(Research Assistant, Medical Care Research Unit;  
University of Manchester)

ONE of the assets of general practice in the Health Service is that a considerable amount of new information is now available to the practitioner. This information, although issued by the local administrative agents of the State for purposes connected with the smooth running of the service, may yet be used by the doctor for research purposes.

Ecology has been defined as that branch of biology which deals with the relations of living organisms to their surroundings, their habits, and their mode of life (*Oxford English Dictionary*). It is therefore reasonable to state that a study of human ecology with particular reference to the behaviour of patients moving in and out of a given *milieu* (i.e. movement into and away from the practice) is a desirable end in itself; for not only will it help the practitioner to observe and comprehend what is taking place over the years, but it may add to the sum of knowledge. The medical practitioner will gain insight into the manner in which a representative section of the community reacts in this particular way to its surroundings in society. Knowledge of how the group will behave is often of help to the individual practitioner faced with the problem of giving advice to a member of that group. Another relevant factor is that an investigation of this nature, based upon ten years' continuous observation, has not previously been possible; for it is only made possible by the provision of the necessary information to the practitioner, a facility available only since the end of 1948.

Each executive council, acting as the local administrative agent of central authority, maintains a list of the name, address, N.H.S. number or other similar

means of identification of every patient who is registered with a general practitioner providing services under the National Health Act of 1946, in its area. When a patient registers with a different doctor, for example on arrival in a new district, or on change of address in the same district, the practitioner accepts the patient's personal medical card, signs the acceptance and forwards the card to the clerk of the executive council for his area. On arrival at the council's office administrative machinery is set in motion; the particular practitioner is credited with another patient and a request for the medical record of this patient is sent to the executive council for the area in which the former practitioner providing services for the patient resides. When this request is received by the second executive council, in turn a request for the return of the particular medical record is sent to the practitioner who is still holding it in his possession. On receipt of this request, the practitioner concerned extracts the named medical record from his file and returns it to his local executive council. The medical record is then passed to the new executive council, who in turn forward it to the new practitioner selected by the patient. In this manner an individual patient's medical record will always follow the patient as he moves from one practitioner's care to that of another; continuity of medical recording thus being maintained.

A similar procedure is followed when a patient dies, emigrates, or enlists in the Armed Forces, except that although a request for return of the medical record is made to the practitioner, the executive council does not forward this record to any other authority for transmission to another practitioner. Provision is also made for change of doctor without change of address on the request of the patient, or on request of the practitioner; in each of these instances a request for the return of the medical record is made to the practitioner by the executive council concerned.

Each practitioner in the Health Service is therefore accustomed to receive at almost weekly intervals a standard form E.C.22A, in which are detailed the names and identification number of all patients who have moved out of the practice since the previous form E.C.22A was sent to him, and requesting return of the appropriate medical records. Additional details are given on the statement of:

(a) the new executive council area into which the patient has moved (this information is coded, and is provided mainly for administrative purposes: it does not concern the practitioner).

(b) one of 7 reasons for the transfer is indicated.

The seven reasons, marked in code, are:

X—signifying transfer to another doctor in the executive council's area on change of address.

R—transfer to another doctor in another executive council's area on change of address.

D—removal on notification of death.

E—removal on notification of emigration for more than three months.

S—removal on notification of enlistment into the Armed Forces.

These five categories have remained constant since the inception of this system, but in more recent years two additional categories have been included:

N—transfer to another doctor locally on the patient's request.

C—transfer to another doctor locally with the practitioner's consent.

These additional categories are partly an elaboration of category X above. The numbers concerned are collectively very small, and do not affect the investigation or the results recorded to any degree of importance; transfer under these two categories have been included with 'X' changes, and commonly by know-

ledge of the few individuals concerned it has been possible to classify the transfer correctly.

It will be seen, therefore, that if all these forms E.C.22A are retained, after the medical records have been returned, then over the years the information they contain will present as it were a mirror image of the patients who have moved away from the practice. When, in addition, it becomes possible with experience to read the National Health Service number and the coding details given, it is possible to gain an accurate indication of the patient's age and distance moved (i.e. either locally or farther away). Since information is also given of the reason for the removal of the name from the list it is feasible to believe that a detailed study of the records will reveal the over-all pattern of movement.

