

# Telephone consultations to manage requests for same-day appointments: a randomised controlled trial in two practices

Brian McKinstry, Jeremy Walker, Clare Campbell, David Heaney and Sally Wyke

## SUMMARY

**Background:** General practitioners (GPs) in the United Kingdom have recently begun to adopt the use of telephone consultation during daytime surgery as a means of managing demand, particularly requests for same-day appointments. However, it is not known whether the strategy actually reduces GP workload.

**Aim:** To investigate how the use of telephone consultations impacts on the management of requests for same-day appointments, on resource use, indicators of clinical care, and patient perceptions of consultations.

**Design of study:** Randomised controlled trial.

**Setting:** All patients (n = 388) seeking same-day appointments in each surgery in two urban practices (total population = 10 420) over a four-week period.

**Method:** The primary outcome measure was use of doctor time for the index telephone or face-to-face consultation. Secondary outcomes were subsequent use of investigations and of services in the two-week period following consultation, frequency of blood pressure measurement and antibiotic prescriptions, and number of problems considered at consultation. Patient perceptions were measured by the Patient Enablement Instrument (PEI) and reported willingness to use telephone consultations in the future.

**Results:** Telephone consultations took less time (8.2 minutes versus 6.7 minutes; *diff* = 1.5, 95% confidence interval [CI] = 0.6 to 2.4, *P* = 0.002). Patients consulting by telephone re-consulted the GP more frequently in the two weeks that followed (0.6 consultations versus 0.4 consultations; *diff* = 0.2, 95% CI = 0.0 to 0.3, *P* = 0.01). Blood pressure was measured more often in the group of patients managed face-to-face (25/188 [13.3%] versus 12/181 [6.6%]; *diff* = 6.7%, 95% CI = 0.6% to 12.7%). There was no significant difference in patient perceptions or other secondary outcomes.

**Conclusion:** Use of telephone consultations for same-day appointments was associated with time saving, and did not result in lower PEI scores. Possibly, however, this short-term saving was offset by higher re-consultation and less use of opportunistic health promotion.

**Keywords:** telephone consultation; GP workload; appointments; randomised controlled trial.

## Introduction

Recent changes in out-of-hours primary care have resulted in a large number of consultations being managed by telephone alone.<sup>1-3</sup> More recently, as a means of managing demand, general practitioners (GPs) in the United Kingdom have started to use this technique to manage daytime consultations, particularly requests for same-day appointments<sup>4</sup> and the telephone has become the first point of contact with primary care for most patients.<sup>5</sup> However, a number of questions have been raised about the impact of managing requests for same-day appointments by telephone by GPs, such as whether GP workload is actually decreased,<sup>6-9</sup> whether prescribing, in particular for antibiotics, is increased;<sup>10-12</sup> whether the quality of care is adversely affected;<sup>5,13,14</sup> and whether patients experience better access to care.<sup>13,14-16</sup> The primary hypothesis addressed by this study is that management of same-day appointment requests via the telephone results in a significant difference in resource use (i.e. doctor time) relative to conventional surgery consultations.

## Method

### Protocol

With ethical permission, the study was advertised using a poster in the waiting rooms of the two practices in West Lothian that took part in the study. Patients who used the telephone to request same-day appointments for themselves or for their children were randomly allocated to one of two groups. The first group was given a face-to-face appointment on that day. The second group was told that the doctor would telephone them back later that morning, and, after discussion, would either offer them advice or treatment on the telephone or, if necessary, would arrange to see the patient later in the day. Patients specifically asking to speak to the doctor by telephone for advice, those deemed very urgent cases, and those with no contact telephone number were to be excluded.

The primary outcome measure was use of doctor time, measured in minutes for the index telephone or face-to-face consultation. Secondary outcome measures were also considered. Other aspects of resource use were estimated by examining subsequent use of services in the two-week period following the index consultation, use of laboratory tests, and X-rays. Indicators of clinical care were measured by frequency of blood pressure measurement, number of problems considered, and antibiotic prescription. Patient perceptions of consultations were measured by the Patient Enablement Instrument (PEI)<sup>17</sup> and patients' willingness to use telephone consultations in the future.

