Observational study of a general practice out of hours cooperative: measures of activity

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Abstract

Objective: To evaluate an out of hours cooperative of general practitioners compared with a deputising service.

Design: Observational study of two services in overlapping geographical areas.

Setting: A general practice cooperative in Kensington, Chelsea, and Westminster and a deputising service operating in that area and the neighbouring area of Brent and Harrow.

Subjects: All patients contacting a doctor at either service in an eight week period beginning 1 September 1995.

Main outcome measures: Patients' age and sex; rates of home visiting, telephone advice, and attendance at a primary centre; hospital admission rates; prescribing rates; times of patient calls; and response times.

Results: Data were collected on 5812 patient contacts. Doctors from the cooperative visited 32.0% (1253/3920) of patients, offered telephone advice to 57.8% (2267), and saw 7.1% (278) of patients at the primary care centre. By contrast, the deputising service visited 76.3% (1444/1892) of patients and gave telephone advice to 19.3% (365). Doctors from the cooperative prescribed drugs to fewer patients (37.6%; 1473/3915) than did the deputising service (51.7%; 941/1821) (odds ratio 0.56 (95% confidence interval 0.50 to 0.63) adjusted for age and sex) and admitted 8.7% (339/3888) of patients to hospital compared with 6.8% (128/1889) from the deputising service (odds ratio 1.30 (1.05 to 1.61) adjusted for age and sex). Response times for the deputising service were faster (median time to visit 65 minutes) than for the cooperative (median time to visit 75 minutes) but the time to first contact with a doctor was shorter for the cooperative because most people initially received telephone advice.

Conclusions: The cooperative in this study dealt with patient contacts very differently from the way the deputising service dealt with contacts, fewer patients being visited and fewer receiving prescriptions. The data presented enable other out of hours services to compare their own performance using a standard data collection and analysis program.

Introduction

The system of providing primary care outside normal hours has been undergoing major reorganisation, with general practitioners in many parts of Britain establishing cooperatives. These are non-commercial organisations, led and staffed by local principals in general practice, which enable doctors to spend less time on call by working within a large rota.[1] In some cases cooperatives have also opened primary care centres, to which patients can be invited instead of receiving a home visit. Cooperatives often have general practitioners available at the centre who give telephone advice to many patients who contact them.

The rate of growth of the cooperative movement has been rapid[1] and is likely to accelerate further as a result of recent contractual changes and new arrangements for financial support.[2] However, no evaluation of a general practice cooperative has been published. Enthusiasts for cooperatives have described the success of these ventures, claiming high standards of organisation and patient care as well as high levels of patient and subscriber satisfaction,[3] but the measures used have not been validated and the results not published. By contrast, there has been fairly extensive research on deputising services, though most of the work predates the 1990 contract.[4-7] In an extensive review of published work Hallam argued for caution and a period of experimentation.[8] She called for evaluative studies to compare alternative patterns of service delivery before widespread adoption of any particular model, a caution which has not been heeded.

A cooperative was established in the Kensington, Chelsea, and Westminster area of London in 1994 with a facility for seeing patients at a base in St Charles's Hospital. This project set out to develop instruments to evaluate general practice cooperatives, to evaluate the new cooperative in London compared with a large commercial deputising service operating in an overlapping area, and to provide baseline data against which other services can compare their performance using the same measures. This paper describes the analysis of measures of activity.

Setting and methods

The cooperative in Kensington, Chelsea, and Westminster provides cover for 147 general practitioners caring for about 271 000 patients. Between 7 pm and midnight and during the day at weekends one of these general practitioners offers telephone advice or invites patients to attend the cooperative centre. Patients are offered a home visit only when the doctor thinks this is

Table 1 Population characteristics of study areas

	Kensington, Chelsea, and Westminster	Brent and Harrow
Total population (thousands)[20]	341.0	454.8
Proportion of population in age groups (% of total)[20]:		
0-4 Years	5.4	7.1
5-14 Years	8.2	12.8
15-64 Years	73.1	67.4
≥65 Years	13.3	12.7
Sex (% female)[20]	51.2	50.8
Ethnic group (% of total)[21]:		
White	81.1	63.7
Black	6.9	10.7
Asian	3.7	19.2
Other	8.2	6.6
Deprivation indicators[22]:		
Mean Jarman score	28.7	3.7
Lone parents (% of residents in households with one parent and one or more children)	5.0	4.7
Pensioners living alone (% of residents in households)	8.2	5.0
Morbidity[22]:		
Limiting long term illness (% of residents in households)	10.6	10.6

medically necessary. These calls are passed to another doctor, who is accompanied by a driver. One to four doctors are on duty depending on the day and time. After midnight the primary care centre is closed and one doctor offers telephone advice or visits as appropriate. The cooperative operates from 7 pm to 7 am every night and from midday on Saturday at weekends. A limited service is also available on two midweek afternoons. All doctors working for the cooperative are local general practice principals, though not all members work sessions.

Before the introduction of the cooperative most general practitioners in the area used various commercial deputising services. The deputising service which has retained most subscribers locally is Healthcall PLC. This is based at Ruislip and covers a large area of west London. Only 29 doctors in Kensington, Chelsea, and Westminster now use Healthcall. It was therefore decided to compare the service provided by the cooperative with that provided by Healthcall in both Kensington, Chelsea, and Westminster and the neighbouring area of Brent and Harrow, where 118 general practitioners are Healthcall subscribers and no cooperative exists.

Healthcall offers home visits and telephone advice but does not have a local primary care centre. Telephone advice is offered until 11 pm, but only to patients who specifically request advice or accept it willingly. This policy is influenced both by the 1984 code of practice for deputising services,[9] which required a visit to be made to any patient who requested one, and by a responsibility not to place the subscribing doctor at risk of an allegation of "failure to visit," as the patient's own general practitioner is responsible for the actions of a deputy. About half of the deputies working for Healthcall are general practice principals.

The populations of Kensington, Chelsea, and Westminster and Brent and Harrow have different characteristics, which may affect the calls they make and the service they receive (table 1). In particular, the Brent and Harrow area has a younger population, a higher proportion of Asians, and less deprivation than Kensington, Chelsea, and Westminster. It is important to consider differences between the areas as well as differences between the services in interpreting the results.

Information was collected about all calls from patients received by the cooperative or deputising service on behalf of general practitioners responsible to either Kensington, Chelsea, and Westminster or Brent and Harrow Family Health Services Authorities. The data collection period extended for eight weeks, beginning on 1 September 1995. Data collected about each call included the age and sex of the caller; date and time of the call; urgency of the call as defined by the service; whether telephone advice was given by a doctor (whether or not a visit later followed); whether the final contact was telephone advice only, attendance at the primary care centre, or a home visit; time of the contact; whether a prescription was issued; and whether the patient was referred to hospital.

Data were entered from case sheets. Both services provide telephone answering only for some doctors, and some calls are received from patients making general inquiries, such as when their surgery will reopen. These calls are handled by receptionists alone at both services. Only calls which were passed to the duty doctor were analysed. Both services transfer calls to ambulance control if the situation described to the receptionist suggests a medical emergency. These calls do not result in a doctor's case sheet and were not analysed unless they were transferred to a doctor for assessment.

By using the Epi-Info computer program a data entry screen was devised which enabled a range of providers of out of hours services to enter data in a common format. The data entry program also incorporated a random number generator to select a sample of patients to be sent patient satisfaction questionnaires for another aspect of this evaluation.

Table 2 Type of response to patient call by cooperative or deputising service and by age (years). Figures are numbers (percentages) of patients

	Cooperative					Deputising service				
Age	<5 (n=905)	5-14 (n=354)	15-64 (n=1947)	≥65 (n=686)	All ages* (n=3920)	<5 (n=529)	5-14 (n=256)	15-64 (n=777)	≥65 (n=330)	All ages (n=1892)
Home visit	254 (28.1)	114 (32.2)	514 (26.4)	358 (52.2)	1253 (32.0)	416 (78.6)	188 (73.4)	567 (73.0)	273 (82.7)	1444 (76.3)
Phone advice only	526 (58.1)	197 (55.6)	1242 (63.8)	292 (42.6)	2267 (57.8)	88 (16.6)	58 (22.7)	181 (23.3)	38 (11.5)	365 (19.3)
Attended primary care centre	97 (10.7)	36 (10.2)	134 (6.9)	10 (1.5)	278 (7.1)	1 (0.2)	0	0	0	1 (0.1)
"999" Ambulance sent	2 (0.2)	0	15 (0.8)	12 (1.7)	29 (0.7)	1 (0.2)	1 (0.4)	4 (0.5)	2 (0.6)	8 (0.4)
Other†	26 (2.9)	7 (2.0)	42 (2.2)	14 (2.0)	93 (2.4)	23 (4.4)	9 (3.5)	25 (3.2)	17 (5.1)	74 (4.0)

*Includes 27 cases in which age was missing.
†Includes patients who did not attend centre, cancelled, or did not reply when visited or telephoned.

Table 3 Admission rates by cooperative or deputising service for different types of contact. Figures are numbers (percentages) of patients

	Cooperative	Deputising service	Significance of cooperative *v* deputising
Home visit	170/1244 (13.7)	106/1442 (7.4)	χ^2=28.88; P<0.001
Phone advice only	118/2246 (5.3)	16/364 (4.4)	χ^2=0.47; P=0.49
Attending centre	23/277 (8.3)	0/1	—
Other contact	28/121 (23.1)	6/82 (7.3)	χ^2=8.93; P<0.001
Total	339/3888 (8.7)	128/1889 (6.8)	χ^2=6.46; P=0.01

Missing=35.

Data were entered at the offices of both the cooperative and deputising services. A one in 12 sample of calls was re-entered by a research assistant to ensure the consistency of data entry between the two sites. Data were transferred from Epi-Info to SPSS for Windows for statistical analysis. χ^2 Tests were carried out for categorical data and Mann-Whitney U tests for ordinal data. Logistic regression was used to adjust for the effect of the confounding variables of age and sex.