All the forms E.C.22A during the period 1 January 1949 to 31 December 1958 were therefore retained as they were received with the intention of subjecting them to detailed analysis in order to ascertain the pattern of movement.

The date of commencement of the investigation may be queried, observing that the Health Service came into being on 5 July 1948 and that forms E.C.22A were first issued to practitioners after the third month. At the inception of the Service, however, patients were not fully aware of the procedure and many of them registered with more than one practitioner. Again many patients changed their minds once the Service had just started. The request forms for the period October 1948 to December 1948 contain evidence of much confusion of thought in the minds of a significant proportion of patients, and cannot therefore be compared adequately, when assessing information, with those issued after December 1948.

One of the problems in carrying out investigations in general practice is the provision of controls. Particularly in a longitudinal investigation in time, it is not feasible to compare a series of patients in one year with a similar series a few years later, for in the interval there have been changes in medical practice by the doctor, and new drugs have altered materially the characteristics of illness as it presents and as it is treated. (Witness the change in paediatrics in the past ten years, the change in the treatment of tuberculosis, with consequent changes of outlook and demand on the part of the patient.)

Moreover, in general practice the family doctor is the first medical recipient of the effects upon the patient of changes in social policy, of stresses in the environment in which the patient lives consequent

upon increasing intercommunication of ideas, and of stress due to the perennial conflict between widely differing ideologies.

Hence over a period of years the reasons that prompt patients to seek medical care may alter significantly, although there may be no change in the number. In this investigation, the problem of comparing like with like would be difficult if it were not that over the years the patients themselves act as controls (Atkins, 1958). At all times the vast majority of patients who could move but do not, who live in the same area in the same social environment and who work under similar conditions, can be compared with the small number of those who for various reasons do move away from the practice.

It is possible, therefore, to compare the number of those who move away from the practice with the number of those who remain and to obtain a scale of measurement that is valid. For each calculation this would need (*a*) an assessment of the number and proportion of those who move and (*b*) an assessment of the number and proportion of those who remain. In each case, to assess the proportion it would be necessary to know the "population at risk".

The mathematical procedure may be shortened therefore by comparing the numbers of those who move with the "population at risk"; in each case a valid comparison can be made, and percentages calculated will still remain equally proportional to each other. From sources already described the "population at risk" is known at all relevant times, and so it will be possible to make the following calculations:

Numerical record, yearly, by men, single women, married women and children (0-14 years) of movement recorded	Tables I and V
Relative proportions grouped by year, and ratio of men, single women, married women and children (0-14 years) moving	Table II
Yearly percentage ratio of movement, classified by groups, as compared with mean yearly population at risk	Table III
Variation in relative movement per quarter	Table IV
Relative ratios of 'local' and 'distant' movement	Tables VI and VII
Calculated rates of movement per 1,000 registered patients	Table VIII
Analysis of the above groups	Tables IX to XIV

### Discussion of the results of the survey 1949-1958

A series of tables illustrates the pattern of movement of patients away from the practice during the decade.

Table I shows that of a total of 1,563 recorded 'patient moves', 591 were for males over the age of 14, 158 were for single women,

462 were for married women, and 352 were for children under the age of 14 years.

Except for 1957, when the number was considerably increased, the number of 'patient moves' each year was around 150.

Table II gives percentage ratios of movement of men, single women, married women and children, all yearly.

**TABLE I**  
SHOWING NUMBER OF MOVES AWAY FROM THE PRACTICE, FOR MEN, SINGLE WOMEN,  
MARRIED WOMEN AND CHILDREN

<i>Year</i>	<i>Men</i>	<i>Single women</i>	<i>Married women</i>	<i>Children 0-14</i>	<i>Total</i>
1949	46	16	55	36	153
1950	50	21	42	46	159
1951	68	19	35	40	162
1952	62	13	37	37	149
1953	58	12	48	31	149
1954	54	12	43	23	132
1955	65	17	48	40	170
1956	49	15	43	39	146
1957	69	20	71	40	200
1958	70	13	40	20	143
all years	591	158	462	352	1563

