

A study of telephone advice in managing out-of-hours calls

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SUMMARY. Two doctors in a five-partner urban practice recorded details of their out-of-hours telephone calls for a year. No caller was refused a visit, but 474 of the 809 incoming calls (59%) were managed by telephone advice, an unexpectedly high proportion. Although these callers were instructed to telephone again if still worried, only 40 did so during the same duty period, and only 55% of a smaller sample of patients receiving telephone advice only consulted again within a week. No evident detriment to patients' health was observed. Thirty nine (5%) of the 809 incoming calls were managed by an out-of-hours surgery attendance and 296 (37%) by a home visit. The urgency of the visits made was categorized retrospectively as high (34% of visits), medium (39%) and low (27%). It is hoped that this descriptive account will foster discussion of the value and implications of telephone advice in managing out-of-hours calls.

Introduction

INCREASINGLY, general practitioners are delegating their out-of-hours work to deputizing services, particularly at night.¹ Many practitioners believe their efficiency would suffer if they were to spend more time working or on call.²

This use of deputizing services has attracted various criticisms: that interruption in the continuity of care may not be in the patient's best interests;¹ that access to records can be important and next day discussion with the patient's own doctor beneficial; and that most patients prefer to be able to contact their own doctor or one of his partners in an emergency.³ It has also been suggested that out-of-hours home visits are increasing because the response of deputizing services to a call is almost invariably a visit whereas a general practitioner may well respond with telephone advice.⁴

However, in contrast to some other countries,⁵ the use of telephone advice is almost undocumented in the UK. Published studies of out-of-hours work dwell almost exclusively on analysis of the visits made. Some studies do not mention telephone advice at all⁶⁻¹⁰ while others mention the management of up to one-third of incoming calls by telephone advice but give no details.¹¹⁻¹⁴

The principal aims of this study were to establish what proportion of out-of-hours calls were managed by telephone advice in one practice, for what types of problem this was deemed appropriate, and how often patients given telephone advice consulted again within a week. Subsidiary aims were to analyse incoming calls by other criteria (for example age of patient),

and to categorize out-of-hours visits by urgency. It was hoped to gain more insight into the nature of incoming calls and the adequacy or otherwise of the response.

The practice and its out-of-hours arrangements

The five-partner practice is housed in centralized premises in suburban Stockton-on-Tees, an industrial town with a high level of unemployment. During the study period the practice served an average of 15 569 patients whose social class breakdown approximated to the national average. Each doctor has a personal list of approximately 20% of the patients, who always see him except when he is away or off duty. There are no sizeable ethnic minority groups in this area. Virtually all accident and casualty cases attend a nearby hospital and perusal of a large number of the practice patients' casualty reports has shown that self-referral for anything other than traumatic conditions is extremely rare. Maternity cases were excluded from this study.

Out-of-hours calls are covered by an equal one-in-five rota. One doctor is on duty for the whole practice from noon Saturday until 08.30 hours Sunday, from 08.30 hours Sunday to 08.30 hours Monday and each weekday evening from 18.00 hours until midnight. Public holidays are similarly covered. In contrast to many other group practices each doctor takes his own patients' calls on weekday nights from midnight until 08.30 hours but he may also be covering for absent colleagues. An answering tape at the surgery gives out-of-hours callers the appropriate doctor's telephone number. In this study the figures for night calls cover the period 23.00 to 07.00 hours which is strictly comparable with other studies.

On receiving a telephone call the doctor takes a careful history if possible and elucidates the problem. In the case of an emergency (for example acute chest pain) or a worrying medical situation (for example a sick infant in a low social class setting) an immediate visit is made. The doctor will also make a visit when inadequate information is available by telephone, or when the caller seems upset, unsuitable to receive advice or unhappy with the advice proffered. During a weekend the patient is sometimes requested to make an emergency surgery attendance. Alternatively patients are given advice by telephone on what to do about the problem, with or without the recommendation that they should attend surgery during a subsequent working day. For all but very minor problems, telephone advice is accompanied by the specific instruction that if the problem does not resolve, at least in the short term, the caller must telephone again.