Results

Information was collected on 3920 calls to the cooperative and 1892 calls to the deputising service. Not all records were complete, the percentages below referring to records for which data were available. Patients calling the cooperative had a different age and sex distribution from those calling the deputising service. The mean age of patients calling the cooperative was 33.2 years (95% confidence interval 32.3 to 34.1 years) and of patients calling the deputising service 30.0 years (28.7 to 31.3 years). Calls about children aged under 15 accounted for 32.4% (1260/3893) of calls to the cooperative and 41.5% (785/1892) of calls to the deputising service ($\chi^2=46.4$, df= 1; $P<0.001$). A total of 62.2% (2439/3919) of calls to the cooperative were made on behalf of female patients, as were 56.5% (1069/1892) of calls to the deputising service ($\chi^2=17.5$, df=1; $P<0.001$).

The two services responded to the calls in very different ways, different proportions of patients receiving visits, telephone advice, or attending the centre ($\chi^2=1096$, df=2; $P<0.001$). The outcome of the call was related to the age of the patient, older patients being more likely to receive visits from both services (table 2).

Cooperative doctors admitted 8.7% (339/3888) of patients to hospital compared with 6.8% (128/1889) of patients contacting the deputising service. Logistic regression was carried out to allow for the different age and sex characteristics of the patients contacting the two services by using the four age groups listed in table 2 as categorical variables. The odds ratio for admission from the cooperative versus the deputising service was 1.30 (95% confidence interval 1.05 to 1.61). Patients who were visited were more likely to be admitted, and the cooperative was more likely than the deputising service to admit patients who were visited (table 3). Admission rates increased with age (table 4). Analysis of whether the time of day or night affected the proportion of patients who were admitted showed no significant differences.

Table 4 Admission rates by age group. Figures are numbers (percentages) of patients admitted

Age (years)	Cooperative	Deputising service
<5	42/903 (4.7)	19/529 (3.6)
5-14	24/352 (6.8)	15/256 (5.9)
15-64	166/1932 (8.6)	51/774 (6.6)
≥65	105/674 (15.6)	43/330 (13.0)
Total	337/3861 (8.7)	128/1889 (6.8)

Missing=62.

Table 5 Prescribing rates by cooperative and deputising service for different types of contact

	Cooperative	Deputising service	Significance of cooperative *v* deputising
Home visit	681/1252 (54.4)	896/1380 (64.9)	χ^2=30.33; P<0.001
Phone advice only	600/2265 (26.5)	43/361 (11.9)	χ^2=35.79; P<0.001
Attending centre	191/278 (68.7)	0/1	
Other contact	1/120 (0.8)	2/79 (2.5)	χ^2=0.93; P=0.34
Total	1473/3915 (37.6)	941/1821 (51.7)	χ^2=100.82; P<0.001

Missing=76.

Table 6 Prescribing rates by age group

Age (years)	Cooperative	Deputising service
<5	293/904 (32.4)	280/506 (55.3)
5-14	152/354 (42.9)	135/247 (54.7)
15-64	785/1945 (40.4)	382/751 (50.9)
≥65	235/686 (34.3)	144/317 (45.4)
Total	1465/3889 (37.7)	941/1821 (51.7)

Missing=102.

Of the patients consulting the cooperative, 37.6% (1473/3915) received a prescription compared with 51.7% (941/1821) of those consulting the deputising service (odds ratio 0.56 (0.50 to 0.63) after logistic regression to allow for age and sex). As with admission rates, there were differences in prescription rates according to how the call was dealt with (table 5) and according to age (table 6). When only face to face consultations are considered the prescribing rates for the cooperative and deputising services were 57.0% (872/1530) *v* 64.9% (896/1380) (odds ratio 0.74 (0.64 to 0.86) after logistic regression). The numbers of patients receiving a prescription after a telephone consultation refer to instances of doctors telephoning local pharmacies to arrange the supply of drugs (for example, to replace mislaid regular treatment or to treat a presumed urinary tract infection), prescriptions being posted later to the pharmacist.

Response times were analysed for those cases which resulted in a visit, telephone advice, or a centre attendance. The most appropriate descriptive data to summarise response times are the median and 90th centile times. Table 7 gives these data according to the type of patient contact. Overall response time for the cooperative was shorter only because more callers received telephone advice. The deputising service marked 266 (14.1%) calls as urgent compared with only 11 (0.3%) calls received by the cooperative, which did not have a well defined procedure for prioritising calls. Calls designated as urgent by the services were seen only slightly faster than routine calls. The median response time for an urgent visit was 61 minutes for the cooperative and 63 minutes for the deputising service.

Figure 1 shows the times at which patients called between 7 pm and 7 am, when both services were open every day. The data refer to 3425 of 5794 calls (times

missing for 18 calls). Of the remaining calls, 2137 occurred during the day at weekends and 232 on weekday afternoons.

Discussion

This appears to be the first published evaluation of a general practice out of hours cooperative. Such an evaluation is overdue in view of the dramatic changes which have been taking place in the provision of primary care outside normal hours. The project was an observational study of two different models of service in overlapping areas. The different nature of the patient populations was exemplified by the different age distribution of callers. There may also be differences in the way doctors use the services—for example, some deputising service users carry out their own calls before midnight and others screen calls before handing some over to the service. This was reflected in the smaller number of calls handled by the deputising service despite a similar number of subscribers to the cooperative. Comparisons between the two models of organisation should be carried out with caution. Though it would be ideal to carry out randomised controlled trials to compare different out of hours services, there are few places in which a deputising service and a cooperative operate in the same area, and reorganising the services to make such a trial possible would create an artificial situation which may not represent normal activity.

This study was carried out in a metropolitan area. The results may have limited generalisability to other areas, as London has lower rates of night visits than other parts of Britain.[10] However, no cooperative is representative, as cooperatives differ considerably in their organisation and setting. This project establishes baseline information and measurement tools which other out of hours services can use to compare their performance.

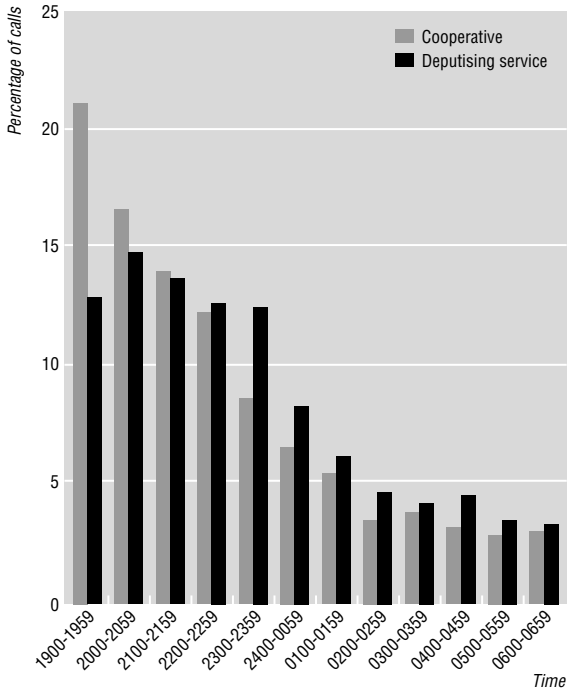

Fig 1 Percentage distribution of calls to cooperative and deputising services between 7 pm and 7 am

Table 7 Response times by type of contact and by service

	Response time (min)			
	Cooperative		Deputising service	
Type of contact	Median	90th Centile	Median	90th Centile
Home visit	75	172	65	126
Telephone advice	25	80	14	58
Centre attendance	85	197	—	—
Time to patient's first contact with doctor	28	87	46	111
Overall response time	42	130	56	119

All differences between services were significant (P<0.001; Mann-Whitney U test).

The most important difference between the cooperative and deputising services was in the proportion of callers who received telephone advice instead of a visit. Part of this difference may be due to some subscribers vetting calls before passing to the deputising service those needing visits, but it is also likely to be due to differences in policy. Deputising services have had a policy of making a visit to any patient who requests one, though Healthcall instituted a telephone advice service in Ruislip in July 1995, two months before this study began. Other studies have shown very different levels of giving telephone advice to out of hours callers in different settings, including 7.6% in a study of Portsmouth deputising services,[11] 24% and 37% for studies in London general practices,[12 13] and 44% and 59% for doctors carrying out their own out of hours work in suburban practices.[14 15] The appropriate level of giving telephone advice depends on both the acceptability for those patients advised and the clinical outcome. Acceptability is addressed in a separate study as part of this evaluation, but whether patients given telephone advice have a satisfactory medical outcome is an important issue for future research.

Out of hours primary care centres

The establishment of out of hours primary care centres has been seen as a priority in the new contractual arrangements for general practitioners. However, in this study only 7.1% of the cooperative's patients were seen at the centre. The progress of existing centres should be monitored before extensive resources are committed in this way. A study of Healthcall primary care centres in different parts of Britain found that 22.4% of callers were able or willing to attend,[16] and unpublished figures from several cooperatives have quoted widely varying attendance rates of up to 30%.[17] Interestingly, it has proved difficult to attract patients to primary care centres when a large number of patients, particularly in London, attend accident and emergency departments with primary care problems.[18] An alternative strategy is to place general practitioners in accident and emergency departments[19] rather than develop new centres, but this has other disadvantages by blurring the distinction between primary and secondary care.

