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The implementation of a call-back system reduces the doctor’s workload, and improves accessibility by telephone in general practice

Reinier A de Groot, Jan de Haan, Henk EP Bosveld, Albert Nijland and Betty Meyboom-de Jong


**Background.** In a general practice in The Netherlands, the demand for direct telephone consultation with the doctor became extreme, which resulted in poorly managed consultations, and poor telephone access due to busy lines. A call-back telephone appointment system was therefore introduced: all calls are answered and, when possible, managed by the practice assistant. If the assistant feels incapable, or if the patient prefers to speak to the doctor, a telephone appointment is scheduled, at which time the doctor returns the patient’s call.

**Objective.** Our aim was to evaluate the effects of a call-back telephone appointment system on doctors’ workload and patients’ telephone access to doctors.

**Methods.** Telephone consultation data over 10 weeks were selected before and after the introduction of the call-back telephone appointment system. The outcomes measured were: number and duration of telephone calls to doctors, the reason for each call and how often telephone lines were engaged during the specified telephone hour.

**Results.** The number of calls requiring the doctor’s attention was reduced by 59% and total time spent on the telephone by the GPs was reduced by 39%. This reduction is explained by a change in the reasons for calling. Telephone accessibility improved, as busy telephone lines were no longer an issue.

**Conclusion.** The call-back telephone appointment system is superior to the previously used open access telephone hour.

**Keywords.** Telephone consultation, telephone management, workload.

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**Introduction**

Patients and GPs agree that it should be possible to consult directly with the doctor by telephone.1,2 Reserving a specific period of time for doctor–patient calls is recommended.3 Patients were satisfied with the help they received over the telephone from doctors, but were less satisfied with the process of contacting the doctor.2

In a general practice in the north of The Netherlands, the patient demand for direct consultation with the doctor by telephone became extreme. During the special telephone hour for doctors, all telephone calls were answered directly by the doctors, without mediation of the practice assistant. A practice assistant, a job for which one has to pass a 3-year training course, fulfils reception tasks as well as medical tasks in Dutch general practice.

A survey of the doctor–patient telephone calls revealed the following: there were an average of 22 incoming patient calls per telephone consulting hour, and the telephone was busy an average of 165 times during every telephone consulting hour.4 The survey further revealed that many of these calls could have been managed adequately by the practice assistant.4 A change in telephone management was therefore considered. Instead of the current open access telephone system, an appointment system would be implemented.4 According to this system, the practice assistant would answer all the calls, and manage them when possible. Only if the
Call-back system improves telephone management

The effect of the call-back system on the patients’ telephone access was assessed by comparing how often the three regular telephone lines were engaged between 1 and 2 p.m. before and after the intervention during a 1-week period.

Data were analysed using SPSS 9.0. Categorical data were subjected to chi-square analysis. Means were compared using the Student’s t-test. A P-value < 0.05 was regarded as significant.

Results

Table 1 shows that the total number of calls per hour was reduced by 59%, and the time spent on the telephone by the GPs was reduced by 39%.

There was no significant change in patient demographics. All the reasons for calling decreased in frequency (Table 2). The proportions in which the various reasons occurred were different after implementation of the call-back system. Specific medical concerns were the main reason for the patient’s call, increasing from 45% before to 69% after the intervention. Table 3 presents a breakdown of those complaints occurring more than six times. There is a large variety of medical complaints with a low prevalence.

The telephone lines generally were not busy during the 1-week test period, which followed the intervention. The Thursday of that week was the only exception, when the lines were found to be engaged nine times during the 1 h test period. This may be compared with a daily average of 165 times before the telephone policy was changed.