**TABLE II**  
SHOWING PERCENTAGE MOVEMENT OF MEN, SINGLE WOMEN, MARRIED WOMEN AND  
CHILDREN YEARLY

<i>Year</i>	<i>Men</i>	<i>Single women</i>	<i>Married women</i>	<i>Children 0-14</i>	<i>Total</i>
1949	30.1	10.5	35.9	23.5	100.0
1950	31.5	13.2	26.4	28.9	100.0
1951	42.0	11.7	21.6	24.7	100.0
1952	41.6	8.8	24.8	24.8	100.0
1953	38.9	8.1	32.2	20.8	100.0
1954	40.9	9.1	32.6	17.4	100.0
1955	38.2	10.0	28.2	23.6	100.0
1956	33.6	10.3	29.4	26.7	100.0
1957	34.5	10.0	35.5	20.0	100.0
1958	48.9	9.1	28.0	14.0	100.0

Table V gives the mean relative ratios for 1949-1958:

Males over 14	..	..	..	..	..	37.7 per cent
Single women	..	..	..	..	..	10.1 per cent
Married women	..	..	..	..	..	29.6 per cent
Children 0-14	..	..	..	..	..	22.6 per cent

and will be referred to as the "standard" table.

In tables IX, X, XI and XII, a detailed analysis of the recorded movement of patients classified by reason stated for each year of the survey is given. Males (over 14) are detailed in table IX, single women in table X, married women in table XI, and children under 14 in table XII.

TABLE III

SHOWING YEARLY PERCENTAGE RATIO OF MOVEMENT, CLASSIFIED BY GROUPS, COMPARED WITH MEAN YEARLY POPULATION AT RISK

<i>Year</i>	<i>Emigration</i>	<i>Enlistment</i>	<i>Death</i>	<i>All movement away from the practice</i>	<i>All movement into the practice</i>
1949	0.96	0.12	0.70	8.91	12.26
1950	0.70	0.17	0.24	9.25	11.34
1951	1.28	0.29	0.64	9.58	11.57
1952	0.92	0.50	0.81	9.05	10.88
1953	0.62	0.57	0.57	8.48	10.40
1954	0.50	0.39	0.56	7.38	9.51
1955	0.44	0.33	0.76	9.37	12.50
1956	0.73	0.20	0.68	7.77	11.90
1957	0.56	0.36	0.77	9.94	10.60
1958	0.36	0.41	0.56	7.38	7.84

TABLE IV

SHOWING PERCENTAGE OF ALL MOVEMENT AWAY FROM THE PRACTICE COMPARED WITH MEAN YEARLY POPULATION AT RISK, FOR EACH QUARTER 1949-1958

<i>Year</i>	<i>Winter</i>	<i>Spring</i>	<i>Summer</i>	<i>Autumn</i>	<i>Total yearly movement</i>
1949	1.28	4.01	1.64	1.98	8.91
1950	1.72	1.93	3.44	2.16	9.25
1951	3.47	1.36	2.83	1.92	9.58
1952	3.27	2.33	1.62	1.83	9.05
1953	1.66	2.63	1.88	2.31	8.48
1954	1.51	1.39	2.33	2.15	7.38
1955	3.14	2.46	1.25	2.52	9.37
1956	2.34	1.15	1.50	2.78	7.77
1957	1.94	2.28	2.57	3.15	9.94
1958	2.30	1.28	2.52	1.28	7.38
Mean: 1949-1958	2.26%	2.08%	2.15%	2.21%	8.70%

Table III gives the percentage ratio by the classification emigration, enlistment, and death, of the number of moves by patients for each year of the survey. Comparison is also provided of the total estimated outward and inward movement of all patients for each year of the survey; though the amount of movement amongst the patients

of the practice is higher than had been formerly estimated by impression the figures show a positive balance, the practice increasing in size slowly over the years. (Whilst there are many and considerable advantages to be gained by practising as a family doctor in a small community when compared with practice in a large city, one of the

COMPARATIVE PROPORTIONS OF MALES, SINGLE WOMEN, MARRIED WOMEN AND CHILDREN, IN REGARD TO MOVEMENT IN THE UNITED KINGDOM

TABLE V

Males	37.7%	377 persons per 1000 moves
Single women	10.1%	101 persons per 1000 moves
Married women	29.6%	296 persons per 1000 moves
Children	22.6%	226 persons per 1000 moves

TABLE VI

<i>Total all moves locally for all groups</i>	<i>Total all moves to a distance for all groups</i>
316 or 32.8%	648 or 67.2%