B McKinstry, MD, director, Lothian Primary Care Research Network. J Walker, MSc, researcher, and D Heaney, MA, research manager, Department of Community Health Sciences, Edinburgh University. C Campbell, MRCP, principal in general practice, Broxburn Health Centre, West Lothian. S Wyke, PhD, foundation director, Scottish School of Primary Care.

### Address for correspondence

Dr Brian McKinstry, Lothian Primary Care Research Network, Department of Community Health Sciences, University of Edinburgh, Levinson House, 20 West Richmond Street, Edinburgh EH8 9DX. E-mail: brian.mckinstry@ed.ac.uk

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**HOW THIS FITS IN***What do we know?*

Telephone consultations are being used increasingly frequently to manage patient demand for same-day appointments.

*What does this paper add?*

Using telephone consultation for requests for same day appointments creates a short-term time saving for doctors, but it was unpopular with many patients and may result in increased follow-up consultations and a reduction in opportunistic health screening.



The sample size was calculated for the primary outcome measure. It was assumed that a difference in doctors' time spent with patients receiving a telephone consultation with the doctor — of  $\pm 25\%$  relative to doctors' time spent with patients receiving a face-to-face consultation — would be of interest. Data from a large-scale study of routine GP consultations carried out by the Department of Community Health Sciences at the University of Edinburgh in 1998 indicated that the mean consultation length for 483 adult patients who consulted their GPs as emergencies or 'fit-ins' in Lothian was 6.12 minutes (standard deviation [SD] = 4.25 minutes). Based on these values, a sample size of 165 patients per group (330 patients in total) would yield a 90% power of detecting a difference in resource use of 25% at a significance level of 5% (two-sample *t*-test for equality of means). No account was taken of the ability of the study to detect significant differences in secondary outcome measures. Differences in these measures (except those expressed as proportions) were assessed by Mann-Whitney tests. For those outcomes that represent proportions (e.g. antibiotic prescribing) inter-group differences were assessed via the standard test for difference in two unpaired proportions. Point estimates with confidence intervals were also calculated for all inter-group differences.

Patients who were randomised to the telephone consultation group and, having been told of the study, refused, were seen face to face but were analysed on an intention-to-treat basis with those triaged by telephone.

Randomisation was achieved with the use of coloured cards, the sequence of which was determined by randomly generated numbers in groups of ten and inserted into sealed envelopes by the research team. At the time of randomisation, the receptionist dealing with the patient broke the seal of the envelope. At no time during the planning or execution of the study was there any direct contact between the researcher who prepared the randomisation materials and reception staff involved in the project.

**Data collection**

**Resource use.** Doctors were given a stop clock and asked to record accurately the amount of time actually spent handling each index consultation. For the telephone surgery this included time spent on patients who had been asked to come for examination. Time spent on other activities between patients in surgery time (e.g. repeat prescriptions)

was excluded. Notes of patients were examined to determine subsequent use of services in the following two-week period, along with laboratory and X-ray usage, recording of blood pressure, blood and urine tests, and antibiotic prescribing.

**Indicators of clinical care.** Notes of patients were examined to determine the numbers of problems recorded as having been discussed, recording of blood pressure estimation, blood tests performed, and antibiotic prescribing.

**Patient perceptions of the consultation.** Following the index consultation, patients, or the parents of children, were sent a questionnaire to arrive by post the following day. The questionnaire included questions on satisfaction with the arrangements and the consultation and the PEI<sup>17</sup> to measure whether patients felt better or more able to cope with illness as a result of the contact.

**Results**

Data relating to a total of 388 requests for same-day appointments were collected. All patients who used the telephone to seek same-day appointments were randomised; no exclusions were recorded. Of these, complete timing data were recorded for 379 encounters (97.7% of total). Examination of patients' notes resulted in the collection of follow-up information for 379 of these 388 cases (97.7% of total). Comparison of the patients randomised to the two groups revealed that they had a similar age/sex distribution.

