

The Effect of Telephone Appointment-Reminder Calls on Outpatient Absenteeism in a Pulmonary Function Laboratory

Jeffrey M Haynes RRT RPFT and Elizabeth L Sweeney CRT

BACKGROUND: Absenteeism from outpatient appointments is common. Telephone appointment-reminder calls reduce outpatient-appointment absenteeism in many clinic settings. **OBJECTIVE:** To determine if telephone appointment-reminder calls reduce outpatient absenteeism at a hospital-based pulmonary function laboratory. **METHODS:** We conducted a retrospective review of our pulmonary function laboratory's outpatient appointment records from April to November 2004. Data were collected from consecutive outpatient appointments, including patient age, sex, whether a telephone appointment-reminder call was successfully made, and whether the patient showed up for the scheduled test. We performed 3 analyses. Differences in absenteeism between the groups was the primary outcome measure. First, appointments were separated into 2 groups: (1) appointments for which a reminder call was attempted ("called" group) and (2) appointments for which a reminder call was not attempted ("not-called" group). The appointments were then separated into 2 further groups: (1) the reminder call was successfully achieved ("contacted" group) and (2) the patient either was not called or was called but could not be reached ("not-contacted" group). Finally, the contacted group was separated into 2 further groups: (1) reminder calls that resulted in direct conversation with an appropriate person at the patient's listed telephone number, and (2) reminder message left on an answering machine. **RESULTS:** Data were collected from 515 consecutive outpatient appointments; 45 (8.7%) of these patients did not show up for testing. The absentee rate was 4.7% ($n = 10$) in the called group and 11.6% ($n = 35$) in the not-called group ($p = 0.0066$). In the called group, 6.5% ($n = 14$) could not be reached. The absentee rate was 4% ($n = 8$) in the contacted group and 11.7% ($n = 37$) in the not-contacted group ($p = 0.0021$). We found no difference in absenteeism between patients who received reminders via direct conversation (4.2%) and those who had a reminder message left on an answering machine (3.7%) ($p > 0.05$). **CONCLUSIONS:** A policy of reminding outpatients of their appointments via telephone reduces absenteeism at a hospital-based pulmonary function laboratory. We found no difference in absenteeism between communicating the reminder via direct conversation versus via leaving a message on an answering machine. *Key words: patient appointments, pulmonary function test, telephone, reminder systems, outpatients.* [Respir Care 2006;51(1):36–39. © 2006 Daedalus Enterprises]

Introduction

Absenteeism from outpatient appointments is common. Indeed, the Adolescent Clinic at Rainbow Babies and Children's Hospital in Cleveland reported a nonattendance rate

of 50.2%.¹ Absenteeism reduces clinic productivity and may impact patient outcomes because of missed opportunities for diagnosis and treatment. A common cause of outpatient absenteeism is that patients forget to make, reschedule, or cancel an appointment.^{2–7} A strategy to reduce outpatient absenteeism is to contact patients via telephone, with an appointment-reminder call. Telephone appointment-reminder calls are effective in many settings, including endoscopy clinics,⁶ emergency department referrals,⁸ vaccination clinics,⁹ adult primary care,¹⁰ and pediatric clinics.^{1,9} In respiratory medicine, pulmonary function tests (PFTs) play a vital role in the diagnosis and management of patients with pulmonary disease. Clearly,

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smokers with chronic obstructive pulmonary disease benefit from early diagnosis and smoking cessation.¹¹ Therefore, we sought to determine whether telephone appointment-reminder calls reduced outpatient absenteeism at our hospital-based PFT laboratory.

Methods

Study Design

We conducted a 7-month retrospective review of our pulmonary function laboratory’s outpatient appointment records, from April to November 2004. Data were collected from consecutive outpatient appointments, including patient age and sex, whether a telephone appointment-reminder call was successfully made, and whether the patient showed up for the scheduled test. One-time appointment-reminder calls were made by the department secretary, as her work schedule permitted. After all the data had been collected, 3 analyses were performed, with differences in absenteeism being the primary outcome measure.