TABLE VII

	<i>Percentage: local moves</i>	<i>Percentage: distant moves</i>
Males	29.9	70.1
Single women	27.3	72.7
Married women	37.4	62.6
All women	33.2	66.8
Children	24.5	75.5

TABLE VIII

CALCULATED RATES OF MOVEMENT PER 1000 REGISTERED PATIENTS

1	Enlistment .. .. .	3.4 per 1000
2	Death .. .. .	6.5 per 1000
3	Emigration .. .. .	6.8 per 1000
4	' Local ' movement .. .. .	21.2 per 1000
5	' Distant ' movement .. .. .	48.0 per 1000
6	Migration (to include ' distant ' move- ment in the U.K. and emigration)	54.8 per 1000
7	Multiple movement .. .. .	9.3 per 1000
8	Total, all movement, (items 1 to 5) ..	85.9 per 1000

disadvantages is a material one in that the number of patients cannot easily be increased.)

For comparison between the number of patients seeking consulta-

TABLE IX  
MOVEMENT OF PATIENTS 1949-1958  
MALES (OVER 14)

Year	U.K. moves			No. moving out and back in later	Deaths	Emigra- tion	Enlist- ment
	Total	Local	Distant				
1949	33	12	21	2	4	7	2
1950	42	7	35	6	3	2	3
1951	46	9	37	1	7	10	5
1952	39	9	30	11	8	5	10
1953	39	14	25	3	7	2	10
1954	39	4	35	7	4	4	7
1955	47	16	31	10	8	4	6
1956	34	11	23	4	6	5	4
1957	51	22	29	4	8	3	7
1958	52	20	32	5	6	4	8
Total	422	124	298	53	61	46	62

TABLE X  
MOVEMENT OF PATIENTS 1949-1958  
SINGLE WOMEN

Year	U.K. moves			No. moving out and back in later	Deaths	Emigration
	Total	Local	Distant			
1949	13	4	9	6	1	2
1950	18	2	16	3	2	1
1951	13	2	11	1	2	4
1952	10	2	8	3	1	2
1953	10	2	8	2	—	2
1954	12	2	10	5	—	—
1955	15	6	9	2	1	1
1956	12	4	8	1	—	3
1957	17	7	10	2	1	2
1958	12	5	7	1	—	1
Total	132	36	96	26	8	18

tion quarterly and the number of patients leaving the practice quarterly, table IV has been provided; it will be seen that there is hardly any variation in the percentage of those leaving the practice



each quarter:

Spring	..	..	..	..	..	2.08 per cent
Summer	..	..	..	..	..	2.15 per cent
Autumn	..	..	..	..	..	2.21 per cent
Winter	..	..	..	..	..	2.26 per cent

the increase of 0.18 per cent shown between the mean winter and spring seasons is of little practical importance.

TABLE XI  
MOVEMENT OF PATIENTS 1949-1958  
MARRIED WOMEN

Year	U.K. moves			No. moving out and back in later	Deaths	Emigration
	Total	Local	Distant			
1949	46	17	29	10	7	2
1950	40	10	30	7	—	2
1951	32	11	21	2	—	3
1952	30	11	19	4	4	3
1953	39	12	27	5	5	4
1954	34	8	26	8	6	3
1955	41	12	29	8	5	2
1956	33	13	20	4	7	3
1957	62	34	28	7	5	4
1958	33	18	15	1	5	2
Total	390	146	244	56	44	28

TABLE XII  
MOVEMENT OF PATIENTS 1949-1958  
CHILDREN (BOYS AND GIRLS UP TO AGE 14)

Year	U.K. moves			No. moving out and back in later	Deaths	Emigration
	Total	Local	Distant			
1949	29	5	24	6	—	7
1950	42	7	35	5	—	4
1951	34	9	25	—	1	5
1952	30	8	22	4	1	6
1953	28	6	22	3	—	3
1954	21	3	18	2	—	2
1955	39	10	29	7	—	1
1956	34	8	26	4	2	3
1957	37	15	22	2	1	2
1958	20	10	10	2	—	—
Total	314	81	233	35	5	33

*Emigration*

In table III can be found the relative proportion of patients emigrating year by year; table XIV gives the actual numbers of patients emigrating, year by year, for each of the four groupings of patients.