**Resource use**

Table 1 summarises the comparison between the two groups in resource use. It shows a significant difference in the primary outcome measure. The shortest time spent was for those patients dealt with exclusively by telephone (5.2 minutes [SD = 4.2, *n* = 140]), followed by those dealt with exclusively in the surgery (8.2 minutes [SD = 4.2, *n* = 189]), and the longest was for those who first consulted by telephone and were subsequently asked to come to the surgery that day (10.9 minutes [SD = 4.4, *n* = 50]). The total time spent by doctors in the consultation process was less for patients allocated to the telephone group (includes later appointment that day if necessary for telephone group). There was, however, increased subsequent use of surgery consultations by the telephone group in the two weeks that followed. There was no other significant difference in the use of services.

**Indicators of clinical care**

Table 2 shows the differences in indicators of clinical care. Blood pressure was measured significantly more frequently in the face-to-face group, but there was no difference in antibiotic use or in the numbers of problems recorded as having been addressed.

**Patient perceptions**

Of the 388 cases, 211 patients (54.4%) returned the patient questionnaire. However, 25 patients who returned the questionnaire declined to participate in the study, leaving only

Table 1. Differences in resource use between patients requesting same-day appointments managed by face-to-face consultation compared with telephone consultations.

Measure	Face-to-face appointment	Telephone appointment	Difference (95% CI)
Doctor contact time, in minutes [mean (SD), <i>n</i> ]	8.2 (4.2), 189	6.7 (4.9), 190	1.5 (0.6 to 2.4)
Percentage of encounters at which blood test was requested [ <i>n</i> (positive)/ <i>n</i> (total)]	5.3% (10/187)	4.4% (8/181)	0.9% (-3.5% to 5.3%)
Percentage of encounters at which urine test was requested [ <i>n</i> (positive)/ <i>n</i> (total)]	4.3% (8/187)	3.3% (6/181)	1.0% (-2.9% to 4.9%)
Percentage of encounters at which X-ray was requested [ <i>n</i> (positive)/ <i>n</i> (total)]	2.7% (5/187)	0.6% (1/181)	2.1% (-0.4% to 4.7%)
Number of subsequent surgery contacts [mean (SD), <i>n</i> ]	0.4 (0.7), 188	0.6 (0.8), 182	-0.2 (-0.3 to 0.0)
Number of subsequent out-of-hours contacts [mean (SD), <i>n</i> ]	0.0 (0.1), 188	0.0 (0.2), 182	0.0 (0.0 to 0.0)
Number of subsequent A&E contacts [mean (SD), <i>n</i> ]	0.0 (0.1), 188	0.0 (0.2), 182	0.0 (-0.1 to 0.0)
Number of subsequent telephone contacts [mean (SD), <i>n</i> ]	0.0 (0.1), 188	0.0 (0.2), 182	0.0 (0.0 to 0.0)