The admission rates for both services were similar and agreed with other reports, which quoted rates of 7-8%.[11 13 15] The higher admission rate for the cooperative may be due to the greater deprivation in the population served. The difference between the cooperative

Key messages

- A primary care out of hours cooperative dealt with patients' calls very differently from an established deputising service, which may have important implications for patient satisfaction and expectations
- Randomised controlled trials are very difficult to conduct to evaluate established services but could be planned before introducing a new service
- The impact of a high rate of out of hours telephone advice on health outcomes should be a priority for future research
- Few patients are currently willing or able to attend an out of hours primary care centre in London
- Standard indicators and measurement tools should be defined to evaluate different models of out of hours care, and the results of an annual evaluation of local providers should be made available to general practitioners

and the deputising service in terms of prescribing rates was more notable. Though the prescribing rate for the deputising service of 53.9% was lower than in previous studies,[5 11] it was higher than the rate for patients contacting the cooperative, even when allowing for the different proportion of patients seen in face to face consultations.

Why might these differences occur? All doctors working for a deputising service are vocationally trained and some are themselves principals. General practitioners working for a cooperative are no more likely to know the patients they advise than are deputies. There may be differences in the culture of the services, the incentives and motivation of doctors working for them, and the different background of cooperative doctors who mainly work in routine daytime surgeries.

The response times for both services were disturbingly long and slower than those in previous studies,[4 5 11] which probably reflected transport difficulties in London. It is unwise to place undue emphasis on response times. Many calls in the out of hours period are for conditions which are not urgent, such as ear, chest, and urinary tract infections. Patients who consult with these conditions during the day may wait several hours to be seen. It is of more concern that both services took a considerable time to visit patients they themselves designated as urgent.

Computerised management

This project was based on analysis of information from patient call sheets. Many cooperatives and deputising services have introduced computerised call management systems which will make it easier to produce such information in future.

The evaluation of out of hours services would be facilitated if services adopted standard definitions of urgent and routine calls and consistently recorded the number of general inquiries handled by receptionists alone, reminder calls, and cases transferred to the ambulance service. At a time when many alternative models for providing out of hours care are being developed it would be valuable to define monitoring requirements which are more appropriate than those previously devised for deputising services. Health authorities should require annual reports about the performance of each out of hours service provider in their areas in relation to these indicators and should make the results available to local general practitioners.

The activity measures described here form only one aspect of the evaluation of an out of hours cooperative compared with a deputising service. Further reports will describe patient and doctor satisfaction, the quality of care recorded in notes, and the costs of providing the service.

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Conflict of interest: Both organisations funding this study had an interest in the results. However, neither had any part in the design, conduct, analysis, or presentation of this work, which were entirely my responsibility.

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Comparison of out of hours care provided by patients' own general practitioners and commercial deputising services: a randomised controlled trial. I: The process of care

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Abstract

Objective: To compare the process of out of hours care provided by general practitioners from patients' own practices and by commercial deputising services.
Design: Randomised controlled trial.
Setting: Four urban areas in Manchester, Salford, Stockport, and Leicester.
Subjects: 2152 patients who requested out of hours care, and 49 practice doctors and 183 deputising doctors (61% local principals) who responded to those requests.
Main outcome measures: Response to call, time to visit, prescribing, and hospital admissions.
Results: 1046 calls were dealt with by practice doctors and 1106 by deputising doctors. Practice doctors were more likely to give telephone advice (20.2% *v* 0.72% of calls) and to visit more quickly than deputising doctors (median delay 35 minutes *v* 52 minutes). Practice doctors were less likely than deputising doctors to issue a prescription (56.1% *v* 63.2% of patients) or to prescribe an antibiotic (43.7% *v* 61.3% of prescriptions issued) and more likely to prescribe generic drugs (58.4% *v* 32.1% of drugs prescribed), cheaper drugs (mean cost per prescription £3.28 *v* £5.04), and drugs in a predefined out of hours formulary (49.8% *v* 41.1% of drugs prescribed). There was no significant difference in the number of hospital admissions.
Conclusions: By contrast with practice doctors, deputising doctors providing out of hours care less readily give telephone advice, take longer to visit at home, and have patterns of prescribing that may be less discriminating.

Introduction

The provision of 24 hour care for patients has become unacceptable to many general practitioners in the United Kingdom.[1] The pressures of out of hours work of fatigue,[2] concerns about personal safety,[3] and a perception that many calls are inappropriate[4-6] have been increased by the substantial rise in workload at night.[7] As a result general practitioners delegate more out of hours care to other agencies, principally commercial deputising services. In 1964 deputising services were used by 9% of general practitioners.[8] In 1993 they carried out over one third of night visits nationally and over two thirds of night visits in inner city areas.[9] One outcome of recent negotiations with government is that personal care out of hours by general practitioners may further decrease.[10]

The advantages and disadvantages of deputising services have been described.[11-15] We report what we believe to be the first controlled comparison of care provided by practice doctors and doctors from deputising services. This paper is concerned with process measures—namely, the response to the request for care, the time taken to visit at home, details of prescribing, and the proportion of patients admitted to hospital. Our accompanying paper examines outcome measures.[16]

Subjects and methods

The study took place between July 1994 and July 1995. Fourteen undergraduate teaching and postgraduate training practices were invited to participate, serving inner city and suburban populations in Manchester, Salford, Stockport, and Leicester. Each area had a different deputising service. For duty periods studied, participating practice doctors agreed either to provide out of hours care personally or to use a deputising service as determined by the randomisation process.

An "out of hours contact" was defined as any request for medical care between 7 pm and 7 am on weekdays, from 1 pm on Saturdays, and from 7 am for 24 hours on public holidays. A "night contact" was defined as any request for medical care between 10 pm and 7 am.

Duty periods were stratified to include a proportionate number of weekday evenings and nights, weekends, and bank holidays and then randomly allocated to care provided by either deputising services or practice doctors. Neither group of doctors was informed of which calls were being studied. Patients contacted their practice for care as usual throughout. Patients resident for less than two weeks were excluded, and out of hours contacts for a patient occurring within two weeks of the first contact were included as follow up calls. Patients who requested care during a study period were interviewed 24 to 120 hours later (two thirds between 24 and 72 hours). The average time to interview was equivalent in each arm of the study.

A structured questionnaire was used to collect sociodemographic data, time of request and time of visit if received, hospital admissions, satisfaction, health status, and details of drugs prescribed or dispensed, including the number contained in an out of hours formulary.[17] The doctors studied were not aware that a formulary would be used as an indicator of prescribing. Satisfaction, health status, and subsequent use of health services are described in our accompanying paper.[16] For children and patients unable to complete the interview, data were collected from a close relative. Interpreters were available when required.

Data collected from doctors' records included clinical information, treatment, and nature of the encounter. Twelve practices used the deputising service to pass calls to the doctor on duty, one used a local ambulance service, and one received calls direct.

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Table 1 Response to request for care

Response to request for care	No (%) of patients requesting care	
	Practice doctors	Deputising doctors
Telephone advice	216 (20.8)	15 (1.4)
Advised to go direct to hospital	4 (0.4)	14 (1.3)
Home visit	777 (74.9)	1026 (94.8)
Consultation at surgery	40 (3.9)	0
Consultation at out of hours centre	0	27 (2.5)
Total	1037 (100.0)	1082 (100.0)

Data on response to request for care were available for 2119 (98.5%) calls. Data were unavailable in 33 cases because patient cancelled call (13) or refused entry to doctor (2) or place of contact was not recorded (18).

Details of calls were transcribed by practice doctors on to standard call sheets. This record of the time of the call and, for those patients visited, the time of arrival at the patient's home reported by the doctor was used in the analysis. Clinical problems and prescriptions were coded by using the read code system. Prescribing costs were drawn from the *British National Formulary, Drug Tariff,* or *Mims* current at the start of the study. The six interviewers underwent joint training and carried out quality standardisation procedures. All data were double coded, double entered, and verified.

Most variables showed evidence of correlation in outcome among patients seen by the same general practitioner or deputising doctor (intracluster correlation). As significance tests without adjusting for this variability between doctor and patient would be inappropriate, data were analysed by using a multilevel model.[18] This was carried out with the MLn software package.[19] "Adjusted percentages" indicate multilevel modelling with fitted values derived from a model with patients at the first level and doctors or practice at the second level, with adjustments for age, sex, and ethnic origin of the patient. Positively skewed variables were normalised by log transformation. 95% Confidence intervals were derived from the multilevel analysis. For proportions, confidence intervals are derived from the detransformed logistic regression estimates.

Table 2 Time between call being received and patient being visited

Time from request to arrival of doctor	Percentage of patients visited (95% confidence interval)		
	Practice doctors	Deputising doctors	P
Under one hour	68.6 (61.2 to 75.2)	56.4 (51.6 to 61.1)	0.0056
Two hours or less	91.2 (86.2 to 94.4)	86.1 (82.4 to 89.1)	0.075

Figures are adjusted percentages; n=1487 out of 1803 home visits in which both time of call and arrival of doctor were recorded.

Results

A total of 2152 calls were studied, of which 1046 (49%) were dealt with by 49 practice doctors and 1106 (51%) by 183 deputising doctors. When information about the status of the deputy was available 98 out of 160 (61%) were local principals, and they cared for 480 out of 850 (56%) of the patients seen by deputising doctors. The study periods from the sampling frame yielded one in six of the total annual calls for the practices, which were equally distributed between the two groups. Overall, 873 calls were received during weekdays and 1279 during weekends or public holidays. When the time of the call was recorded 570 out of 2021 calls (28%) were night calls. The attending doctor was called to certify death on 48 occasions and the researchers were asked by the practices not to contact 41 patients. Among the remaining eligible sample, 1466 interviews were carried out, a response rate of 71%.

Response to request—Table 1 shows that practice doctors were much more likely than deputising doctors to offer telephone advice. Practice doctors were equally likely to give telephone advice during the day and evening (19.4%; 95% confidence interval 14.5% to 25.6%) as at night (17.8%; 12.4% to 24.7%).