If the doctor is out on a visit he leaves his expected time of return with his spouse who advises the caller to ring back or for urgent calls takes details and 'bleeps' the doctor. Except for these calls the doctor speaks to every caller.

Method

Two doctors participated in the study. From 26 February 1984 to 25 February 1985 they noted the following data for each out-of-hours telephone call they received: the date and time; the name, sex, age and own doctor of the patient; whether the call was a new call or a second call and whether they knew the patient. The type of problem as perceived from the telephone information, their response — telephone advice, visit or surgery attendance, the treatment recommended (telephone advice) or given (visit or surgery attendance) were also recorded.

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For calls managed by telephone advice it was noted whether follow-up was advised or not; and, retrospectively, whether with hindsight the doctor would have visited the patient. For the first four months of the study the patient's medical record was later examined to ascertain whether the patient had consulted again within seven days.

The urgency of each home visit was judged, retrospectively to be high, medium or low. The definitions were:

High: urgent treatment was necessary to avoid severe suffering or risk of serious deterioration (visits after a patient's death were included in this category).

Medium: the symptoms or circumstances were sufficiently concerning to justify an out-of-hours visit and prompt treatment would facilitate recovery.

Low: minor illness or discomfort not justifying an out-of-hours visit; delay in diagnosis or treatment would not lengthen recovery period to any degree; other patients with the same complaint would have managed it themselves; telephone advice would certainly have been adequate.

Of the large number of possible data comparisons, those considered most relevant were tested for statistical significance using the chi-square test.

Results

The two participating doctors carried out 40% of the total out-of-hours duty of the practice during the study year. Each covered a representative share of weekends, evenings and public holidays. Their total number of incoming calls (389 and 420 respectively), and their call distributions by time period and age and sex of patient were not significantly different. Each doctor knew 30% of the patients making out-of-hours calls. It is reasonable to infer that had these two doctors covered the whole out-of-hours duty of the practice for the year their incoming calls and home visits would have increased by a factor of 5/2. The annual call and visit rates quoted here are calculated on this basis.

Over the study year a mean of 3.4 visits were made on Saturdays (8.6 telephone calls), 5.4 visits and 2.0 surgery attendances on Sundays (13.5 calls) and 0.7 visits on weekday evenings (2.6 calls). A mean of 31 weekday nights in the year were disturbed, when each doctor was usually taking calls from his own patients only, and visits were made on a mean of 16 nights.

Table 1 shows that of the 809 out-of-hours telephone calls to the two doctors 474 (58.6%) were responded to by telephone advice. A similar proportion of night calls (58.2%) were responded to by telephone advice. Only 34.1% of the out-of-hours visits made were judged to be of high urgency compared with 41.0% of night visits but this difference was not significant (Table 2). Hospital admissions were arranged following 22% of visits. There were significant differences in call rates by age group of patients (Table 3): the call rate for the 0-4 years age group was almost five times the overall rate and the rates for the 5-9 years and over 70 years age groups were also high. Significantly more telephone advice was given for the 0-4 years age group than for the other age groups ($P<0.05$) and significantly fewer of the visits made were of high urgency ($P<0.05$). The reverse was found for those aged over 60 years ($P<0.05$).

Of the 809 telephone calls, 760 were first calls and the remaining 49 (6.1%) were second calls during the same duty period, nine of which followed a visit. Of the 39 visits resulting from recalls, 10 (25.6%) were of high urgency, 12 (30.8%) medium and 17 (43.6%) low — significantly more visits resulting from recalls were of low urgency than from first calls ($P<0.05$). For four (0.5%) of the initial telephone calls managed by telephone advice the doctor felt that with the benefit of hindsight he would

Table 1. Management resulting from out-of-hours telephone calls.

Management	All calls		Night calls ^a		Call rate per 1000 patients per year
	Number	(%)	Number	(%)	
Telephone advice	474	(58.6)	85	(58.2)	13.6
Home visit	296	(36.6)	61	(41.8)	9.8
Surgery attendance	39	(4.8)	—	—	—
Total	809	(100.0)	146	(100.0)	23.4

^a23.00-07.00 hours.