In comparison with the standard table, it can be seen that the proportion of men emigrating is unchanged, there is a relative increase of single women (4.3 per cent, or almost one-third) and of children (3.9 per cent, or one-sixth) emigrating, but the proportion of married women is reduced by 7.2 per cent (or one-quarter).

	<i>Emigrating, per cent</i>	<i>Standard, per cent</i>
Males over 14 .. .. .	37.7	37.7
Single women .. .. .	14.4	10.1
Married women .. .. .	22.4	29.6
Children (0-14) .. .. .	26.5	22.6

TABLE XIII

MIGRATION 1949-1958 (INCLUDING INTERNAL MIGRATION IN BRITAIN AND EMIGRATION) BY YEAR, AGE AND SEX

<i>Year</i>	<i>Males over 14</i>	<i>Single women</i>	<i>Married women</i>	<i>Children 0-14</i>	<i>Total</i>
1949	28	11	31	31	101
1950	37	17	32	39	125
1951	47	15	24	30	116
1952	35	10	22	28	95
1953	27	10	31	25	93
1954	39	10	29	20	98
1955	35	10	31	30	106
1956	28	11	23	29	91
1957	32	12	32	24	100
1958	36	8	17	10	71
Total	344	114	272	266	996

## Relative ratios

Males (over 14) 34.5 per cent

Females 38.8 per cent      Single women 11.5 per cent  
    Married women 27.3 per cent

Children (0-14) 26.7 per cent

Ratio:  $\frac{\text{Migration}}{\text{All moves}}$  63.7 per cent

Ratio:  $\frac{\text{Migration}}{\text{Population at risk}}$  5.48 per cent  
 i.e. Rate of migration—54.8 patients per 1000

*Migration*

It has been shown in table VI that 67.2 per cent of all moves recorded is due to patients moving elsewhere in the United Kingdom, and in table VII, that of this number married women move to a distance least.

If the totals of patients migrating elsewhere in the United Kingdom, and emigrating are added together a general view of all migration is obtained. In table XIII this has been effected.

Migration plays an important part in the ecology of movement of patients, no less than 996 of a recorded total of 1,563 moves in ten years being due to this cause. This number is 63.7 per cent of all moves.

In comparison with the standard table, it is seen slightly fewer adult males and married women migrate to any distance; there is an

TABLE XIV

MULTIPLE MOVEMENT (NUMBERS OF PATIENTS LEAVING THE PRACTICE AND RETURNING AT A LATER DATE 1949-1958) BY YEAR, AGE AND SEX

<i>Year</i>	<i>Males over 14</i>	<i>Single women</i>	<i>Married women</i>	<i>Children 0-14</i>	<i>Total</i>
1949	2	6	10	6	24
1950	6	3	7	5	21
1951	1	1	2	—	4
1952	11	3	4	4	22
1953	3	2	5	3	13
1954	7	5	8	2	22
1955	10	2	8	7	27
1956	4	1	4	4	13
1957	4	2	7	2	15
1958	5	1	1	2	9
Total	53	26	56	35	170

## Relative ratios

Males (over 14) 31.2 per cent

Females 48.2 per cent    Single women 15.3 per cent

Married women 32.9 per cent

Children (0-14) 20.6 per cent

## Ratio:

Persons making more than one change/all changes: 10.9 per cent

## Ratio:

Persons making more than one change/population at risk: 0.93 per cent  
i.e. 9.3 persons per 1000

increase of just over one-tenth in the number of single women migrating, and there is a marked increase in the number of children moving to a distance (4.1 per cent, just over one-sixth).

		<i>Migration, per cent</i>	<i>Standard, per cent</i>
Males over 14	.. ..	34.5	37.7
Single women	.. ..	11.5	10.1
Married women	.. ..	27.3	29.6
Children (0-14)	.. ..	26.7	22.6

Married women, as was anticipated, move distantly to a lesser extent. Single women, possessing presumably less domestic or familial responsibility are able to do so a little more easily. The interesting factor is the increase in the relative proportion of children migrating; it is not possible to offer an adequate explanation for this.

### *Enlistment*

Sixty-two men enlisted during the decade reviewed. Table III gives the relative ratio yearly. Of an estimated practice population of 18,180 patients at risk, this total of 62 represents an enlistment rate of 0.34 per cent.