Time from receipt of call to home visit—For patients visited at home the median and mean times to arrival for practice doctors were 35 and 55.4 minutes and for deputising doctors 52 and 65.9 minutes. Normalisation of the positively skewed data by log transformation suggested a significantly shorter waiting time for practice doctors ($P < 0.0001$). After adjustment for age the ratio of the geometric mean time to visit was 1.39 (95% confidence interval 1.19 to 1.64). Practice doctors were more likely to visit within one hour and within two hours (table 2). Delays reported by patients (overestimated by a mean of 15 minutes for both groups) confirmed this.

Prescribing—Of 1274 patients interviewed, 756 (59%) said they had received a prescription (table 3). Practice doctors were less likely than deputising doctors to issue a prescription. All patients, including those with respiratory illness but not those with gastrointestinal illness, were more likely to receive an antibiotic from deputising doctors. Practice doctors prescribed fewer items and a higher proportion of generic items. Consequently their prescriptions were less expensive. Prescriptions issued by practice doctors and, in particular, drugs dispensed were more likely to be from the out of hours formulary[17] than those issued by deputising doctors. There were no significant differences in the indices of prescribing among deputising doctors whether or not they were active local principals in general practice.

Table 3 Summary of prescribing differences between practice doctors and deputising doctors

Prescribing	Percentage of patients (95% confidence interval)		
	Practice doctors	Deputising doctors	P
Patients receiving prescription	56.1 (50.7 to 61.3)	63.2 (59.0 to 67.2)	0.042
Prescriptions which included antibiotic	43.7 (37.8 to 49.7)	61.3 (53.6 to 68.5)	<0.006
Patients with respiratory disease receiving antibiotic	44.8 (36.7 to 53.2)	72.1 (62.3 to 80.1)	<0.001
Items prescribed generically	58.4 (52.7 to 63.8)	32.1 (28.2 to 36.4)	<0.001
Items prescribed which were within predefined formulary	49.8 (43.7 to 55.9)	41.1 (36.5 to 48.8)	0.024
Items dispensed which were within predefined formulary	69.6 (60.0 to 77.8)	52.2 (45.9 to 58.5)	0.003
Mean cost per prescription (£)	3.28	5.04	0.01

Table 4 Details of hospital referrals

Hospital referral	Percentage of patients (95% confidence interval)		P
	Practice doctors	Deputising doctors	
Patients referred to hospital	6.8 (4.3 to 10.7)	7.1 (5.1 to 9.7)	0.895
Patients referred but not admitted	21.6 (11.3 to 35.3)	25.4 (15.5 to 37.5)	0.792
Patients admitted for less than two nights	33.3 (18.0 to 51.8)	47.2 (30.4 to 64.5)	0.353

Figures are adjusted percentages; n=118 patients referred to hospital. Length of stay could be determined for 69 patients.

Hospital admissions—Of patients interviewed, 118 had been referred to hospital. There were no significant differences in the numbers of patients referred to hospital, the numbers subsequently admitted, or the durations of admission (table 4).

Discussion

This study showed differences in most measures of the process of care provided by practice doctors and deputising doctors. Though practice doctors gave less telephone advice and visited more often than previously reported,[6 20-23] they visited more quickly than deputising doctors, who are required to visit when requested.[24] As patients who attend an out of hours centre are also seen more quickly than those visited by deputising doctors,[25] patients whose condition necessitates an urgent visit might receive a faster response if deputising services could provide a wider range of responses to requests for out of hours care. Similarly, though global response time targets for deputising services are set by some health authorities,[26] the identification and prioritisation of patients needing urgent attention may be more appropriate.

The higher overall volume and cost and lower proportion of drugs prescribed or dispensed from the formulary may indicate less discriminating prescribing and the use of promotional drug samples by deputising doctors. However, because similar prescribing was found in deputising doctors irrespective of whether or not they were local principals this prescribing behaviour may relate more to the nature of the work than to the characteristics of the doctors themselves. Increased prescribing has been reported in settings in which the doctor does not know the patient.[27] This may be inherent in any system of care provision that is distinct or separate from the practice, such as a general practitioner cooperative.

Key messages

- In response to a request for out of hours care, practice doctors are more likely than deputising services to offer telephone advice
- When patients are visited at home, practice doctors can get there sooner
- Practice doctors give fewer, cheaper, and possibly more discriminating prescriptions
- In this series there was no difference in the number or duration of hospital admissions between the two groups of doctors

In summary, differences between practice doctors and deputising services were found in the response to the request for care, time to visit, and treatment given but not in admissions to hospital. Methodological considerations and the impact of these differences on the outcome of care measured in terms of health status, patient satisfaction, and subsequent use of health services are presented in our accompanying paper.[16]

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Comparison of out of hours care provided by patients' own general practitioners and commercial deputising services: a randomised controlled trial. II: The outcome of care

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See editorial by Hallam and pp 182, 187, 193, 198, 199

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Abstract

Objective: To compare the outcome of out of hours care given by general practitioners from patients' own practices and by commercial deputising services.
Design: Randomised controlled trial.
Setting: Four urban areas in Manchester, Salford, Stockport, and Leicester.
Subjects: 2152 patients who requested out of hours care, and 49 practice doctors and 183 deputising doctors (61% local principals in general practice) who responded to the requests.
Main outcome measures: Health status outcome, patient satisfaction, and subsequent health service use.
Results: Patients seen by deputising doctors were less satisfied with the care they received. The mean overall satisfaction score for practice doctors was 70.7 (95% confidence interval 68.1 to 73.2) and for deputising doctors 61.8 (59.9 to 63.7). The greatest difference in satisfaction was with the delay in visiting. There were no differences in the change in health or overall health status measured 24 to 120 hours after the out of hours call or subsequent use of the health service in the two groups.
Conclusions: Patients are more satisfied with the out of hours care provided by practice doctors than that provided by deputising doctors. Organisation of doctors into large groups may produce lower levels of patient satisfaction, especially when associated with increased delays in the time taken to visit. There seem to be no appreciable differences in health outcome between the two types of service.

Introduction

It has been suggested that out of hours primary medical care provided by practice and deputising service doctors differs in quality[1] but there has never been a randomised controlled comparison. Three descriptive studies provided some evidence that patients are less satisfied with care provided by deputising doctors,[2-4] though in two studies there were long delays between the study visit and data collection[2 3] and one was of a single practice.[4] All used satisfaction instruments of uncertain reliability and validity,[5] so the validity of these measures was questionable. We report a randomised controlled trial comparing the outcome of out of hours care given by practice and deputising doctors. The outcome measures used were patient satisfaction, health status, and subsequent use of health services. Our accompanying paper reports on process measures used in the trial.[6]

Subjects and methods

Details of the recruitment of participating practices, study design, and randomisation are given in our accompanying paper.[6] Data on patient satisfaction and health status were collected by interview between 24 and 120 hours after the out of hours call. The time to interview was balanced between the arms of the study; two thirds of the interviews took place between 24 and 72 hours after the call.

A modified version of the anglicised short form 36 (SF-36) questionnaire[7] was used to gather health status information on all patients aged 16 or more. With permission from the Health Institute, Boston, question stems were modified to ask about health "since you saw the doctor" instead of "in the last four weeks." If the patient or informant was unable to complete the questionnaire the standardised interviewer version of the SF-36[8] was used with the stems changed in the same fashion. For children aged 5-15 we used a development 30 item, nine subscale version (short form 2.01) of the child health questionnaire parent form to measure health status (J Langraff, personal communication, 1993). For children under 5 we used four scales (overall health, physical ability, temperament or mood, and impact of illness on the carer) to measure health status. Each scale had five points. Change in health was also measured for all patients by the transition question, "Compared with how you felt when you called the doctor, how do you feel now?" Responses were recorded on a graduated visual analogue scale, on which zero corresponded with "much worse," 40 with "no difference," and 100 with "completely better."

Patient satisfaction was assessed with a questionnaire[9] developed by established qualitative and quantitative methods.[10] Scale scores were calculated by scoring questions from one to five (five always representing high satisfaction), summing them, and expressing the total as a percentage of the maximum score for the scale. Results for five scales are presented. The remaining scales (satisfaction with access, the person who answered the telephone, and telephone advice) are not reported, as few patients received telephone advice from the deputising services and all but one practice used the same telephone answering service whether practice doctors or the deputising service provided care. Data on health service use in the two weeks after the out of hours call were extracted from the medical records of those patients who gave consent.

Analysis was carried out by multilevel modelling techniques,[11] as described.[6]

Results

A total of 1046 requests for care to practice doctors and 1106 to deputising doctors were studied. Details of the calls studied and response rates are given in the accompanying paper.[6] Though intradoctor cluster cor-

Table 1 Health status scores (on SF-36 subscales) of patients between 24 and 120 hours after out of hours visit. Scores are adjusted for age, sex, ethnic group, and access to a car

SF-36 subscale	Mean score (95% confidence interval)		Intracluster correlation coefficient	P
	Practice doctors	Deputising doctors		
Physical function	62.9 (59.5 to 66.2)	61.1 (57.9 to 64.4)	0.00035	0.49
Physical role	40.3 (35.2 to 45.3)	42.3 (37.5 to 47.1)	<0.0001	0.58
Emotional role	61.9 (56.3 to 67.6)	64.6 (59.5 to 69.7)	0.019	0.57
Social functioning	54.7 (50.8 to 58.7)	56.4 (52.6 to 60.2)	<0.0001	0.67
Mental health	60.4 (57.3 to 63.4)	63.0 (60.4 to 65.7)	0.037	0.19
Energy and vitality	37.8 (34.8 to 40.8)	38.1 (35.4 to 40.8)	0.014	0.89
Pain	55.4 (51.7 to 59.0)	55.1 (51.5 to 58.6)	<0.0001	0.89
General health perception	56.2 (53.3 to 59.2)	55.2 (52.5 to 58.1)	<0.0001	0.66

Table 2 Mean satisfaction scores in patients seeing practice doctors and deputising doctors. Scores are adjusted for age, sex, ethnic group, access to a car, and (except for "delay until visit") time between request and visit

Satisfaction criteria	Mean score (95% confidence interval)		Intracluster correlation coefficient	P
	Practice doctors	Deputising doctors		
Communication	68.9 (66.5 to 71.4)	62.9 (61.1 to 64.7)	0.056	0.0002
Attitude of doctor	75.1 (72.2 to 78.0)	69.6 (67.6 to 71.6)	0.068	0.003
Continuity of care	57.7 (55.6 to 59.8)	58.5 (56.8 to 60.1)	0.019	0.573
Delay until visit	52.8 (49.5 to 56.3)	41.7 (39.7 to 43.7)	0.047	<0.0001
Overall satisfaction	70.7 (68.1 to 73.2)	61.8 (59.9 to 63.7)	0.058	<0.0001

relation coefficients were negligible for most health status measures (<0.01), they were between 0.019 and 0.068 for the satisfaction scales.

