THE RELATION OF PATIENTS' AGE, SEX AND DISTANCE FROM SURGERY TO THE DEMAND ON THE FAMILY DOCTOR

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MOST doctors are reluctant to lose patients who have moved some distance away from the practice premises, particularly if they have been patients of the practice for many years. If the patients move to a new town then the family will normally have to change their doctor; but when re-housing in a city is taking place, or young people are marrying and setting up home a few miles away from the parental home, the family doctor may find many of his patients have moved to residences two, three or four miles away from his surgery, and have difficulty in deciding whether to retain borderline cases, especially when patients of long-standing press to be kept on his list.

This problem has arisen many times in our practice and one of the arguments against keeping patients who have moved away from the practice area is that not only is travelling time greater in visiting the more distant patient, but, because the patient has a long way to travel to the surgery for consultations, he may tend to send for the doctor rather than come to the surgery. This seemed a reasonable supposition, but when we searched the literature for evidence to show that the distant patient was a greater burden to the family doctor, we failed to find any information on the subject. For this reason we decided to carry out an investigation to find out whether the distance a patient lives from his doctor's surgery influences the frequency with which he either attends the surgery or asks his doctor to visit.

In order to make a fair comparison it was necessary to record the ages and sexes of patients in case older patients, with possibly a higher consultation and visiting rate, tended to live nearer the surgery

while their married children had moved further away. Because we have recorded the age and sex of the patients in this study other information of interest and practical value has emerged as a by-product of our original purpose.

Method

The practice of approximately 7,500 patients lies in a built-up area on the outskirts of Liverpool and is served by two men and two women partners all working from one surgery. The patients belong predominantly to the Registrar General's socio-economic classes III, IV and V, and mainly live in an area of council houses or older type terraced-houses.

During the beginning of 1967 we recorded the age, sex and address of 1,000 patients attending the surgery. We also collected the same information for 500 new visits and 500 repeat visits. There is, of course, a profound difference from the point of view of this study between a new visit which is initiated by the patient, and a repeat visit which is the doctor's decision.

In order to obtain a yardstick we recorded the age, sex and address of 1,000 patients chosen by picking out case-sheets at fixed intervals throughout our files.

Rings with their centres at the site of the surgery were drawn on a large scale map and the distances of patients from the surgery estimated. Measurements were made as the crow flies except that a correction of adding a quarter of a mile was made for houses in one small area, as the configuration of the roads is such that a straight line obviously gives a misleadingly low figure for the distance. As only about ten patients were in this area this correction made no significant difference to our results.

Findings and discussion

Table I shows the distance from the surgery to the homes of 1,000 patients. These figures have been grouped according to age and sex. For patients living within two miles of the surgery there is no significant variation of sex and age distribution. However there are very few patients over the age of 64 living more than two miles from the surgery: only one out of 49 patients over two miles from the surgery was over 64, whereas 136 out of 951 patients living within two miles were over the age of 64.

It is interesting to compare the age–sex distribution of the patients in our practice with the statistics for Liverpool as a whole. In a previous paper (Hopkins *et al.* 1967) we showed that patients over 60 showed an inclination to choose a doctor of their own sex. There are no women doctors in the immediately neighbouring practices. It would therefore seem likely that we would have an abnormally

