

# A move to a health centre: the effect on home visiting, repeat prescribing and patients' choice of transport

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**SUMMARY.** A group of general practitioners recorded data about their work before and after moving into a health centre. A group of doctors who did not enter the health centre made equivalent observations for comparison.

Patients of the health centre doctors increased their use of public transport by 13 per cent; the 'no-entry' group of doctors did not record a similar increase. A 27 per cent reduction in home visits was thought to be a direct result of entry into the health centre, contributing factors being, in all probability, availability of public transport and the provision of a pharmacy. An increase in the issue of repeat prescriptions without consultation was considered to be evidence of a wider trend since this change was not confined to the health centre doctors.

It was concluded that patients will attend a health centre if public transport is easily available and that this factor should be born in mind when planning health centres, especially in inner city areas.

## Introduction

**T**HERE have been only a small number of investigations into the effects of moving to a health centre and most of these studies have been structured around questionnaires on patients' attitudes.<sup>1-3</sup> There seems to be no previous record of parallel observations made by doctors entering and doctors not entering a health centre, one study even suggesting that this type of 'control' was not a practical possibility.<sup>2</sup>

This paper reports part of a continuing study concerning the establishment of Wallacetown Health Centre, the first health centre in Dundee.<sup>4</sup> The aims were to examine the effects of health centre entry on the doctors' volume of work generally, and specifically on home visiting and on the issue of repeat prescriptions

without direct consultation; and since the availability of transport to a surgery can affect home visiting, the method of transport used by patients to reach the health centre was the subject of an initial inquiry.

## Method

The health centre under observation opened in November 1977, although the study was planned as far back as 1968/69, when participants were identified. One group of eight doctors intending to go into the health centre recorded certain details of their work in 1976, before entry, and in 1979, after entry; special recording forms were designed for this purpose. Another group of 13 doctors who did not enter the health centre during the period of the study agreed to provide comparable information by recording equivalent data at the same time.

In order to standardize seasonal conditions as much as possible, the records were to be for the first three weeks of March and the first three weeks of October in each of the two observation years. Owing to unforeseen circumstances, however, not all the doctors were able to record data for March and October of both years. Seven of the 21 participating doctors recorded data before entry and after entry for March and October as requested, 11 doctors recorded data for March only and three recorded for October only. This meant that there were three types of sample under consideration: March plus October (six weeks); March only (three weeks); and October only (three weeks). (The alternative would have been to consider March and October as separate entities, but this method would have made statistical testing more cumbersome although leading to the same conclusions.) The statistical comparisons (chi-square test) of data for 1976 and for 1979 were made for individual doctors to avoid the possibility of idiosyncrasies influencing group results.

All doctor-patient contacts were recorded. The doctors noted the mode of transport used by each patient attending the surgery, the number of home visits, the number of repeat prescriptions issued without consultation, and the number of direct contacts.

Since home visits can be affected by the illness pattern, a supplementary diagnostic classification was prepared at the beginning of the study to compare the incidence of different illnesses in 1976 and 1979. This comprised an abbreviated form of the RCGP classification using only category titles: Diseases of the lower respiratory system, Diseases of the circulatory system, Diseases of the nervous system, Gynaecological conditions, 'Other' serious illness, 'Other' intermediate

**Table 1.** Method of transport used by patients attending the two groups of doctors: percentage change in 1979 compared with 1976 (1976 values in parentheses).