Table 2. Urgency of home visits as judged retrospectively.

Urgency	Number (%) of all out-of-hours visits	Number (%) of night visits ^a
High	101 (34.1)	25 (41.0)
Medium	114 (38.5)	19 (31.1)
Low	81 (27.4)	17 (27.9)
Total	296 (100.0)	62 (100.0)

^a23.00-07.00 hours.

Table 3. Age distribution of out-of-hours patients.

Age group (years)	Practice population (%)	Number (%) of out-of-hours patients	Call rate per 1000 patients per year
0-4	984 (6.3)	245 (29.7)	622.5***
5-9	993 (6.4)	68 (8.2)	171.2***
10-19	2286 (14.7)	54 (6.6)	59.1**
20-59	8099 (52.0)	288 (34.9)	88.9
60-69	1561 (10.0)	55 (6.7)	88.1
70-79	1067 (6.9)	61 (7.4)	142.9***
80+	472 (3.0)	53 (6.4)	280.7***
Age not recorded	107 (0.7)	1 (0.1)	23.4
Total	15 569 (100.0)	825 ^a (100.0)	132.5

** $P<0.01$, *** $P<0.001$ taking the 20-59 years age group as the norm. ^a11 telephone calls were for more than one patient.

have visited the patient but there was no subsequent detriment to the patient's health. In three of the cases, the doctor was called again when the patient's symptoms did not respond, and a visit was made. In the fourth case, the recall safeguard was not invoked but the patient was visited the next day.

Of the 809 calls 290 (35.9%) concerned patients already under treatment for chronic or acute conditions. The percentage of telephone management for each type of problem is shown in Table 4. Table 5 shows the type of treatment or advice given and whether the treatment was given by telephone or by a visit or surgery attendance.

Of the 175 patients managed by telephone advice in the first four months, 96 (54.9%) required further attention within a week. Of the 131 advised to attend for follow-up at the surgery 46 (35.1%) did not do so (Table 6).

Table 4. Distribution of incoming calls and their management by problem type as perceived from the telephone information.

Problem	Number (%) of incoming calls	Number (%) managed by	
		Telephone	Visit or surgery attendance
Chronic, on treatment	160 (19.8)	77 (48.1)	83 (51.9)
Acute, on treatment	130 (16.1)	91 (70.0)	39 (30.0)
Upper respiratory tract infection	142 (17.6)	100 (70.4)	42 (29.6)
Acute gastric upset	95 (11.7)	66 (69.5)	29 (30.5)
Pain	94 (11.6)	47 (50.0)	47 (50.0)
Bleeding	32 (4.0)	22 (68.8)	10 (31.2)
Earache	28 (3.5)	16 (57.1)	12 (42.9)
Chest infection	27 (3.3)	—	27 (100.0)
Miscellaneous	101 (12.4)	55 (54.5)	46 (45.5)
Total	809 (100.0)	474 (58.6)	335 (41.4)

Table 5. Distribution of incoming calls and their management by treatment or advice.

Treatment or advice	Number (%) of incoming calls	Number (%) managed by	
		Telephone	Visit or surgery attendance
Enhance existing treatment	189 (23.4)	127 (67.2)	62 (32.8)
Prescription for upper respiratory tract infection	116 (14.3)	95 (81.9)	21 (18.1)
Simple analgesic	93 (11.5)	75 (80.6)	18 (19.4)
Gastric management	92 (11.4)	65 (70.7)	27 (29.3)
Reassurance	83 (10.3)	47 (56.6)	36 (43.4)
Antibiotic	76 (9.4)	8 (10.5)	68 (89.5)
Hospital admission	71 (8.8)	5 (7.0)	66 (93.0)
Bed rest	19 (2.3)	14 (73.7)	5 (26.3)
Miscellaneous	70 (8.7)	38 (54.3)	32 (45.7)
Total	809 (100.0)	474 (58.6)	335 (41.4)

Table 6. Patients' response to advice to attend the surgery for follow up in the seven days following management by telephone (first four months of the study).