Health status—Table 1 gives the scores for adults on the SF-36 subscales. There were no differences between the scores of patients cared for by practice and deputising doctors. For infants and children none of the health status scales showed differences between the groups. After adjustment for age, sex, ethnic group, and access to a car the mean transition question scores were 69.1 (95% confidence interval 67.4 to 70.9) and 69.2 (67.7 to 70.8) for practices and deputising services respectively. This represents scores midway between "a bit better" and "much better."

Patient satisfaction—Table 2 shows that adjusted mean scores for four of the five patient satisfaction scales were higher for practice doctors than for deputising doctors, the difference being most pronounced for the "Delay until visit" scale. Table 3 shows the adjusted percentages of patients who expressed clear dissatisfaction for each scale. Almost twice as many patients who received care from deputising doctors expressed clear dissatisfaction with overall care, delay until visit, and communication with the doctor. Only 34.3% (95% confidence interval 29.3% to 39.8%) and 17.1% (14.3% to 20.4%) of patients cared for by practice and deputising doctors respectively expressed clear satisfaction (adjusted scale scores greater than 62.5) with delay until visit.

Subsequent health service use—Data on subsequent health service use were obtained for 1389 (94.7%) of the 1466 patients who were interviewed. Table 4 shows that after adjusting for age there were no significant differences in the number of follow up visits or prescriptions between the groups. More patients who received telephone advice from practice doctors consulted compared with those who received a visit from practice doctors (53.8% (95% confidence interval 44.4% to 62.9%) and 44.7% (39.8% to 49.9%) respectively), though the differences were not significant.

Discussion

These data confirm that patients were more satisfied with out of hours care provided by doctors from their own practice than with that provided by deputising doctors.[2-4] This effect remained after correcting for visit delay.[3 12] Though a minority of patients expressed dissatisfaction with both services, it is not possible to compare our findings with those of other studies because of the different instruments used to measure satisfaction.[2-4 12] The median delay between the patient's request for care and the practice doctor's arrival was 35 minutes,[6] yet only one third of patients were clearly satisfied with the delay until visit. This may reflect the current emphasis on waiting times in many quality standards, including the patient's charter. It may be unreasonable to expect any service to offer a faster response than this between the patient's decision to seek care and a consultation with a doctor. We must consider whether expectations have been inappropriately raised.

We found no difference in expressed satisfaction with continuity of care, which may reflect the patient's perception of urgent need overriding any desire for continuity of care.[13 14] Indeed, a patient of a multidoctor practice will not usually see his or her personal doctor out of hours,[15] so that there may have been little difference between the services in the chances of patients seeing a doctor they knew.

Table 3 Percentage of patients dissatisfied (mean item score < 37.5 on scale 0-100 (50=neutral)) among those who had seen practice doctors and deputising doctors. Scores were adjusted for age, sex, ethnic group, access to a car, and (except for "delay until visit") time between request and visit

Satisfaction scale	Percentage dissatisfied (95% confidence interval)		P
	Practice doctors	Deputising doctors	
Communication	8.9 (6.5 to 12.3)	15.2 (12.3 to 18.7)	0.007
Attitude of doctor	7.5 (5.1 to 10.6)	11.0 (8.6 to14.1)	0.07
Continuity of care	19.1 (15.2 to 23.4)	18.4 (15.4 to 21.9)	0.83
Delay until visit	22.5 (17.0 to 29.1)	39.6 (35.2 to 44.1)	0.00003
Overall satisfaction	9.8 (7.2 to 13.1)	17.9 (14.8 to 21.7)	0.0007

Table 4 Differences between groups in health service use in two weeks after out of hours call. Proportions adjusted for age, sex, ethnic group, and access to a car

Item of subsequent health service use	Percentage (95% confidence interval)		P
	Practice doctors (n=680)	Deputising doctors (n=709)	
Seen in general practice by doctor or nurse	46.5 (42.1 to 50.9)	44.2 (40.2 to 48.3)	0.299
More than one visit to general practice	15.7 (12.9 to 19.0)	13.3 (10.3 to 16.2)	0.178
Received prescription from general practitioner	28.6 (25.2 to 32.2)	27.0 (23.8 to 30.6)	0.327

Despite the differences in satisfaction with the care given by the two groups of doctors there were no differences in any of the three indices of health outcome. Transition questions provide valid measures of health change.[16] As the SF-36 could not have been administered shortly after the request for care as a basis for comparison for the scores found at interview, we could not calculate its sensitivity to detect change in this context.[17] Nevertheless, it has been shown to be reliable, valid, and appropriate for primary care[7 18] and responsive to change in health.[19] Furthermore, the sample size was large enough to detect clinically important differences in SF-36 scores.[20] In addition, there was no greater demand for care in either group over the next 14 days. It therefore seems that there was no difference in health outcome between the groups.

Key messages

- Between 24 and 120 hours after a request for out of hours care patients cared for by deputising services and practice doctors show no difference in health status
- There is no difference in health service use between the two groups in the two weeks after a request for out of hours care
- Patients are more satisfied with out of hours care provided by their own practice doctors
- Though patients are more satisfied with out of hours care provided by practice doctors, their health outcomes are no better than when care is provided by a deputising service

Possible biases

Several possible biases exist in this study, which if present will have tended to improve the apparent performance of both services. As it was not possible to recruit a random sample of practices and deputising services for the trial, the data may not be representative of all out of hours care. The pattern of weekend and evening work for practice doctors was unchanged when 72%[6] of requests were made. However, during the study many practice doctors who normally used deputising services for night visits provided care at night. Participants may therefore have changed their behaviour (the Hawthorn effect) when on duty, though such behaviour change can attenuate rapidly.[21] To minimise such potential biases, practice doctors were not informed about which calls would be studied and, as far as possible, which duty periods would be sampled. Deputising services were not informed about which practices participated.

These results are of particular relevance to general practitioner cooperatives, which are likely to provide more out of hours care in the future.[22] As about half of the care provided by deputising services was by doctors who were also local principals,[6] the greater delay and reduced satisfaction found for deputising services may reflect the system of care rather than the doctor providing care. This suggests that increased provision of out of hours care by cooperatives staffed mainly by local practitioners will not adversely affect health outcomes, though patients' perceptions of the care provided may deteriorate.

In conclusion, we have shown that when practice doctors provide their own out of hours care patients are more likely to receive telephone advice and, when visited, are seen more quickly. In addition, these patients receive fewer, cheaper prescriptions, which are likely to be more carefully considered,[6] and are more satisfied. There was no noticeable health gain or overall effect on health service use in the next two weeks. The "cost" to the general practitioner of providing personal out of hours care is fatigue,[23] stress,[24] and the risk of suboptimal performance next day.[25] There may be differing interpretations of these results but our view is that the advantages of practice doctors continuing to provide personal out of hours care are small in the context of these difficulties.

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Reliability and validity of a new measure of patient satisfaction with out of hours primary medical care in the United Kingdom: development of a patient questionnaire

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Abstract

Objective: To develop a reliable, valid measure of patient satisfaction with out of hours care suitable for large scale service evaluation.
Design: Focus group meetings and semistructured interviews with patients to identify issues of importance to patients and possible questionnaire items; interviews and two pilot studies to test and identify new questionnaire items; modification or removal of items to eliminate ambiguity and reduce non-response and skewed responses; questionnaire survey of out of hours care.
Setting: Greater Manchester and Leicester.
Subjects: 11 general practice patients participated in the focus groups and 28 in the semistructured interviews; 41 in the preliminary interviews; 41 and 378 in the postal pilots; and 1466 in the survey of out of hours care.
Results: A 32 item questionnaire was developed. Component analysis indicated seven scales (satisfaction with communication and management, doctor's attitude, continuity of care, delay until visit, access to out of hours care, initial contact person, telephone advice) related to overall satisfaction and containing issues identified as important to patients. Levels of reliability were satisfactory, Cronbach's α correlation coefficient exceeding 0.60 for all scales.
Conclusion: A reliable, valid measure of patient satisfaction has been developed, suitable for large scale evaluation of out of hours care.