	Bus		Car		Walking		Total		$\chi^2$	<i>P</i> value
	% change	(no. in 1976)	% change	(no. in 1976)	% change	(no. in 1976)	% change	(no. in 1976)		
<i>Doctors who moved to health centre (entry group, n = 8)</i>										
1	−33	(316)	−50	(187)	−41	(81)	−40	(584)	3.4	NS
2	+15	(173)	+5	(104)	−67	(129)	−16	(406)	40.6	<0.001
3	+6	(255)	−8	(105)	+11	(80)	+4	(440)	1.0	NS
4	−26	(310)	−43	(69)	−41	(27)	−30	(406)	1.7	NS
5	−29	(433)	−44	(277)	−56	(127)	−38	(837)	9.2	<0.02
6	+34	(688)	+8	(203)	−14	(205)	+20	(1,096)	16.4	<0.001
7	−6	(386)	−16	(227)	−43	(139)	−16	(752)	10.2	<0.01
8	−7	(174)	−34	(97)	−47	(96)	−27	(367)	8.6	<0.02
<i>Doctors who did not move to health centre (no-entry group, n = 13)</i>										
9	+42	(81)	+61	(44)	+129	(24)	+62	(149)	2.9	NS
10	−39	(193)	−6	(81)	−44	(52)	−32	(326)	5.8	NS
11	+1	(132)	−38	(91)	+56	(46)	−3	(269)	13.9	<0.001
12	−40	(227)	<1	(162)	+2	(48)	−15	(437)	10.8	<0.01
13	+33	(154)	+47	(51)	+23	(44)	+40	(249)	0.7	NS
14	−8	(226)	−29	(77)	−13	(53)	−13	(356)	1.6	NS
15	+84	(229)	+34	(111)	+84	(44)	+70	(384)	4.7	NS
16	−2	(167)	+53	(59)	+134	(26)	+25	(252)	13.7	<0.01
17	−10	(124)	+2	(48)	+34	(53)	+3	(225)	3.3	NS
18	+7	(151)	+6	(126)	+19	(52)	+8	(329)	0.3	NS
19	<1	(427)	−14	(263)	−23	(210)	−10	(900)	4.5	NS
20	−10	(197)	<1	(72)	−36	(92)	+14	(361)	4.2	NS
21	−4	(306)	+51	(112)	+8	(63)	+10	(481)	9.7	<0.02

NS = not significant.

illness and 'Other' non-serious illness (the 'other' in this context indicating conditions not included in the respiratory, circulatory, nervous or gynaecological lists). Upper respiratory tract infections (including influenza) are considered separately in this report.

The difference in workload between 1976 and 1979—that is, the numbers of direct patient-doctor contacts per day—was calculated for each doctor. To compensate for differences in the distribution of patients among the partners in a practice, the figures for the individual partners were combined and the practice was treated as a single unit.

## Results

### Mode of transport

The method of transport used by patients attending doctors in the 'entry' group before and after they (the doctors) entered the health centre are shown in Table 1. The transport used by patients attending doctors in the 'no-entry' group is also shown in Table 1. Overall, the recorded use of the bus by patients travelling to the surgery in 1976 was 56 per cent in the entry group and 55 per cent in the no-entry group respectively. By 1979, this had risen to 63 per cent in the entry group, while for the no-entry group the proportion was still only 56 per cent. Compensating for this difference, a large change was observed in the proportion of patients who walked to consultations with the entry group of doctors: this fell to 14 per cent from 18 per cent. The increase in the use

of the bus by patients attending doctors in the entry group was statistically significant, as shown in Table 1. It is reasonable to conclude that this is the result of Wallacetown Health Centre's position on every major bus route.

One of the no-entry practices is situated about 200 yards from Wallacetown and has the same facilities for transport; the records for the four doctors in this practice showed that in 1976 the bus was the method of transport chosen by patients for travelling to the surgery in 61 per cent of the consultations, a figure which approximates to that observed in the entry group for 1979. In the case of another no-entry practice which recorded greater use of the bus in 1979, the doctor concerned had changed his surgery twice during the course of the study, finishing up with a surgery in the town centre—a situation that also enjoys favourable public transport facilities.

### Home visits

The differences between 1976 and 1979 in the number of home visits and surgery consultations undertaken by both groups of doctors are shown in Table 2; these direct contacts were for conditions other than upper respiratory tract infection. Unfortunately, the start of the March 1976 recording period coincided with the last 10 days of an influenza epidemic, and it was for this reason that the results for upper respiratory tract infec-

**Table 2.** Difference between 1979 and 1976 in number of home visits and surgery consultations for conditions other than upper respiratory tract infection recorded by the two groups of doctors (1976 values in parentheses).