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TABLE I

1,000 PRACTICE PATIENTS—DISTANCE FROM SUGERY IN MILES

Males	1–9	10–19	20–29	30–39	40–49	50–59	60–64	65+	Total
Less than ¼ mile	23	17	20	17	14	20	4	11	126
¼–½ mile ..	11	21	25	10	9	13	7	12	108
¼–¾ mile ..	17	9	13	9	10	7	4	5	74
¾–1 mile ..	11	6	14	6	7	5	1	6	56
1–2 miles ..	8	12	10	8	4	5	4	5	56
Over 2 miles ..	5	4	3	7	2	1	0	0	22
TOTAL ..	75	69	85	57	46	51	20	39	442
Females	**1–9**	**10–19**	**20–29**	**30–39**	**40–49**	**50–59**	**60–64**	**65+**	**Total**
Less than ¼ mile	21	22	17	14	16	22	11	25	148
¼–½ mile ..	14	19	15	10	20	13	20	25	136
½–¾ mile ..	13	17	9	12	4	13	3	20	91
¾–1 mile ..	6	12	8	5	7	5	5	11	59
1–2 miles ..	17	8	11	11	11	11	12	16	97
Over 2 miles ..	4	4	8	1	8	1	0	1	27
TOTAL ..	75	82	68	53	66	65	51	98	558
Males and females	**1–9**	**10–19**	**20–29**	**30–39**	**40–49**	**50–59**	**60–64**	**65+**	**Total**
Less than ¼ mile	44	39	37	31	30	42	15	36	274
¼–½ mile ..	25	40	40	20	29	26	27	37	244
½–¾ mile ..	30	26	22	21	14	20	7	25	165
¾–1 mile ..	17	18	22	11	14	10	6	17	115
1–2 miles ..	25	20	21	19	15	16	16	21	153
Over 2 miles ..	9	8	11	8	10	2	0	1	49
TOTAL ..	150	151	153	110	112	116	71	137	1,000

high proportion of female patients and, if our past conclusions are valid, this would be most noticeable in the over-sixties. The 1966 Sample Census Statistics show that 52 per cent of the Liverpool population are female. In our practice 55.8 per cent of the patients are female. This abnormal preponderance of females is due to a disproportionate number of women over 60 in our practice. These constitute 14.9 per cent of our patients, but only 10.2 per cent of the Liverpool population.

From this observation it would seem likely that a woman doctor's practice will tend to have an abnormal proportion of elderly females and our further findings show that this would increase the work-load of the woman doctor.

Approximately 27 per cent (30 per cent) of our patients lived within a quarter of a mile of the surgery; 52 per cent (62 per cent) lived within half a mile; 68 per cent (78 per cent) within three-quarters of a mile; 80 per cent (87 per cent) within a mile and 95 per cent (99 per cent) within two miles. The figures in brackets indicate the corresponding percentages found by Vaughan (1967), who studied the practices in Salford with a view to finding the feasibility of health visitor attachment.

Tables II, III, and IV show the pattern for surgery consultations, new visits and repeat visits respectively. These figures can be understood more clearly if the consultations and visits are converted into the percentages of the expected rate taking into account the number of patients at risk. This has been done in table V.

The high rate of visits for patients living between three-quarters and one mile from the surgery and the low rate of visits for those over two miles from the surgery are unlikely to have occurred by chance: the difference exceeding twice the standard error.

The excess of new visits over repeat visits for patients living between one and two miles from the surgery is statistically highly significant.

The various figures we have collected appear to show that patients living between three-quarters and two miles from the surgery sometimes tend to send for a call rather than pay a visit to the surgery.

Strangely enough when patients live more than two miles from the surgery, instead of sending for the doctor even more often, they are more reluctant to ask for home visits. Although the figures are small the lower visiting rate is unlikely to have arisen by chance as the difference exceeds twice the standard error. This difference is not due to there being fewer elderly patients living over two miles away as even when patients under 65 only are considered the number of visits made per person at risk under two miles is almost double that for those living more than two miles away from the surgery.