Introduction

During the past 30 years many general practitioners have stopped providing personal 24 hour care to patients and have subcontracted much of it to commercial deputising services.[1] This withdrawal from the personal provision of out of hours care has been fuelled by rising demand[2] which may be inappropriate,[3-5] fatigue,[6] stress,[7] and concerns about personal safety.[8] Contractual arrangements have been changed to allow general practitioners greater freedom to choose how they provide out of hours care.[9] Supported by additional public funding, this has encouraged the development of various models of care, including cooperatives and out of hours centres. These should be evaluated to ensure that both the quality of care and practitioner wellbeing are maintained or improved. Quality is multifaceted[10] and its assessment requires multiple measures of process, such as response times, telephone advice rates, prescribing, and admission rates combined with measures of outcome such as health status and satisfaction.[11 12] Low patient satisfaction may result in poor compliance with the potential for waste of resources and suboptimal clinical outcome.[13 14] Satisfaction of the legitimate demands of patients is therefore an objective of all medical care[15] and should be included as an outcome measure.[16]

Measuring patient satisfaction with medical care is not straightforward. One approach is to use qualitative methods,[17 18] but these are difficult to use for routine large scale service evaluation. An alternative is to use a quantitative questionnaire. Such a questionnaire must be reliable[19]—that is, the random error of responses must be minimised so that consistency of measurement is achieved. The questionnaire must also be valid—that is, it must be a true measure of what it purports to measure and must not be subject to bias.[20] Validity can further be characterised as face, content, criterion, or construct validity.[19] Much of the early work on measuring patient satisfaction took place in the United States[21] but patient satisfaction questionnaires for care provided by United Kingdom general practitioners have been published. These assess satisfaction with the practice,[22] access to doctors,[23] individual consultations,[24] and advice given in the consultation.[13] Though other workers have reported patient satisfaction with out of hours care, they did not use questionnaires with established reliability and validity.[25-28]

We report the development of a reliable and valid questionnaire which can be administered by interview or completed by the patient or carer for measuring patient satisfaction with out of hours primary medical care in the United Kingdom.

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Subjects and methods

Identifying issues important to patients

We used qualitative methods to identify issues about out of hours care important to patients and so develop questionnaire items. We invited patients to join two focus groups[29] led by a non-clinical colleague. They were recruited from general practice registers and community groups to represent a range of patients from parents and guardians of children to elderly people from different ethnic, cultural, and social backgrounds. We included parents and guardians of children because they initiate many requests for out of hours care.[5 30] Group meetings were audiotaped and coded separately by two of us (RKM and AMH). We used this material to inform the content of semistructured interviews administered to patients or their carers who had recently requested out of hours care from two large city practices or their deputising service. In the interviews we further explored the issues important to patients and tested potential questions for inclusion.

We compiled a list of elements of patient satisfaction relevant to out of hours care from unpublished questionnaires (D Wilkin, personal communication, 1993) and questionnaires used in studies of out of hours care in the United Kingdom.[23 25-28] We compared this list with the issues identified during our qualitative work to check that we had considered all those previously identified and thus ensure content validity. To further ensure content validity we asked all patients interviewed during development of the questionnaire to comment on its content and suggest additional issues or questions.

Questionnaire development

We developed a bank of questions to enable us to produce multi-item scales, which are more reliable than single questions.[21] We selected 47 positively and negatively worded questions which covered the topics important to patients for use in the preliminary questionnaire. We used a balanced Likert five point scale (strongly agree, agree, neutral, disagree, strongly disagree) to record responses. We administered the questionnaire by interview to 41 patients who had recently requested out of hours care from the same practices. Questions which were confusing, ambiguous, or gave very skewed responses were either removed, rewritten, or replaced.

Questionnaire refinement

We undertook two further postal pilots, the first with a 48 item questionnaire administered to patients from six practices in the city and suburbs of Leicester and the second with a 34 item questionnaire administered to patients from the six Leicester practices and one practice in Manchester. Consecutive patients or carers who had requested out of hours care were sent a questionnaire within 72 hours of the request and a self addressed envelope for return. We used SPSS for all statistical analyses. After each pilot, questions with highly skewed responses or high non-response rates were removed or rewritten.

Principal components analysis[31] with varimax rotation was used to indicate which questions examined similar aspects or components of out of hours care. The eigenvalue limit for the principal components analysis was set at one. We retained the issues patients had identified as important, thus maximising our chances of achieving content validity. We omitted from the principal components analysis questions relating to overall satisfaction, as we anticipated that all questions would tend to load with this underlying general component.[21 24] We also omitted responses from patients who received telephone advice only and therefore did not answer the questions related to receiving a visit.

We calculated component scores by scoring questions from one to five (five always representing maximum satisfaction), summing them, and expressing the total as a percentage of the maximum possible score for the component. If a respondent omitted half or more of the questions in a component we excluded these data from analysis. By calculating Cronbach's α coefficient we estimated the internal consistency or reliability of each component. When necessary we added questions to improve the reliability of components. Evidence of construct validity was sought by calculating a matrix of Pearson's correlation coefficients containing components and the overall satisfaction scale.

Evaluation of questionnaire

The final version of the questionnaire contained 32 questions. It was used in a comparative trial of out of hours care provided by deputising services and practice doctors in 11 practices in Greater Manchester and three in Leicester.[11 12] The questionnaire was self completed by the patient or carer during an interview 24 to 120 hours after a request for out of hours care. Two hundred consecutive patients recruited to the study or their carers were asked to complete a second questionnaire later the same day and return it by post as a test of test-retest reliability.

We analysed these data using the methods described under questionnaire refinement. To recheck content validity we asked 12 general practitioners, three practice nurses, and eight colleagues who were not otherwise involved in the development of the questionnaire in the departments of general practice in Manchester and Leicester to review the components indicated by the principal components analysis. They judged whether these were coherent and reflected the issues important to patients and also suggested names for each component and the two groups of questions related to overall satisfaction and telephone advice. We rechecked construct validity by calculating the intercomponent correlations. We rechecked reliability with Cronbach's α coefficient and checked test-retest reliability by calculating the regressions of the retest on the test data and Pearson's correlation coefficient between the scores for each scale.

Results

Eleven people participated in the focus groups. Seven were female, six were from ethnic minorities, five were parents or guardians of children, three were adults with chronic illnesses, and three were aged over 65. One came from a rural area and five from inner city areas. Table 1 gives the age, sex, and ethnic origin of patients who participated in the development of the question-

naire. Of the 1466 patients in the comparative trial, a questionnaire was completed for 1402 (95.6%) and, of these, 163 received telephone advice only. The median (interquartile range) completion rate for questions was 96.5% (95.7% to 97.1%). Scale scores were calculated for a median (interquartile range) of 97.7% (94.5% to 98.1%) of responses. A total of 112 (56.0%) of 200 retest questionnaires were returned.

The box lists the issues identified by the focus groups and patient interviews together with the elements of patient satisfaction with out of hours care identified from previous studies.[23 25-28] All issues except the desire of patients or carers to be told what to expect after they had spoken to a telephonist and the patients' view of the outcome of care had previously been identified. A wider review of published work on patient satisfaction[13 21 22 24 32-37] did not yield any more relevant elements. No new issues were identified by patients during refinement of the questionnaire.

The principal components analysis of the 1402 completed questionnaires from the trial of out of hours care identified six components. Each was judged to be coherent and to represent a separate scale related to satisfaction with out of hours care by the independent reviewers, who also identified titles for each scale. The scales were satisfaction with communication and management (seven questions), doctor's attitude (five questions), continuity of care (four questions), delay until visit (three questions), access to out of hours care (three questions), the initial contact person (two questions), telephone advice (four questions), and overall satisfaction (four questions). The appendix lists the questions in each scale and their titles together with their Cronbach α coefficients, the means and standard deviations of the scale scores, and the variance explained by each scale. The loading of each question on the component to which it was assigned is shown by the coefficients from the rotated factor matrix. The regressions for the retest on the test data and their correlations are shown in table 2. The regressions were all less than one, though (with the exception of "Initial contact person") Pearson's correlation coefficients were in the range 0.72 to 0.86.

Table 1 Age, sex, and proportions of patients who described their ethnic origin as white. Figures are numbers (percentages) of patients who participated in development of questionnaire

Patients	Semistructured interviews (n=28)	Preliminary interviews (n=41)	Postal pilots (n=378; 50.1% response)	Out of hours study (n=1466; 95.6% response)
Age (years):				
<16	13 (46)	21 (51)	160 (42)	726 (49)
>65	7 (25)	7 (17)	66 (17)	226 (15)
Female	17 (61)	21 (51)	222 (59)	843 (57)
Ethnic origin described as white	24 (86)	36 (87)	306 (81)	1304 (89)

Table 2 Gradient and 95% confidence intervals and constant terms for regressions of "retest" on "test" scores together with Pearson's correlation coefficients and 95% confidence intervals for their correlations

Scale*	Gradient (95% confidence interval)	Constant	Correlation coefficient (95% confidence interval)	Degrees of freedom
Communication and management	0.76 (0.66 to 0.87)	12.73	0.86 (0.79 to 0.91)	70
Doctor's attitude	0.79 (0.66 to 0.92)	10.09	0.82 (0.73 to 0.89)	71
Continuity of care	0.70 (0.54 to 0.86)	11.83	0.72 (0.58 to 0.81)	71
Delay until visit	0.66 (0.54 to 0.79)	17.76	0.81 (0.70 to 0.88)	59
Access to out of hours care	0.68 (0.54 to 0.82)	19.65	0.76 (0.64 to 0.85)	65
Initial contact person	0.49 (0.34 to 0.65)	33.48	0.62 (0.44 to 0.75)	62
Overall satisfaction	0.67 (0.56 to 0.78)	18.58	0.82 (0.73 to 0.88)	70

*Telephone advice is omitted as only seven patients received telephone advice.

Additional evidence which confirmed the construct validity of the questionnaire was provided by the correlation matrix for the eight scales (table 3). All tended to be more highly correlated with overall satisfaction than the others. Scale 3 (continuity of care) had the lowest interscale correlations. There was no difference in the factor structure disclosed by the principal components analysis when the results of patients in Manchester and Leicester were analysed separately.