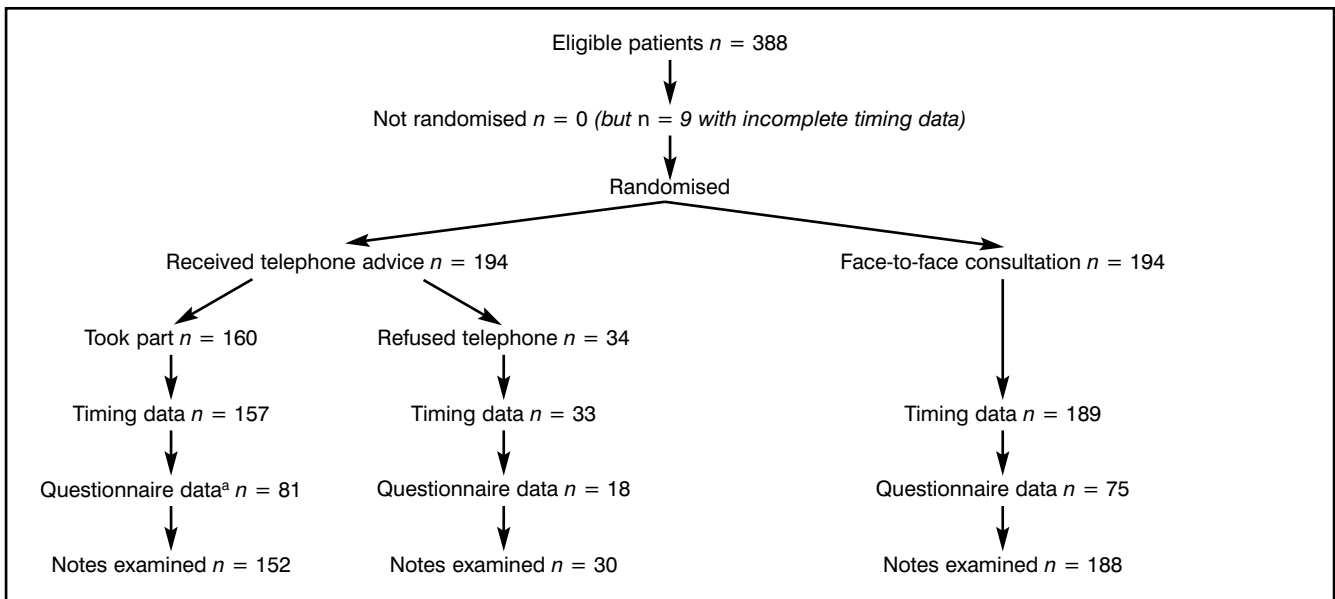


Figure 1. Participant flow chart. <sup>a</sup>Values shown are numbers of consenting patients.

186 usable questionnaires available for analysis, representing only 47.9% of the 388 encounters recorded.

The two groups did not differ significantly in the type of problem they presented or their expectation of a prescription. Table 3 shows that there was no difference in total PEI score or how well they knew the doctor (scoring from 1 [least] to 5 [most]). In addition, there was no difference between the groups in terms of how well they felt they were able to explain their problem to the doctor, how well they felt their problem was understood, or how well the doctor explained the problem or treatment to them (all scoring from 0 [not very well at all] to 3 [very well]). The 186 usable questionnaires yielded a total of 128 valid PEI scores. There were similar mean PEI scores for the two groups of cases. Just over half of both groups (98/177 [55.4%]) said they would be prepared to deal with a future similar problem by telephone.

### Discussion

This was a small study in two practices whose patients were mainly working class and which were already familiar with telephone consulting. Research in more varied practices possibly may give different results. In addition, the sample may have been too small to estimate differences in the secondary outcomes. Nevertheless, the study showed that it is feasible to undertake a trial and was sufficiently large to

detect differences in the primary outcome.

The primary outcome measure for this study was use of doctor time in the management of requests for same-day appointment by telephone compared with face-to-face consultations. It was found that telephone consultations were associated with significantly lower consultation lengths. This saving amounted to four hours and 45 minutes of doctor time over the two practices during the four weeks of the study.

The study also examined a number of secondary outcome measures of interest, although its power to detect differences may well have been limited. On the positive side, the use of telephone consultations did not appear to be at the cost of either the content of the consultation in terms of the number of problems addressed, or in the way the problem was investigated. Patient perceptions of the consultation (measured by PEI scores) and satisfaction with components of the consultation were also similar in both groups. The overall mean PEI value was 2.7 (SD = 3.5); this compares with a mean PEI value of 3.0 recorded for English-speaking adult patients in Lothian in a previous study (Howie JGR, 2000, personal communication). However, owing to differences in the method of administration of the PEI (i.e. postal questionnaire as against completion immediately after the encounter) this comparison is of limited validity. However,

Table 2. Differences in indicators of clinical care between patients requesting same-day appointments managed by face-to-face consultation compared with telephone consultations.