TABLE II

1,000 SURGERY CONSULTATIONS—DISTANCES OF HOME FROM SURGERY IN MILES

Male	1–9	10–19	20–29	30–39	40–49	50–59	60–64	65+	Total
Less than ¼ mile	24	17	18	18	16	12	7	11	123
¼–½ mile ..	13	6	11	8	20	19	5	17	99
½–¾ mile ..	6	8	16	6	9	11	7	3	66
¾–1 mile ..	7	6	5	5	6	2	7	3	41
1–2 miles ..	6	5	8	7	9	8	13	13	69
Over 2 miles ..	5	0	3	3	5	5	0	2	23
TOTAL ..	61	42	61	47	65	57	39	49	421
Females	**1–9**	**10–19**	**20–29**	**30–39**	**40–49**	**50–59**	**60–64**	**65+**	**Total**
Less than ¼ mile	31	20	32	21	18	22	9	33	186
¼–½ mile ..	16	17	20	16	16	26	5	21	137
½–¾ mile ..	5	12	24	7	14	7	11	18	98
¾–1 mile ..	5	7	0	10	6	9	3	11	51
1–2 miles ..	8	11	13	14	6	11	9	12	84
Over 2 miles ..	6	1	3	2	9	2	0	0	23
TOTAL ..	71	68	92	70	69	77	37	95	579
Males and females	**1–9**	**10–19**	**20–29**	**30–39**	**40–49**	**50–59**	**60–64**	**65+**	**Total**
Less than ¼ mile	55	37	50	39	34	34	16	44	309
¼–½ mile ..	29	23	31	24	36	45	10	38	236
½–¾ mile ..	11	20	40	13	23	18	18	21	164
¾–1 mile ..	12	13	5	15	12	11	10	14	92
1–2 miles ..	14	16	21	21	15	19	22	25	153
Over 2 miles ..	11	1	6	5	14	7	0	2	46
TOTAL ..	132	110	153	117	134	134	76	144	1,000

TABLE III

500 NEW VISITS—DISTANCE TO PATIENTS FROM SURGERY IN MILES

Males	1–9	10–19	20–29	30–39	40–49	50–59	60–64	65+	Total
Less than ¼ mile	23	8	2	2	4	1	2	12	54
¼–½ mile ..	12	6	5	2	2	3	4	5	39
½–¾ mile ..	14	0	3	0	0	1	2	6	26
¾–1 mile ..	10	1	0	2	1	1	1	9	25
1–2 miles ..	9	3	4	1	2	4	2	11	36
Over 2 miles ..	4	0	1	0	0	1	0	0	6
TOTAL ..	72	18	15	7	9	11	11	43	186
Females	1–9	10–19	20–29	30–39	40–49	50–59	60–64	65+	Total
Less than ¼ mile	15	6	5	9	8	2	2	23	70
¼–½ mile ..	17	4	4	1	8	11	8	23	76
½–¾ mile ..	8	3	2	3	2	5	2	15	40
¾–1 mile ..	6	4	3	5	4	8	1	22	53
1–2 miles ..	9	5	7	3	6	5	6	22	63
Over 2 miles ..	0	0	1	1	0	1	1	8	12
TOTAL ..	55	22	22	22	28	32	20	113	314
Males and females	1–9	10–19	20–29	30–39	40–49	50–59	60–64	65+	Total
Less than ¼ mile	38	14	7	11	12	3	4	35	124
¼–½ mile ..	29	10	9	3	10	14	12	28	115
½–¾ mile ..	22	3	5	3	2	6	4	21	66
¾–1 mile ..	16	5	3	7	5	9	2	31	78
1–2 miles ..	18	8	11	4	8	9	8	33	99
Over 2 miles ..	4	0	2	1	0	2	1	8	18
TOTAL ..	127	40	37	29	37	43	31	156	500