### *Patients making at least two or more moves into and out of the practice*

Table XIV shows by year, age and sex the number of patients who, once having moved away from the practice, at a later date return for re-acceptance and subsequently move out again. A very few patients, it was recalled, had vacillated in this manner at least three times in and out of the practice population, but the majority of moves of this nature recorded took place only twice. That out of a total of 1,563 moves no less than 170 were due to an oscillation as described is rather surprising. This number is 10.9 per cent of all moves recorded, so that approximately every tenth patient who moves out of the practice has done so before or will do so again.

In comparison with the standard table, it is seen that of the two sexes men were definitely more stable than women. There was a reduction of 6.5 per cent (about one-sixth) in the number of men oscillating, single women increased in number by 5.2 per cent (one-half) and married women also oscillated more by 3.3 per cent (one-ninth). Children were less prone to do so by 2 per cent.

		<i>Multiple movement, per cent</i>	<i>Standard, per cent</i>
Males over 14	.. ..	31.2	37.7
Single women	.. ..	15.3	10.1
Married women	.. ..	32.9	29.6
Children (0-14)	.. ..	20.6	22.6

This table more than any other indicates indirectly the amount of 'hidden' or less obvious movement that is constantly taking place in the general population. A large proportion of men and single women will be likely to move more than once over a period of ten years since many, for example, will be students leaving home for a training school or university, and returning on completion of their studies, but that such a relatively high number of married women (32.9 per cent) and children under the age of 14 (20.6 per cent) should be included can only be explained on the basis that families move into and out of districts on many more occasions than had been realized.

In brief, of the grouping by age and sex, more men died than women, some men enlisted in the Armed Forces, equal numbers of men and women emigrated. Three-quarters of all movement was consequent upon patients leaving the district. One patient in ten moved into and away from the practice at least twice. In each quarter of the decade the rate of movement of patients away from the practice remained constant at just over 2 per cent of the population at risk.

### Discussion

During the survey an attempt was made to uncover the pattern of migration followed by patients. There is not a great deal to be found in the literature on this subject. The first paper that offered guidance was that of Knibbs (1928) who, in a thoughtful dissertation, outlined the fundamental elements in the problems of migration of large populations. Although he was discussing the movements of peoples on a wide scale throughout the centuries, some of the factors postulated as being of major importance are still directly relevant when considering internal migration in this country in the post-war era. They are:

Desirable absorption (quality rather than quantity)

Sociological (those who fit, and those who do not, e.g. the lazy, the anti-social, and the too hard-working)

Political

Economic

Hill in 1925 had investigated some of the factors concerned in migration from the county of Essex, and concluded that despite the sparsity of data collected, it could be argued that migrants represented the younger, healthier section of the community. Newton and Jeffery (1951) reported their observations on the pattern of movement; they stated that the over-all volume of movement into and out

of given localities was far in excess of the net changes in population of those localities by migration. Their view is compatible with the results recorded here, which have shown a considerable difference between the gross movement over ten years into and out of the practice population, and the net increase in numbers. In their paper Newton and Jefferies quoted a figure of 14 per cent of the relative population recorded as moving into and out of the administrative county of Lancashire in 1949, with a very small net difference. Of the total number of persons migrating they showed that the number of persons aged 20-29 who moved during 1948-1950 was double that of the number of persons in all other age groups added together.

Pihlblad and Gregory (1957) discussed the movement of a group of 1,553 male and 1,862 female high school graduates in the State of Missouri. Their general conclusions were that the movement from small towns in Missouri had been selective for the professions, skilled workers, and students. There was a tendency for these groups to move westwards to a greater extent than was true of the business groups, the unskilled workers, and the farmers.

Thompson and Ciocco (1958) considered the general results of follow-up in two population groups: the first contained 6,305 persons over 21 years of age, the second 2,712 persons over 21 years of age. After five years 2,347 had moved from their original address in the first series, some 37.2 per cent; and after eight years 456 had moved from their original address in the second series, some 16.8 per cent. These investigations were carried out in the United States of America in the period 1948 to 1956.

Hopkins (1958) in this country, in discussing the number of and reasons for hospital referral in his practice, gave an indication of his practice population during the years 1951-1953; from this it has been possible to calculate the total amount of movement away from his practice: in 1951 this was 20 per cent, in 1952, 22 per cent moved, and in 1953, 18 per cent of the population at risk moved.