Discussion

The present study shows that the change in telephone policy reduced the doctors’ workload by 39%. This reduction can be explained by examining the reasons for the telephone calls. First, calls for test results which were not yet available, and calls for other physicians virtually disappeared after the policy change. Secondly, the

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Daily number of doctor telephone calls and doctor’s time spent on the telephone before and after introduction of the ‘call-back system’</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before intervention</td>
</tr>
<tr>
<td>Mean number of daily telephone calls</td>
<td></td>
</tr>
<tr>
<td>With patients</td>
<td>24.1</td>
</tr>
<tr>
<td>With professionals</td>
<td>6.7</td>
</tr>
<tr>
<td>Total</td>
<td>30.8</td>
</tr>
<tr>
<td>Mean daily doctor’s time spent on telephone:</td>
<td></td>
</tr>
<tr>
<td>With patients</td>
<td>80 min 39 s</td>
</tr>
<tr>
<td>With professionals</td>
<td>2 min 26 s</td>
</tr>
<tr>
<td>Total</td>
<td>3 min 21 s</td>
</tr>
</tbody>
</table>

Assistant felt herself incapable of managing the call, or if
the patient preferred to speak to the doctor, would she
schedule a telephone appointment for the patient, at
which time the doctor would return the patient’s call: the
call-back system. This would take place during a special
telephone consultation hour, from 1 to 2 p.m. Doctors do
not answer any calls directly, giving the assistants the
opportunity to screen all incoming calls.

The present study examines the effects of this change
in telephone policy on the doctor’s workload and on the
doctor’s accessibility by telephone for patients.

Methods

Telephone policy

During daytime working hours, from 8 a.m. to 5 p.m., the
three practice assistants answered all the calls, except
for the calls which came in during the designated con-
sultation hour, which was from 1 to 2 p.m.

The baseline study

Before the intervention, the amount of time which
the doctor spent handling telephone calls from patients
was examined during a 10-week period from 6 January to
15 March 1997.4 During this period, all telephone calls
to the doctors were registered. The time and duration
of the call, the demographics of the caller, the reason for
the call and the duration of each telephone call were
registered. The reason for the call was coded according
to the International Classification of Primary Care.6

The intervention

The call-back system, a new telephone appointment
system, with the doctors returning the patients’ calls, was
introduced on 1 April 1997.

To measure the effects of the change to the call-back
system on the doctor’s workload, all telephone calls
to the doctors were registered again during a 10-week
period, from 5 January until 14 March 1998, exactly
1 year after the baseline study, using the same pre-coded
registration form.
number of calls by patients requesting test results decreased notably. It is likely that the practice assistant was able to handle the majority of these calls. The call-back system placed the practice assistant in a triage position, allowing him/her to filter out the calls which would require the attention of the doctors, thereby effectively reducing the doctors’ telephone workload. Telephone triage by trained nurses previously has been shown to be safe.7,8

A review of the reasons for calling reveals that the number of calls for coughing, fever, sinus problems, diarrhoea and low back pain declined notably. The practice assistant has clinical guidelines to follow in the above-mentioned instances. These guidelines are edited by the Dutch College of General Practitioners.

There was a shift in the proportions of the reasons for calling. Combined with the striking increase in the average duration of the calls, this could be an indication that the physician is now handling the proper calls in a proper way, with the other calls being managed by the practice assistant.

The new system facilitates the doctors’ telephone accessibility, as the telephone lines were virtually never engaged with the call-back telephone appointment system. The lower number of calls explains the better access to the doctor, and, secondly, the doctor may now decide when to phone the patient, spreading the calls out over the time period set aside for telephone consultation.

Patients benefit from this change in telephone management, as the duration of the telephone calls is longer, the number of calls followed by a visit to the surgery is reduced, and the telephone lines are less likely to be engaged when the patient calls.

The present study on telephone management showed evidence of the superiority of the call-back telephone appointment system over the previously used system.