First, appointments were separated into 2 groups: appointments in which a reminder call was attempted (“called” group), and appointments in which a reminder call was not attempted (“not-called” group). This grouping was designed to evaluate the effect of an appointment-reminder call policy on appointment absenteeism. After that analysis was completed, appointments were separated into 2 groups, based on whether an appointment-reminder call was successfully achieved (“contacted” group) versus patients who were not called or were called but could not be reached (“not contacted” group). This grouping was designed to evaluate the effect of successful patient contact on appointment absenteeism. A successful reminder call was defined as either direct conversation with an appropriate person at the patient’s listed telephone number or being able to leave a message on an answering machine. Finally, the contacted group was separated into 2 groups: calls that resulted in direct conversation with an appropriate person at the patient’s listed telephone number, and calls in which a message was left on an answering machine.

Statistical Analysis

Statistical computations were done with the aid of online statistics software (QuickCalcs, GraphPad Software, San Diego, California). Age data are expressed as mean ± standard deviation. Differences in age and sex between the groups were analyzed with the unpaired *t* test and chi-square test, respectively. Differences in absenteeism between the groups were analyzed with Fisher’s exact test. Differences were considered significant when the 2-tailed *p* < 0.05. The odds ratio was calculated in the usual fashion.

Table 1. Outpatient Appointment Characteristics

Variable	Called (<i>n</i> = 214)	Not Called (<i>n</i> = 301)	<i>p</i>
Age (mean ± SD y)	53.89 ± 21.68	53.54 ± 22.18	0.8569
Sex (number and %)			0.8676
Male	97 (45.3)	133 (44.2)	
Female	117 (54.7)	168 (55.8)	

Table 2. Absenteeism Among Outpatient Appointments: Called Versus Not Called

	Called (<i>n</i> = 214)	Not Called (<i>n</i> = 301)	<i>p</i>
Attendance (number and %)			0.0066
Present	204 (95.3)	266 (88.4)	
Absent	10 (4.7)	35 (11.6)	

ion.¹² Descriptive statistics were used to illustrate differences in absenteeism between groups.

Results

Data were collected from 515 consecutive outpatient appointments; no appointments had to be excluded from the study because of incomplete records. Forty-five (8.7%) of the 515 scheduled appointments did not show up for testing. Two-hundred fourteen (42%) appointments were included in the called group, and 301 (58%) appointments were included in the not-called group. Table 1 shows characteristics of these 2 groups. Fourteen (6.5%) appointments in the called group could not be reached via telephone. The absentee rate for the called group was 4.7% (*n* = 10), and the absentee rate for the not-called group was 11.6% (*n* = 35) (*p* = 0.0066) (Table 2 and Fig. 1).

In the second analysis, 200 (39%) of the appointments were included in the contacted group, and 315 (61%) were included in the not-contacted group. The absentee rate for the contacted group was 4% (*n* = 8), and the absentee rate for the not-contacted group was 11.7% (*n* = 37) (*p* = 0.0021) (Table 3). Patients who could not be contacted had a 3.19 times greater likelihood of not showing up for their PFT. Within the contacted group, 120 (60%) of the calls led to a direct conversation, and 80 (40%) led to leaving a message on an answering machine. There was no difference in absenteeism between the direct conversation (4.2%, *n* = 5) and message groups (3.7%, *n* = 3) (*p* > 0.05).

Discussion

To our knowledge, this is the first study to examine the effect of telephone appointment-reminder calls on absen-

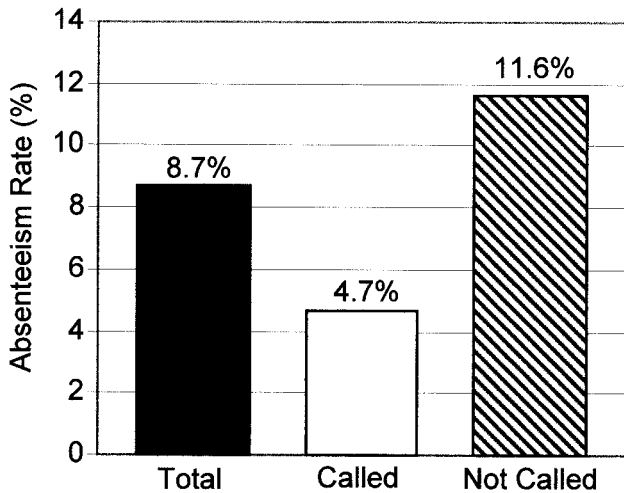


Fig. 1. Outpatient appointment absenteeism in a pulmonary function laboratory. The absentee rates were: 8.7% for all appointments; 4.7% for the called group (see text); and 11.6% for the not-called group ($p = 0.0066$).