	Home visits		Surgery		Total			
	% change	(no. in 1976)	% change	(no. in 1976)	% change	(no. in 1976)	$\chi^2$	<i>P</i> value
<i>Doctors who moved to health centre (entry group, n = 8)</i>								
1	-81	(165)	-34	(497)	-46	(662)	37.1	<0.001
2	-78	(79)	-27	(410)	-35	(489)	20.5	<0.001
3	-2	(55)	+9	(316)	+8	(371)	0.2	NS
4	-54	(128)	-30	(366)	-36	(494)	5.3	<0.05
5	-38	(112)	-36	(641)	-36	(753)	<0.1	NS
6	-20	(455)	+24	(954)	+9	(1,409)	27.7	<0.001
7	-40	(193)	-19	(687)	-24	(880)	5.0	<0.05
8	-63	(102)	-28	(313)	-37	(415)	9.5	<0.01
<i>Doctors who did not move to health centre (no-entry group, n = 13)</i>								
9	-32	(76)	-10	(178)	-3	(254)	4.7	<0.05
10	+52	(25)	-20	(240)	-13	(265)	4.9	<0.05
11	+30	(53)	-8	(236)	-1	(289)	2.6	NS
12	-12	(74)	-24	(392)	-22	(466)	0.5	NS
13	-24	(33)	+11	(266)	+7	(299)	1.5	NS
14	-6	(31)	-17	(330)	-16	(361)	0.1	NS
15	+132	(25)	+58	(353)	+63	(378)	2.0	NS
16	+2	(62)	+10	(256)	+8	(318)	0.9	NS
17	-56	(59)	+3	(199)	-10	(258)	10.7	<0.001
18	+17	(42)	+2	(317)	+3	(359)	0.3	NS
19	-21	(179)	-11	(788)	-13	(967)	0.9	NS
20	+2	(94)	-27	(358)	-21	(452)	3.9	<0.05
21	-16	(339)	+1	(455)	-6	(794)	3.0	NS

NS = not significant.

tions (including influenza) were considered separately from other conditions.

Both groups of doctors recorded relatively fewer home visits in 1979 than in 1976, but the reduction was greater for the entry group; the amount of home visiting decreased by 27 per cent between 1976 and 1979 in the entry group and by 5 per cent in the no-entry group. Six of the eight doctors in the entry group recorded a statistically significant reduction in the proportion of home visits; none recorded an increase. In contrast, only two of the 13 doctors in the no-entry group recorded a statistically significant reduction in home visits while another two recorded a statistically significant increase (Table 2).

There was a decrease in home visits involving patients with upper respiratory tract infection in 1979, to be expected in view of the absence of an influenza epidemic. Five doctors in the entry group and six in the no-entry group recorded statistically significant reductions in home visits related to this set of conditions.

#### Repeat prescriptions

The differences between the 1976 and 1979 records for repeat prescriptions with and without direct consultation are shown in Table 3. The issue of repeat prescriptions increased overall by 17 per cent for the entry group of doctors and by 27 per cent for the no-entry group. The increases recorded by five doctors in

the entry group were statistically significant while this was the case for only four in the no-entry group.

There were three anomalous findings. One doctor (number 8 in Table 1) in the entry group and one doctor (number 14) in the no-entry group recorded substantial increases in the proportions of repeat prescriptions without consultation. In both cases, however, only a small number of prescriptions had been issued in 1976, before the study. These observations may represent a change in habit or a redistribution of the work within the practices concerned, but the difference cannot be attributed to entering the health centre. The third anomaly related to one of the doctors (number 2) in the entry group who recorded virtually no repeat prescriptions without consultation. This could have been a recording error or a change in habit but in any event does not alter the general trend of the results.

Upper respiratory tract infections were again excluded from this part of the study because of the influenza epidemic in 1976, but the number of repeat prescriptions issued for these conditions was small.

#### Changes in workload

The practice list sizes were relatively stable throughout the study, so that fluctuations in the size of the practices did not contribute to differences in workload. There were no trends that distinguished the entry group of doctors from the no-entry group. Entry to the health

**Table 3.** Difference between 1979 and 1976 in number of repeat prescriptions without consultation and direct contacts recorded by the two groups of doctors; upper respiratory tract infection excluded (1976 values in parentheses).