TABLE IV

500 REPEAT VISITS—DISTANCES OF HOME FROM SURGERY IN MILES

Male	1–9	10–19	20–29	30–39	40–49	50–59	60–64	65+	Total
Less than ¼ mile	8	1	1	1	1	1	0	32	45
¼–½ mile ..	1	2	2	0	7	2	1	10	25
½–¾ mile ..	4	0	3	0	1	5	0	14	27
¾–1 mile ..	8	2	0	1	6	1	3	18	39
1–2 miles ..	2	3	0	1	0	5	0	8	19
Over 2 miles ..	0	0	0	0	2	3	0	0	5
TOTAL ..	23	8	6	3	17	17	4	82	160
Females	1–9	10–19	20–29	30–39	40–49	50–59	60–64	65+	Total
Less than ¼ mile	0	4	4	5	5	5	1	46	70
¼–½ mile ..	7	5	3	3	4	17	7	62	108
½–¾ mile ..	4	4	6	1	2	11	4	45	77
¾–1 mile ..	1	3	0	4	4	14	1	8	35
1–2 miles ..	1	6	5	2	1	3	6	18	42
Over 2 miles ..	0	0	1	0	0	0	1	6	8
TOTAL ..	13	22	19	15	16	50	20	185	340
Males and females	1–9	10–19	20–29	30–39	40–49	50–59	60–64	65+	Total
Less than ¼ mile	8	5	5	6	6	6	1	78	115
¼–½ mile ..	8	7	5	3	11	19	8	72	133
½–¾ mile ..	8	4	9	1	3	16	4	59	104
¾–1 mile ..	9	5	0	5	10	15	4	26	74
1–2 miles ..	3	9	5	3	1	8	6	26	61
Over 2 miles ..	0	0	1	0	2	3	1	6	13
TOTAL ..	36	30	25	18	33	67	24	267	500

TABLE V

FIGURES REPRESENT PERCENTAGE OF THE AVERAGE RATE PER PATIENT AT RISK

Distance from surgery	Surgery consulta-	All	Visits New	Repeat
Less than ¼ mile	113	87.2	90.5	84
¼–½ mile	96.7	97.5	94.2	101
½–¾ mile	100	106	80	126
¾–1 mile	80	132	136	129
1–2 miles	100	105	129.5	79.7
Over 2 miles..	94	63.2	73.5	53

TABLE VI

SHOWING VISITS AND CONSULTATIONS BY AGE AND SEX

Males	Under 10	10–29	30–49	50–59	60–64	65+	Total
New visits	192 (72)	42.8 (33)	31.1 (16)	43.2 (11)	110 (11)	220 (43)	84 (186)
Repeat visits	61.4 (23)	18.2 (14)	38.8 (20)	66.6 (17)	40 (4)	420 (82)	72 (160)
Consultations	81.4 (61)	67 (103)	109 (112)	112 (57)	195 (39)	126 (49)	93 (421)
Practice population ..	(75)	(154)	(103)	(51)	(20)	(39)	(442)
Female New visits	120 (45)	58.8 (44)	82.4 (49)	88.4 (32)	78 (20)	230 (113)	112 (303)
Repeat visits	34.8 (13)	54.8 (41)	52 (31)	154 (50)	78 (20)	378 (185)	120 (340)
Consultations	94.7 (71)	106.6 (160)	117 (139)	118 (77)	72.5 (37)	97 (95)	104 (579)
Practice population ..	(75)	(150)	(119)	(65)	(51)	(98)	(558)

Figures indicate percentage of average expected rate calculated from numbers at risk. Figures in brackets are actual numbers.

We believe the explanation for this is that we are normally reluctant to look after patients more than two miles away. For this reason patients living at a distance constitute a selected group. The type of patient we retain on our list at a distance would probably be one who had been on our list for some years and proved considerate in the past. Moreover, as we often have to be persuaded to allow patients to stay on our list at a distance, the families are probably more appreciative and would be more reluctant to send for us unless the visit was really necessary. This is what one would expect as, if the frequent senders were excluded from a practice, it would considerably reduce the work-load. Wamoscher (1966) calculated that 14.4 per cent of patients were responsible for half the consultations.

A further observation which can be made is that the number of new visits for patients living between one mile and two miles away is greater than the number of repeat visits made by the doctor. This difference far exceeds twice the standard error and therefore is very unlikely to have occurred by chance. It is evident that when a patient lives more than one mile from the surgery we hesitate to pay a further call. We were not consciously aware of this fact before we studied these practice statistics. Whether we are not visiting our distant patients enough or whether we are making un-necessary return visits to patients living within a mile, because it is not far and we will probably be in that area anyway, it is difficult to say.

Of our repeat visits 53.4 per cent were to patients over 64 although they represented only 13.7 per cent of the patients in the practice. This high rate of return calls for elderly people has been previously noted by Scott and McVie (1962).