Table 3. Absenteeism Among Outpatient Appointments: Contacted Versus Not Contacted

	Contacted ($n = 200$)	Not Contacted ($n = 315$)	P
Attendance (number and %)			0.0021
Present	192 (96)	278 (88.3)	
Absent	8 (4)	37 (11.7)	

teeism in a PFT laboratory setting. The results of this study indicate that outpatient PFT absenteeism significantly declines when a simple telephone appointment-reminder call is placed. We found the telephone to be an effective means of communication with outpatients; we were able to make contact with 93.5% of the patients who were called a single time. The effectiveness of telephone communication may explain the similar absenteeism rates we observed between the called group (4.7%) and the successfully-contacted group (4%). We found leaving a message on an answering machine just as effective as direct conversation in reducing appointment absenteeism.

Our findings are consistent with investigations of telephone appointment-reminder calls in other clinical settings. O'Brien and Lazebnik¹ randomized 703 adolescent outpatient appointments to either a single telephone reminder call one day prior to the scheduled appointment or no call at all. They were able to contact only 58.8% of the patients in the intervention group via telephone. Despite this, the intervention group had a better attendance rate than the control group (55.6% vs 44.1%, $p = 0.002$). These investigators also found direct conversation and an-

swering-machine messages equally effective in reducing absenteeism.

Lee and McCormick⁶ studied the effect of telephone appointment-reminder calls on absenteeism in an outpatient endoscopy clinic. Patients were called one week before the scheduled test, and up to 3 calls were made in attempting to reach each patient. They contacted 83% of the patients. The reminder calls reduced the absenteeism rate from 23.3% to 5.7%.

Ritchie and colleagues⁸ performed a randomized controlled trial of telephone appointment-reminder calls with 400 patients who were referred for outpatient follow-up after a visit to the emergency department. Patients in the intervention group were called 1–3 days after their emergency department visits, to remind them of the time and importance of the follow-up appointment. The attendance rate in the intervention group was better than that in the control group (70.7% vs 54.4%, $p = 0.002$).

Dockery et al⁷ evaluated the effect of telephone appointment-reminder calls with a group of elderly patients. Fourteen percent of the patients they called were unaware of their appointments. In addition, the overall absenteeism rate was 44% for patients with a diagnosis of dementia and 16% for patients without a diagnosis of dementia ($p < 0.001$). The investigators reported that they decreased the absenteeism rate to 5% by employing telephone appointment-reminder calls.

Though appointment reminders communicated via telephone are clearly effective in reducing absenteeism, other forms of communication may be effective as well. Quattlebaum et al¹³ found computer-generated postcards highly effective in reducing outpatient absenteeism. In their randomized controlled trial with 901 pediatric appointments, the absenteeism rate was 10% in the postcard group and 19% in the control group ($p = 0.0002$). In a number of investigations,^{10,14} telephone reminders and mailed reminders were found to be equally effective; however, Hardy et al¹⁵ and Irigoyen et al⁹ found that the combination of a telephone call and mailed materials had a synergistic effect on reducing absenteeism.

The following limitations should be considered when interpreting the results of our study. The retrospective design of this study assumes that the record-keeping of the data was accurate; however, no patients in our study had to be excluded because of incomplete records. Another limitation is that only one reminder call was placed. Multiple calls, as others have studied, might have produced different results. We also could not evaluate the effect of the time lapse between the reminder call and the appointment date on absenteeism. The study period spanned the spring, summer, and fall seasons of New England; our study does not account for periods of inclement winter weather, which, from our experience, can affect clinic attendance. Finally, while we are hopeful that reduced PFT appointment ab-

senteism will improve patient outcomes, our study design cannot answer that question. Further study could examine whether efforts to reduce PFT appointment absenteeism affect patient outcomes, as was found by Killaspy et al¹⁶ in a psychiatric clinic. In addition, the effects of multiple calls, the timing of patient contact, and the effect of combined and alternative communication tools (eg, electronic mail) could also be studied.

Conclusions

We found that nearly 1 out of every 10 scheduled outpatients does not show up for his or her PFTs. A policy of reminding outpatients of their appointments via telephone significantly reduced absenteeism at a hospital-based PFT laboratory. We found no difference in absenteeism between communicating the reminder via direct conversation or leaving a message on an answering machine. Reduced absenteeism may increase clinic productivity and efficiency.

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