<table>
<thead>
<tr>
<th>Reasons for calling</th>
<th>Before intervention</th>
<th>After intervention</th>
<th>Difference (%)</th>
<th>Chi-square, d.f., P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical complaint</td>
<td>585</td>
<td>250</td>
<td>335 (57)</td>
<td>80.68, 1, &lt;0.001</td>
</tr>
<tr>
<td>Request test results, specialists and hospital tests</td>
<td>368</td>
<td>65</td>
<td>303 (82)</td>
<td>143.1, 1, &lt;0.001</td>
</tr>
<tr>
<td>Request test results GP’s laboratory</td>
<td>101</td>
<td>12</td>
<td>89 (88)</td>
<td>48.85, 1, &lt;0.001</td>
</tr>
<tr>
<td>Administrative matters</td>
<td>92</td>
<td>17</td>
<td>75 (82)</td>
<td>34.68, 1, &lt;0.001</td>
</tr>
<tr>
<td>Request for consultation with another doctor</td>
<td>87</td>
<td>–</td>
<td>87 (100)</td>
<td>64.25, 1, &lt;0.001</td>
</tr>
<tr>
<td>Repeat prescription</td>
<td>39</td>
<td>7</td>
<td>32 (82)</td>
<td>15.0, 1, &lt;0.001</td>
</tr>
<tr>
<td>No answer on return call</td>
<td>NA</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>21</td>
<td>4</td>
<td>17 (81)</td>
<td>7.745, 1, 0.005</td>
</tr>
<tr>
<td>Total</td>
<td>1293</td>
<td>363</td>
<td>930 (72)</td>
<td>334.4, 1, &lt;0.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medical complaint</th>
<th>Before intervention</th>
<th>After intervention</th>
<th>Difference (%)</th>
<th>Chi-square, d.f., P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coughing</td>
<td>55</td>
<td>27</td>
<td>28 (51)</td>
<td>5.597, 1, 0.018</td>
</tr>
<tr>
<td>Adverse effects of medication</td>
<td>28</td>
<td>12</td>
<td>16 (57)</td>
<td>3.840, 1, 0.05</td>
</tr>
<tr>
<td>Sinus signs and symptoms</td>
<td>23</td>
<td>5</td>
<td>18 (78)</td>
<td>7.645, 1, 0.0057</td>
</tr>
<tr>
<td>Concerns about parents’ health</td>
<td>18</td>
<td>4</td>
<td>14 (78)</td>
<td>5.872, 1, 0.0154</td>
</tr>
<tr>
<td>Low back pain</td>
<td>15</td>
<td>2</td>
<td>13 (87)</td>
<td>6.871, 1, 0.0088</td>
</tr>
<tr>
<td>Fever</td>
<td>13</td>
<td>0</td>
<td>13 (100)</td>
<td>9.750, 1, 0.0018</td>
</tr>
<tr>
<td>Ear ache</td>
<td>12</td>
<td>1</td>
<td>11 (92)</td>
<td>6.623, 1, 0.0101</td>
</tr>
<tr>
<td>General weakness</td>
<td>7</td>
<td>6</td>
<td>1 (14)</td>
<td>0.04, 1, 0.8416</td>
</tr>
<tr>
<td>Neck signs and symptoms</td>
<td>6</td>
<td>7</td>
<td>+1 (17)</td>
<td>0.037, 1, 0.8475</td>
</tr>
<tr>
<td>Depression</td>
<td>2</td>
<td>12</td>
<td>+10 (500)</td>
<td>2.296, 1, 0.1297</td>
</tr>
<tr>
<td>Other medical complaints (all &lt;2%)</td>
<td>450</td>
<td>174</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>585</td>
<td>250</td>
<td>335 (57)</td>
<td>74.53, 1, &lt;0.001</td>
</tr>
</tbody>
</table>
when there would be a telephone hour, during which the
doctor would answer the phone him/herself. Additionally, this study showed the importance of a systematic
approach in the solving of a problem concerning practice
management. A simple change in telephone management
has improved the doctors’ accessibility, and has reduced
the inconvenience of immediately addressing patients’
concerns over the telephone.

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