The increased work-load for elderly people is due to increased visiting; there is little difference from other age groups in surgery attendance. The greater visiting rate for elderly patients has also been demonstrated by Baldwin (1959) who set out to show that elderly people were not responsible for a high percentage of a general practitioner's work.

Patients over 64 in our survey had a new call rate 228 per cent that of the average and a repeat visit rate 390 per cent of the average.

The heavy work-load caused by elderly patients is mainly due to women. This is merely due to the much larger number of women than men in this age group and not because elderly females give the family doctor more work than elderly men. In fact our present figures indicate that women in the age groups between 20 and 60 come to the surgery and send for the doctor more often than men, but after the age of 60 this no longer obtains. Precisely the same pattern was noticed by us in a series of 1,879 surgery consultations

made during the first quarter of 1966. At that time we recorded diagnosis and analysis shows that the higher consultation rate for women in the 20 to 60 age range is not merely due to obstetrical problems. This accords with the findings of Baker (1966) who also showed that the increased use of the family doctor by the female patient is not entirely due to obstetrical complaints.

As general practitioners are paid an increased capitation fee for elderly people it is of interest to see whether our figures indicate that the extra payment is justified, and, if so, whether it is adequate.

Making various assumptions it is possible to make a crude estimate of the economics of elderly patients. Our figures show that the visiting rate for patients over 64 is approximately 4.6 times that for those under 65. Ignoring any difference in surgery consultation rate, and assuming that between one third and one half of a family doctor's time is taken up by visiting (*Present state and future needs* 1965), it can be calculated that a doctor's working time would be more than doubled if all his patients were 65 or over. A hypothetical doctor having 2,300 patients over 64 would get £920 extra for per- forming more than twice as much work as a colleague with 2,300 patients under 65.

This has been basically a work-study analysis and in it we have tried to assess some of the factors which influence the time spent on different patients. Although we have indicated that we reserve the right to retain old-standing patients who have proved considerate in the past when they move outside our normal practice area, we wish to emphasize that we feel (and we are sure that the vast majority of our colleagues in general practice would agree) that it would be improper to select patients in terms of possible work-load. It would obviously be unethical to refuse to take on an elderly patient, a patient with terminal carcinoma or any other chronic patient because it can be seen that economically he would be a liability.

Conclusions and summary

This study of visits and surgery consultations suggests that patients living between three-quarters and two miles from the surgery tend to send for the doctor rather than come to the surgery.

However, our patients living over two miles away send less fre- quently than other patients. We believe that this is a result of retain- ing only selected patients when they move to live more than two miles from the surgery.

Females between 20 and 60 attend the surgery and send for the doctor more frequently than males.

Patients over 64 take up more of the doctor's time than younger

patients and the higher capitation fee for elderly people does not adequately compensate for this.

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If Dress, as we are told in Scripture, was to cover Nakedness, it seems in our Days not to answer the End of it, especially with the Ladies; who, one would imagine by their Dress, are so far from reckoning themselves obliged to their Mother Eve, for dressing them, that they are for throwing away the very Fig-leaves; they have already uncover'd their Shoulders and Breasts, and as they have gone so far in a few Months, what may they not do in Years?

The defending the Body from Cold seems to be, to many, not a principal, but an accidental End of Apparel. Naked Breasts and naked Bosoms, in both Sexes, shew us that health, as desirable as it is, is not consider'd by Youth, when any strong Fashion is in the way. Those Ladies that would catch Cold at the Fanning of a Summer-Evening's Breeze, bear the rudest Winter-Blasts, to lay open their Breasts and Shoulders; the most delicate of 'em are insensible of Wind or Weather. Would one not believe that they are so warm'd within, that they are insensible of Cold from without? And what must Men think of such Women, who will endure so much to be so much seen?

The Ladies Library. Volume the First.
Sixth Edition. Written by a Lady.
London. Sir Richard Steele. 1751. Pp. 43.