Rowntree (1957) produced a study based on a 1 : 1,000 sample of the entries in the National Register in the year 1951, of the frequency of movement of migrants in the United Kingdom during the period 1 January 1948 to 31 December 1950. About 13 per cent of the sample migrated during this period. His figures are compared with those recorded over the ten years 1949-1958 in my practice in the following tables. Differentiated according to Rowntree's method of grouping:

	<i>Rowntree, 1948-1951</i>	<i>Survey, 1949-1958</i>
	<i>per cent</i>	<i>per cent</i>
Males .. .. .	44.9	47.5
Single women .. .. .	39.3	11.0
Married women .. .. .	15.8	41.5

Differentiated according to my method of grouping the comparative figures are:

	<i>Rowntree, 1948-1951</i>	<i>Survey, 1949-1958</i>
	<i>per cent</i>	<i>per cent</i>
Males over 14 .. .. .	41.6	34.2
Single women .. .. .	36.7	11.0
Married women .. .. .	15.8	28.0
Children under 14 .. .. .	5.9	26.8

The comparison is interesting if not entirely valid, for the one series contains a total of 4,738 moves widely distributed and observed over three years, and the other a single series of 1,563 moves observed in one practice over ten years. It can be seen that some of the ratios are reversed, for the number of single women compared with the number of married women in the national sample, are in a ratio inverse to that of the number of single women compared with the number of married women in the practice survey. The figures are, however, distorted by the very low percentage of children moving recorded in Rowntree's report, 5.9 per cent, compared with the Registrar General's figure of 22.5 per cent of children under 15 in the mid-1950 census. The practice survey shows a ratio of children under 14 migrating internally of 26.8 per cent—a figure much closer to the Registrar General's estimate.

Rowntree also showed that of all movements recorded in the sample, 61.4 per cent moved only once, 23.1 per cent moved twice, 9 per cent moved three times and 4.5 per cent moved four times during the period 1948-1951; and that slightly more women than men migrated in the north-west of England. These figures help to put in perspective the proportion of 10.9 per cent of patients showing individual repeated movement into and away from this practice recorded earlier.

### Summary

Because of administrative need of the Health Service, new and classified information about his patients has been available to the general practitioner since 1948. This information is provided on form E.C.22A, received regularly by the practitioner from his executive

council. The purpose of this form and the information tabulated on it are described. Each entry refers to the movement away from the practice of a named patient, and gives one of several named reasons for the particular move.

Opportunity has been taken to analyse in some detail the tabulated data provided on all forms E.C.22A received during the ten years 1 January 1949 to 31 December 1958. A total of 1,563 moves by individual patients is reported upon.

In order to obtain a valid comparison the patient is used as his own control, a procedure which meets the need for well-founded and applicable controls in clinical research (Atkins, 1958).

From the data assembled it has been possible for the first time to obtain a picture in miniature portraying accurately the pattern of and reason for movement by patients into and away from a general practice. It is this 'picture' that has been described in the statistical idiom. From the grouping by age and sex of the moves recorded it is possible to demonstrate the standard pattern:

Males over 14	..	..	..	..	..	37.7 per cent
Single women	..	..	..	..	..	10.1 per cent
Married women	..	..	..	..	..	29.6 per cent
Children (0-14)	..	..	..	..	..	22.6 per cent

Of the reasons prompting movement, a small number of men enlisted in the Armed Forces, one and a half times as many women as men moved 'locally' (i.e. to another local doctor), one-seventh as many women as men migrated to another area. Three-quarters of all movement was consequent upon patients leaving the district. During each quarter of the decade some 2 per cent of the population at risk moved away from the practice.

Multiple movement—i.e. the movement of an individual patient more than once into and away from the practice has been estimated qualitatively and quantitatively. That 170 of the 1,563 moves investigated (10.9 per cent) should be due to this cause is a fact previously unrecognized. It could prove to be the starting point for a further long-term investigation, for the present paucity of data collected does not aid in producing an explanation of this interesting discovery.

The inferences drawn from a study of these figures described the pattern of behaviour selected by the patients themselves. It is a matter of regret that some of the conclusions reached cannot be compared with those of other workers due to the lack of comparable



published evidence and so must stand alone. Though this may leave them unsupported, the conclusions reached represent some gleanings from the field of human ecology in the world of social medicine.

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