Patient's response	Number (%) of patients		
	Advised to attend	Not advised to attend	Total
Telephoned again in same duty period	12 (9.2)	2 (4.5)	14 (8.0)
Followed up at surgery	73 (55.7)	9 (20.5)	82 (46.9)
Did not attend for follow up	46 (35.1)	33 (75.0)	79 (45.1)
Total	131 (100.0)	44 (100.0)	175 (100.0)

Discussion

To what extent should the increasing use of the telephone in all walks of life extend into medicine? In the USA and Canada telephone consultations are commonplace^{15,16} while home visits by physicians are rare. Although this is not to be advocated, general practice must face the question of whether responding to a substantial proportion of patients' out-of-hours calls with

telephone advice is ethically and legally acceptable. Misjudgements will inevitably occur, as they must under any system. Nevertheless, given that not all calls represent emergencies, a visit in every case would not only be inefficient but might also preclude prompt response to calls of greater urgency.

In the present study each incoming call was treated on its merits. It was surprising that as many as 59% of the calls were managed by telephone advice, but no resulting detriment to patients' health was observed. While the out-of-hours call rate of 130 per 1000 patients per year found here is unremarkable compared with previous studies, the visit rate of 48 per 1000 patients per year is, with one exception,¹¹ the lowest reported so far. It contrasts with a national range of 72–360 out-of-hours visits per 1000 patients per year for urban general practitioners and deputizing services combined.¹⁷ One consequence is that the income from night visits of the doctors in the study practice is about one-third of the average doctor's in Cleveland (Personal communication, Cleveland Family Practitioner Committee).

It is important to emphasize that no patient is refused a visit. When sufficient information is available from the telephone call to conclude that the problem is not urgent, clear advice is offered on how to manage it. The conclusion, and the resultant advice, rest upon the judgement and experience of the practitioner and not infrequently his prior knowledge of the patient. If the caller is reluctant to accept advice, a visit is made. Callers accepting telephone advice are instructed, except for very minor problems, to telephone again if the anticipated progress does not materialize; when a second call is made the patient is always visited. Second calls generated a higher proportion of low urgency visits than first calls, suggesting that the initial telephone advice had been appropriate.

The commonest source of calls was patients already diagnosed and under treatment: 20% were suffering from a chronic ailment, and 16% an acute condition which had been seen and treated recently. Therefore the commonest advice was merely to enhance the existing treatment. Of the new ailments, upper respiratory tract infection and gastrointestinal problems (especially diarrhoea) were the most common and many such ailments are treatable without seeing the patient. Standard protocols were used for the common problems and reassurance was frequently an important component of telephone advice.

There is evidence that many calls were for minor and/or self-limiting conditions. Of patients given telephone advice, 45% did not consult again within a week, and 35% of those invited or advised to attend for follow up later at surgery did not do so. Even when so many calls had been managed by telephone or weekend surgery attendance, more than a quarter of the patients who were visited were considered to be suffering from a minor problem which did not justify an out-of-hours visit. Conversely, following 22% of visits hospital admission was arranged, suggesting that the visits were largely for severe illness and that the telephone filtering had proved reasonably effective.

Telephone management depends upon several important factors. First, the doctor himself should speak directly to the patient whenever possible. An informed and responsible relative or friend of the patient can be a suitable alternative. Secondly, the patient can derive confidence from knowing the doctor, by name if not personally. Although in this study each doctor knew only 30% of the patients, a far higher percentage of patients probably knew him. Thirdly, appointments must be available as soon as the surgery opens. Telephone advice is often a 'tiding-over' operation. Fourthly, the doctor knows from the address whether the patient lives in a deprived area, when the history may be inaccurate and when social circumstances may worsen the illness and he can make use of this knowledge. Fifthly, to secure the caller's confidence it should be clear from the outset

that the call is welcome and that advice is readily available although visits are made selectively. Lastly, a safety-net instruction must exist so that the patient will ring back if the problem persists.

This paper is a descriptive report of the experience of out-of-hours calls in one practice. Although many practices use the telephone in a similar manner they may have different characteristics, problems, ideas and experience. Further research should be carried out in this important area.

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Acknowledgements

We thank the Research Committee of the Northern region of the RCGP for encouragement, constructive criticism and financial support.

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