Components of patient satisfaction with out of hours care in United Kingdom identified by focus groups and interviews with patients and by literature search

Focus groups and interviews

(1) *Access to out of hours care*
Ease of requesting care, telephonist's attitude/understanding, ease of getting a doctor to visit, ease of getting telephone advice, information about delays/what would happen next, delay until doctor telephoned/visited

(2) *Interpersonal aspects*
Doctor concerned/dismissive, courteous/rude, patient/inconsiderate, sympathetic/abrupt, friendly, caused patient to feel embarrassed or guilty, no choice of doctor, continuity of care

(3) *Quality of care*
Communication/history/examination, experienced/competent doctor, explanation/prescription, advice about follow up, time spent in consultation

(4) *Outcome*
Felt better/worse afterwards, doctor's response not useful

(5) *Overall satisfaction*

Data from other United Kingdom studies of out of hours care[23-28]

Access to out of hours care
Ease of contact, telephonist's attitude, prior knowledge of visiting doctor, availability of telephone advice, delay to visit

Interpersonal aspects
Doctor's manner, gave impression call was unnecessary, doctor understood problem, doctor's command of English

Quality of care
Communication with doctor, physical examination, explanation of problem, treatment/medication, prognostic information

Outcome

Overall satisfaction

Table 3 Matrix of correlation coefficients between all scales (upper left portion of table) and number of scores included in each interscale comparison (lower right portion of table)

Scale	1	2	3	4	5	6	7	8
1	1.0	0.6368***	0.1896***	0.3033***	0.2554***	0.3271***	0.6773***	0.7481***
2	1363	1.0	0.1075***	0.3873***	0.3549***	0.2951***	0.6798***	0.6773***
3	1368	1370	1.0	0.0820**	0.0592*	0.1322***	–0.0937	0.1958***
4	1170	1177	1177	1.0	0.3457***	0.1815***		0.3854***
5	1282	1283	1291	1094	1.0	0.2986***	0.2987***	0.3319***
6	1242	1243	1251	1054	1253	1.0	0.2649**	0.3243***
7	154	153	156	0	155	155	1.0	0.7315***
8	1368	1363	1371	1170	1285	1245	157	1.0

*P=0.05-0.01. **P<0.01-0.001. ***P<0.001.

Discussion

These findings indicate that this questionnaire has satisfactory reliability and validity. It can detect different levels of satisfaction[12] and is therefore suitable for evaluating out of hours care received by a broad range of patients. The questionnaire has satisfactory internal reliability with Cronbach's α coefficients greater than 0.60 for all scales and greater than 0.70 for five.[38] The test and retest scores were highly correlated, though the regressions show that the retest scores were generally lower, so that there may have been a real fall in satisfaction with time. In a true test of test-retest reliability the variable and measurement technique should be the same on both occasions. The lower retest scores may therefore also reflect the difference in the method of application, with greater expressed satisfaction when the research assistants were present. Nevertheless, these data indicate that the retest reliability of the questionnaire is broadly satisfactory.

Content validity was ensured by the process of questionnaire development. Issues important to patients identified during the qualitative phase included all elements identified from other studies and also additional issues. Content validity was initially shown by the outcome of the development interviews and the failure of patients to identify additional issues. Further evidence of content validity came from the outcome of the principal components analysis and was confirmed by people independent of the development team. The interscale correlations show that, though each scale is correlated with and hence related to overall satisfaction, the scales assess different aspects of satisfaction and contribute to the global measurement of satisfaction, a finding which argues in favour of construct validity. Future evaluations of this questionnaire should further examine construct and criterion validity.

Key messages

- The provision of out of hours primary medical care is changing, and these changes need to be evaluated and monitored
- Patient satisfaction is an important measure of the outcome of health care
- A reliable and valid measure of patient satisfaction with out of hours primary medical care has been developed
- Development of such scales is demanding on time and experience but is feasible
- Ad hoc measures of satisfaction should be avoided and when possible reliable, valid scales used

The interscale correlations were lower for continuity of care (scale 3) than for the other scales. This is in contrast with the importance of continuity of care to overall satisfaction with a practice.[39 40] Choice of doctor and continuity were identified as issues important to patients in the focus groups and interviews. Nevertheless, when patients or carers believe they need to see a doctor immediately they may place greater value on the availability of care than whether or not they see a familiar doctor. We developed the questionnaire to evaluate satisfaction with domiciliary out of hours care and did not include questions about the environment in which care was provided. This will have to be included in evaluations of out of hours centres if it is important to patients.

The acceptability of the questionnaire to patients is shown by the high response rates for each question (median 96.5%) and the high proportion of responses for which we could calculate scale scores. We achieved response rates of over 50% in the postal pilots in most practices with a single mailing. This shows that the instrument can successfully be administered at interview and probably by post to a broad range of urban patients. The range of scores obtained shows that a well developed questionnaire does not necessarily indicate high levels of satisfaction and suggests that the questionnaire can detect differences in satisfaction.

We have developed a questionnaire of proved reliability and validity which is acceptable to patients. Further development of the questionnaire in other settings with other patient populations is desirable. Development of reliable, valid questionnaires demands time and expertise but is feasible. With the increasing development of such instruments for general practice in the United Kingdom[13 22-24] it is no longer acceptable to use ad hoc measures.

General practitioners are disillusioned with out of hours care.[41 42] Nevertheless, patients have a right to timely, appropriate, and humane medical care. New models of care are being developed and both new and existing models should be evaluated or audited to ensure that the needs of both patients and practitioners are met. This will require measurement of patient satisfaction. Overall evaluations will require a judgment about the relative importance of each need, but none should be ignored by any who use, provide, or pay for the service being evaluated. We therefore encourage all who wish to evaluate an out of hours service to include assessment of patient satisfaction.

Appendix

Scales devised by principal components analyses of out of hours satisfaction questionnaire, their α coefficients, mean and standard deviation of scale scores, and percentage of variance in principal components analysis explained by each scale. Questions about general satisfaction and satisfaction with telephone advice were omitted from principal components analysis. Coefficients from rotated factor matrix with Kaiser normalisation are shown. Question numbers represent order in questionnaire. Plus and minus signs indicate whether question is positively or negatively worded

		Coefficient
Scale 1	**Communication and management**	
	Cronbach's α coefficient = 0.88; mean scale score = 65.78; SD = 21.81; % Variance = 28.7	
Q22	I am totally satisfied with the explanation the doctor gave me (+)	0.78232
Q23	The doctor gave me very clear advice about when to get more help (+)	0.66419
Q24	I understand my problem much better after talking to the doctor (+)	0.81960
Q25	I would have liked the doctor to tell me a little more about my treatment (–)	–0.50990
Q26	The treatment the doctor has recommended has helped me get better (+)	0.68131
Q27	I felt very much better after talking to the doctor (+)	0.80819
Q29	I intend to follow every detail of this doctor's advice (+)	0.71182
Scale 2	**Doctor's attitude**	
	Cronbach's α coefficient = 0.87; mean scale score = 72.19; SD = 23.92; % Variance = 8.9	
Q13	I thought the doctor was reluctant to visit (–)	0.62611
Q14	I think the doctor could have examined me a little more carefully (–)	0.52021
Q19	I thought the doctor made me feel guilty about contacting him/her (–)	0.84365
Q20	The doctor made me feel that I was wasting his/her time (–)	0.83723
Q21	I think the doctor was a little rushed (–)	0.69652
Scale 3	**Continuity of care**	
	Cronbach's α coefficient = 0.69; mean scale score = 58.31; SD = 19.92; % Variance = 8.1	
Q1	I would have been completely happy to see any doctor (+)	0.76768
Q2	It did not matter whether I saw my own doctor (+)	0.80068
Q3	I would have preferred to see my own doctor if possible (–)	–0.63927
Q4	Generally, it does not matter at all whether I see my own doctor (+)	0.64293
Scale 4	**Delay until visit**	
	Cronbach's α coefficient = 0.65; mean scale score = 46.54; SD = 23.65; % Variance = 6.3	
Q10	I did not know how long it would be before the doctor arrived (–)	0.54921
Q11	I would prefer the doctor to have come sooner (–)	0.78470
Q12	I was worried because the doctor took a long time to arrive (–)	0.79116
Scale 5	**Access to out of hours care**	
	Cronbach's α coefficient = 0.61; mean scale score = 69.71; SD = 20.01; % Variance = 5.4	
Q5	It was difficult to get through on the telephone (–)	0.77394
Q8	The arrangements for contacting a doctor when the surgery is closed could be improved (–)	0.66449
Q9	I did not have any problems contacting a doctor when the surgery was closed (+)	–0.66582
Scale 6	**Initial contact person**	
	Cronbach's α coefficient = 0.72; mean scale score = 69.37; SD = 21.57; % Variance = 4.4	
Q6	The person who answered the telephone gave all the necessary advice (+)	0.85178
Q7	The person who took the message seemed to completely understand the problem (+)	0.81229
Scale 7	**Telephone advice**	
	Cronbach's α coefficient = 0.79; mean scale score = 63.04; SD = 23.17	
Q15	It was very easy to get advice from the doctor on the telephone (+)	
Q16	If possible I would prefer to have had a visit from the doctor (–)	
Q17	I thought the doctor was right to give me advice on the telephone (+)	
Q18	I was a little unhappy with the telephone advice I received (–)	
Scale 8	**Overall satisfaction**	
	Cronbach's α coefficient = 0.77; mean scale score = 66.12; SD = 23.14	
Q28	If possible I would prefer to see a different doctor next time (–)	
Q30	Overall, I was delighted with everything about the care I received (+)	
Q31	I am not completely happy with the care I received (–)	
Q32	The out of hours service could not be improved (+)	

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Nurse telephone triage in out of hours primary care: a pilot study

South Wiltshire Out of Hours Project (SWOOP) Group

See editorial by Hallam and pp 182, 187, 190, 193, 199

South Wiltshire Out of Hours Project (SWOOP) Group

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The "crisis" in out of hours primary care[1 2] and availability of new development funding[3] have prompted new service arrangements, primarily general practice cooperatives and primary care emergency centres. Nurse telephone triage is an adjunct to cooperatives and primary care emergency centres in which trained nurses receive, assess, and manage calls by giving advice or by referral to the general practitioner or ambulance service.[4] These services are established elsewhere but are an innovation in the United Kingdom. This paper reports a pilot study of a United Kingdom based nurse telephone triage service.