Measure	Face-to-face appointment	Telephone appointment	Difference (95% CI)
Percentage of encounters at which antibiotic was prescribed [n(positive)/n(total)]	16.0% (30/187)	19.3% (35/181)	-3.3% (-11.1% to 4.5%)
Percentage of encounters at which blood pressure was measured [n(positive)/n(total)]	13.3% (25/188)	6.6% (12/181)	6.7% (0.6% to 12.7%)
Number of problems considered [mean (SD), n]	1.2 (0.4) 186	1.1 (0.4) 181	0.0 (0.0 to 0.1)

Table 3. Differences in patient perceptions of consultations between patients requesting same-day appointments managed by face-to-face consultation compared with telephone consultations.

Measure	Face-to-face appointment	Telephone appointment	Difference (95% CI)
Enablement (PEI) score [mean (SD), n]	3.0 (3.8) 57	2.4 (3.2) 71	0.6 (-0.6 to 1.8)
'How well did you know the doctor you saw?' [mean (SD), n]	2.7 (1.6) 72	2.8 (1.6) 65	-0.1 (-0.6 to 0.4)
'How well did you feel you were able to explain your problem to the doctor?' [mean (SD), n]	2.5 (0.6) 77	2.4 (0.8) 94	0.1 (-0.1 to 0.3)
'How well do you think your problem was understood?' [mean (SD), n]	2.4 (0.7) 77	2.5 (0.7) 94	-0.1 (-0.3 to 0.1)
'How well was your problem explained to you?' [mean (SD), n]	2.4 (0.7) 77	2.4 (0.7) 94	0.0 (-0.3 to 0.2)
'How well was the treatment for your problem explained to you?' [mean (SD), n]	2.4 (0.8) 76	2.4 (0.8) 94	0.0 (-0.2 to 0.2)
Percentage of patients prepared to attempt telephone resolution of similar problem in future [n(positive)/n(total)]	50.6% (39/77)	59.0% (59/100)	-8.4% (-23.1% to 6.4%)

the questionnaire return rate was low and results must be interpreted with caution. In addition, while numerically more frequent, the study detected no significant differences in numbers of subsequent telephone contacts, contacts out of hours or presentations at hospital casualty. However, the frequency of such contacts in both groups was small and a larger study might demonstrate a significant difference.

On the negative side, however, those patients dealt with by telephone demonstrated a significant increase in repeat consultations at the surgery over the two weeks that followed. The finding of a significance level of  $P = 0.01$  could be argued to be borderline for a secondary measure but, at the very least, suggests a strong trend. If one were to assume a consultation length for such follow-up visits equal in length to the consultations in this study, then any time advantage for telephone consultation would be negated. In addition, the process of using telephone consultation seemed to lead to a reduction in opportunistic health promotion or, possibly, chronic disease management, in that blood pressure measurement (our proxy measure of such care) was significantly less frequent in patients randomised to telephone consultations. A large proportion of patients (>40%) indicated that they would be either not happy or unsure about dealing with a similar problem via the telephone in the future. Of those patients who were randomised to telephone surgery, 34 (17.5%) refused to accept telephone advice, suggesting a significant resistance to the consultation medium.

Telephone consultations are becoming increasingly popular with doctors trying to manage demand for same-day appointments. This small study suggests there may be grounds for questioning the wisdom of this policy if it is based solely on saving doctors' time. There may, however, be benefits in terms of 'safety-netting' appointment systems which this study did not attempt to explore. We are not

aware of other randomised controlled trials of this kind. Such studies may be difficult to carry out, but it is important nonetheless that a larger scale trial in a variety of health care settings is undertaken.

## Conclusions

Telephone consultations for same-day appointments resulted in a short-term time saving for doctors but, in this study, this may have been offset by a subsequent increased attendance rate and reduced opportunistic health screening. Perceptions of the consultation did not differ between patients receiving telephone and face-to-face consultations, but many would not prefer this medium to be used for future similar problems. A larger study in a variety of primary care settings is required to confirm these findings.

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