	Repeat prescription without consultation		Direct contacts		Total			P
	% change	(no. in 1976)	% change	(no. in 1976)	% change	(no. in 1976)	$\chi^2$	value
<i>Doctors who moved to health centre (entry group, n = 8)</i>								
1	+ 6	(158)	- 46	(662)	- 36	(820)	26.8	<0.001
2	- 99	(151)	- 35	(489)	- 50	(640)	82.3	<0.001
3	+ 22	(117)	+ 8	(371)	+ 11	(488)	0.6	NS
4	+ 83	(65)	- 36	(494)	- 22	(559)	39.1	<0.001
5	- 20	(362)	- 36	(753)	- 31	(1,115)	4.9	<0.05
6	- 31	(352)	+ 9	(1,409)	+ 14	(1,761)	4.9	<0.05
7	- 26	(321)	- 24	(880)	- 24	(1,201)	0.1	NS
8	+ 6600	(1)	- 37	(415)	- 21	(416)	87.0	<0.001
<i>Doctors who did not move to health centre (no-entry group, n = 13)</i>								
9	-	(60)	- 3	(254)	- 2	(314)	0.1	NS
10	- 17	(99)	- 13	(265)	- 14	(364)	0.1	NS
11	+ 139	(64)	- 1	(289)	+ 24	(353)	26.8	<0.001
12	- 2	(125)	- 22	(466)	- 18	(591)	2.4	NS
13	+ 112	(42)	+ 7	(299)	+ 20	(341)	11.0	<0.001
14	+ 1350	(10)	- 16	(361)	+ 21	(371)	114.2	<0.001
15	+ 51	(88)	+ 63	(378)	+ 61	(466)	0.2	NS
16	+ 29	(132)	+ 9	(318)	+ 15	(450)	1.3	NS
17	- 8	(96)	- 10	(258)	- 10	(354)	2.4	NS
18	+ 69	(131)	+ 3	(359)	+ 21	(490)	13.2	<0.001
19	+ 2	(321)	- 13	(967)	- 9	(1288)	2.9	NS
20	+ 3	(155)	- 21	(452)	- 15	(607)	3.7	NS
21	+ 26	(142)	- 6	(794)	- 1	(936)	5.5	<0.02

centre did not uniformly affect the workload of the doctors concerned.

## Discussion

The results described here show that the entry group's patients used public transport more frequently after their doctors had entered the health centre than before. The site for the health centre was chosen to be on most of the main bus routes of the city, and patients travelling to the no-entry practice closest to Wallacetown had a similar pattern of bus use in both 1976 and 1979. There were no changes in the bus routes or other extraneous factors during the course of the study which might have produced this result. The results show a trend, even among the no-entry group of doctors, away from home visiting and towards surgery consultations and repeat prescriptions, which reflected a nationwide pattern that had been going on for some years.<sup>5-7</sup> Another factor that has to be taken into account is the health centre pharmacy. This unit is open during the whole time that the general practitioners consult (excluding Saturday morning). The pharmacy, which is well stocked, handles the bulk of the prescriptions, and a patient can get his medication almost within minutes of his surgery consultation. The close working relationship between the pharmacist and the practitioners permits prescribing difficulties to be dealt with rapidly.

When home visits are reduced there is concern in the public mind that an essential service is being curtailed. The need for visiting is a matter on which the public and general practitioners often hold differing views. This study did not estimate the practitioners' opinion of the need for home visiting. The observations do not suggest, however, that entry into Wallacetown Health Centre resulted in serious undervisiting. The lowest percentage of visits in the no-entry group of doctors was recorded in a practice which is situated 200 yards from the Wallacetown Health Centre and which had the same public transport and similar pharmaceutical facilities (including access to the health centre pharmacy). The proportion of visits for this no-entry practice was 11.8 per cent in 1976 and 10.2 per cent in 1979 and these figures are well below the equivalent averages for the entry group. It is also relevant that the use of the bus as a means of transport to this practice was similar to the use of the bus among the health centre patients.

Changes in work pattern after moving to a health centre have not been a consistent finding in other studies,<sup>2,3</sup> although a reduction in home visiting (without control observations) after entering a health centre has been noted.<sup>4</sup> In some instances this has been the result of a conscious policy rather than a natural development as in Wallacetown Health Centre. For example, Marsh and colleagues<sup>8</sup> deliberately removed patients from their list who lived some distance away

from their health centre; no policy of this kind was employed by doctors entering Wallacetown Health Centre.

## Conclusion

When the Wallacetown Health Centre was planned, accessibility in the geographical sense was a major consideration. The evidence of this study is that accessibility can reduce the doctor's visiting workload. The total population attended by the entire group of doctors has remained stable, suggesting that the reduction in visits is acceptable to the patients if it is balanced by better waiting rooms and a convenient pharmacy.

While it is dangerous to generalize from one study, the results do indicate that if a health centre is built in a position that is close to public transport the patients served by that centre will use these facilities. This observation may be relevant to policy makers who are planning medical services for large urban populations and are faced with the choice between large central premises which necessitate travel for patients or a number of smaller units scattered at various points in the area where the smaller communities in the population live. The decision will depend on a number of factors such as capital costs, revenue costs, expense in money and time to the patients if they have to travel to the doctor. One of the factors that has to be borne in mind is the possibility that distance may inhibit patients from attending central premises. The evidence from this study is that if public transport is available it will be used.

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