Subjects, methods, and results

The pilot was run in two practices in Salisbury (combined practice population 10 000) as 18 four hour sessions—14 in the evenings and four at weekends. Incoming calls to the practice were diverted to an experienced practice nurse, who was aided by the Telephone Advice System, a computer based primary care call management system.[5] A printed summary of each assessment provided by the Telephone Advice System was faxed to the general practitioner. Callers received follow up questionnaires asking about their satisfaction with the service.

No logistic problems were encountered. Overall, 56 calls were received from 54 callers. There were no deaths, no hospital admissions, and no ambulance calls relating to any of the calls. Twenty one calls (38%; 95% confidence interval 25% to 51%) were handled by the nurse alone (table 1). Of the 35 calls referred to a doctor, the nurse provided interim advice in 22 (39%; 27% to 53%). Two callers called twice about the same episode of illness. Both were dealt with by the nurse alone. Twenty two calls concerned children aged under 16, six being under 1 year. Practice policy dictated that these patients should automatically be referred to the doctor. Overall, 17 of 22 children were referred to the doctor.

Table 1 Handling of 56 calls received by telephone triage nurse

	No (%) of calls
Handling of initial telephone calls by triage nurse	
Nurse assessment and advice only	21 (38)
Referral to general practitioner with interim advice from nurse	22 (39)
Referral to general practitioner with no interim advice	13 (23)
Total	56 (100)
Handling of calls referred to general practitioner	
Advice only	12 (34)
Consultation at out of hours surgery	6 (17)
Home visit	17 (49)
Total	35 (100)

No triage decision was changed by the general practitioner because of the faxed record. In 12 of the 35 referred calls the general practitioner gave telephone advice only. In five cases the patient had received the same advice from the nurse. In the first nine sessions the nurse managed seven of 29 calls alone (24%; 10% to 44%). In the second nine sessions this proportion increased to 14 of 27 (52%; 32% to 71% (χ^2 test for difference in proportions = 4.58; P = 0.03, df = 1)). This difference could not be explained by differences in the urgency of calls.

A postal follow up questionnaire was sent to 44 callers. The remaining 10 callers were excluded from receiving a questionnaire because they were acutely mentally ill, or distressed, or elderly and frail, or under 16 years of age, or were merely requesting a routine appointment. Replies were received from 30 (68%) of callers. Twenty six respondents (87%; 69% to 96%) were satisfied or highly satisfied with the advice they received from the nurse. The remainder failed to complete this question. Nineteen respondents had spoken to the nurse only and were asked whether they would prefer to have spoken directly to a doctor. Fourteen (74%; 49% to 91%) said "no."

Comment

Nurse telephone triage was feasible in this setting, and most patients found the service acceptable. But what benefits does the service bring? The answer is likely to be both a reduction in general practitioners' workload and an economic gain. Over one third of calls in this study were handled by the nurse alone, and in the second half of the study this proportion increased to half. A message handling service alone would have referred many calls to the general practitioner unnecessarily. In such circumstances a cooperative currently employing two or more general practitioners on call might find it possible to replace one of the doctors with a telephone triage nurse.

We are conducting a randomised controlled trial of nurse telephone triage in a larger population over one year. This will permit better judgment of the safety and cost implications of the widespread institution of nurse telephone triage within the United Kingdom.

Members of the South Wiltshire Out of Hours Project (SWOOP) Group were: Mrs Val Lattimer, Dr Steve George, and Mrs Eileen Thomas (Wessex Institute for Health Research and Development, University of Southampton); Dr Helen Smith, Dr Michael Moore, and Mrs Felicity Thompson (Wessex Primary Care Research Network); and Professor Alan Glasper (School of Nursing, University of Southampton).

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Conflict of interest: None.

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Changing the pattern out of hours: a survey of general practice cooperatives

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Since early 1995 substantial changes have been taking place in general medical services provided out of hours. A package of revisions to terms and conditions have been agreed, including reimbursing night visits uniformly wherever they occur, permitting transfer of responsibility to another principal, and providing a development fund.[1] The number of out of hours cooperatives registered with the National Association of General Practice Co-operatives rose from six in 1990 to 124 in October 1996. Cooperatives are "non-profit making organisations entirely owned, and medically staffed by, the general practitioner principals of the area in which they operate."[2] We surveyed registered cooperatives to investigate the extent of change and likely future directions.

Methods and results

In May 1996 a postal questionnaire was devised after an initial telephone survey of 20 cooperatives and sent to all 98 organisations then registered with the national association. Sixty seven responses (68%) were received after two reminders. There was a slight bias towards smaller and newer cooperatives. Respondents represented 5476 general practitioners covering 11 462 500 patients.

Fifty two (78%) cooperatives were established during 1995-6 and 19 (28%) had been operational for under three months. General practitioner membership in each ranged from 20 to 256 (mean 82; median 67), most cooperatives (47; 70%) having under 100 members. Sixty one cooperatives (91%) reported support from out of hours development funds in 1995-6. The average received was £108 399 (range £10 000 to £400 000).

Home visits were provided by all cooperatives, 63 out of 64 (98%) offering telephone advice and 62 of 64 (97%) offering base consultations also. Table 1 gives the proportion of calls estimated as dealt with by home and base visits or telephone advice. Five cooperatives (8%) reported over half of calls as resulting in a base consultation. Fifty three (83%) estimated that under half resulted in a home visit.

Of all 67 respondents, 61 (91%) employed non-medical managers, administrators, and drivers whereas only 19 (28%) reported employing nurses or nurse practitioners. Thirty eight cooperatives (57%) reported measuring service quality but only 23 (34%) had agreed quality monitoring standards with their

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Table 1 Estimated proportion of patient contacts reported as managed by telephone advice, base visit, or home visit (n=64)

	% Of calls	
Type of service	**Range**	**Median; quartiles**
Telephone advice	10-65	38; 30,46
Base visit	5-70	30; 21,40
Home visit	10-80	33; 20,38

health authority. Almost half of the cooperatives (33; 49%) had contact with community health councils but none reported patient participation in cooperative development.

Thirty six (54%) cooperatives anticipated needing between £16 000 and £489 000 (mean £152 644) of development funding in 1997-8. Plans included extending the scope of services, training for members, introducing protocols, employing nurses, establishing interagency links, and tackling access issues by the provision of patient transport. Development funding would also support core costs, subsidise salaries, and maintain low fees.

Comment

Out of hours cooperatives have nearly tripled in number since 1995. Almost all provide telephone advice, base consultations, and home visits but they differ in size, staffing, and levels of funding. Many cooperatives are very new and some differences may be attributed to stages of development.

The survey raises key issues about future directions. It suggests that a substantial shift is occurring away from home visiting and towards increased telephone advice and base consultations. Attendance at cooperative bases may be higher than previously reported.[3] Patients may be more willing and able to travel than expected, a cultural shift in public attitudes may be occurring, or there may be a combination of the two.[4] We found high levels of commitment to ensuring user feedback and quality monitoring. Cooperatives have the potential to become important stakeholders in negotiating funding, location, and type of service delivery and may appreciably alter the balance of power at local and national levels. Therefore, it seems crucial that there should be national public debate to examine appropriate standards, levels of telephone advice, and base visits as well as to consider ethical issues in defining "need" and "urgency."[5]

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Conflict of interest: None.

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Child B: a personal view

The death of Jaymee Bowen has once again raised ugly questions of when to treat children with a supposedly terminal medical condition. It is likely that, now that she has died, some people will consider the decision of the administrator who refused funding justified. This raises in me feelings of both fear and outrage because 33 years ago I was in Jaymee's position.

At the age of 7 I was diagnosed as having a brain lesion. I was in horrific pain and became more and more paralysed until I was unable to move my limbs. My parents were told that without an operation I would certainly die and with an operation I would almost certainly die. The best they could ever hope for would be that I would live out my life as a "vegetable." My parents had problems finding a surgeon who was even prepared to try. But they, like Jaymee's father, were determined to give me the chance to live. I was horrifically ill for three years, but eventually I made a full recovery.

Despite having no education for three years, I still managed to pass my 11 plus and eventually made what I hope to be a useful career. I even show my scars off to some of my sick patients, although I sometimes think that this is more for encouragement of the parents than the child.

I am sure that during the worst part of my illness there would have been whispers that it would have been kinder to let me die in peace and that "experimenting" on me—for I am quite sure that is what in essence it was—was wrong.

The implications of my story are clear. Of course, there have been dreadful side effects. To this day I still cannot walk in a straight line, I have an almost pathological fear of pain and the academic struggle to catch up with my peers was difficult. All these things have left scars but not so great that I could not overcome them even without the aid of psychoanalysis.

Although I have never been a proponent of the concept that where the technology exists people should be kept alive at all costs, sometimes against their will, my fear is now that because Jaymee has died many people in power to make these decisions will consider it justifiable to refuse the request for treatment in what may seem like hopeless cases. Doubtless someone will produce guidelines, which will sanitise the process. My outrage is that this will become acceptable in time and many people will die needlessly—I could have been one of them. And yet I am living proof that where the will to live—and succeed—is great it can be achieved.

Finally, and rather belatedly, I would like to give the usual thanks to all the doctors and nurses who looked after me as a child, but most of all to my parents who fought for me and to the surgeon who was prepared to take the risk.

J A Dowey *is a senior dental officer in Rochdale*

We welcome filler articles of up to 600 words on topics such as *A memorable patient, A paper that changed my practice, My most unfortunate mistake,* or any other piece conveying instruction, pathos, or humour. If possible the article should be supplied on a disk.