

ORIGINAL ARTICLES

Encouraging Attendance at Outpatient Appointments: Can We Do More?

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Abstract

Background and Aims

Non-attendance at new outpatient appointments is a challenge for health services. Patients with treatable morbidity may fail to receive care from which they would benefit, and scarce resources are wasted. Therefore, a literature review was undertaken to assess the effectiveness of appointment reminders as a means of increasing attendance and reducing 'Did not Attend' rates at new outpatient appointments.

Methods

Electronic databases were interrogated using a combination of MeSH terms and truncated keywords. In addition, the reference lists of papers were studied to identify additional relevant material.

Results

Telephone and postal reminders appear effective, particularly if received within a day of scheduled appointments. Postal reminders offering a reward for attendance, threatening sanctions for non-attendance, and providing information about the clinic appear more effective than standard reminders. No studies assessing the impact of measures including e-mail or text messaging were identified. Many studies were conducted in psychiatric settings outwith the United Kingdom raising issues of generalisability. In addition, no assessment of how initiatives impact on inequalities in service access were found.

Conclusions

There is scope to increase attendance and reduce non-attendance at outpatient appointments but initiatives should be piloted in conjunction with robust evaluative frameworks.

Overall, patients failed to attend 11 - 12% of appointments although this masks differences between clinics.

Therefore, a literature review was undertaken to assess the effectiveness of appointment reminders as a means of increasing attendance and/or reducing DNA rates at new outpatient appointments.

Table I: DNA Rates - New Outpatient Appointments (Scotland)

	Year ending March 2004	Year ending March 2005
All clinics	11.7%	11.0%
Cardiology	9.6%	9.1%
Rheumatology	9.8%	9.3%
Endocrinology & diabetes	13.9%	14.1%
Neurology	13.7%	14.9%

Source:

http://www.isdscotland.org/isd/files/Annual_trends_in_outpatient_activity_hbntnu_m_November2006.xls - Accessed 18th January 2008.

Methods

This paper is based on a narrative review of literature assessing the effectiveness of appointment reminders to increase attendance and/or reducing DNA rates for new appointments at outpatient clinics.

A number of electronic databases were interrogated to identify literature, (Table II) and the reference lists of papers were also studied to source additional material. Electronic searches were conducted using a combination of database-specific medical subject heading (MeSH) terms (Box I) and truncated key words. Studies assessing the effectiveness of any form of appointment reminder involving children or adults scheduled to attend any non-screening related outpatient clinic were sought.

Introduction

Failure to attend outpatient appointments can be detrimental for patients and healthcare systems. Patients with treatable morbidity may not receive beneficial care¹ and healthcare resources will be used sub-optimally.² It is estimated that missed outpatient appointments cost the National Health Service (NHS) £262m per annum.³

Table I shows the 'Did not Attend' (DNA) rate for new appointments at outpatient clinics across Scotland during financial years 2003/2004 and 2004/2005.

Table II: Electronic Databases Searched

Database	Dates Searched
MEDLINE	1980 - Feb. Wk.2 2005
EMBASE	1980 - Wk.8 2005
CINAHL	1982 - Feb. Wk.2 2005
AMED	1985 - Feb 2005
CCRCT	1st Quarter 2005

Box I: Medline MeSH terms

Appointments and Schedules
Reminder Systems
Outpatient Clinics, Hospital
Hospitals, Teaching
Patient Compliance
Telephone
Postal Service
Electronic Mail

However, the author exercised professional judgement and only considered studies conducted in settings analogous to outpatient clinics in this country. The review included experimental studies with a concurrent control group, investigating attendance at first outpatient appointments, conducted in developed countries and published in English. In addition, studies had to include attendance and/or DNA rates as an outcome measure.

After reviewing the titles and abstracts of papers, full versions of those potentially suitable for inclusion were obtained and appraised. Their methodological quality was assessed using guidance issued by the Cochrane Collaboration,⁴ the Centre for Reviews of Effectiveness⁵ and the Scottish Intercollegiate Guidelines Network.⁶ A single reviewer identified papers and appraised their quality.

Results

Thirteen studies were found to be eligible and were included in this review. They are discussed below. Further details are provided in Table III.

Telephone reminders

Nine studies investigated the impact of telephone reminders.^{2,7,8,9,10,11,12,13,14} Calls, which appear to have been to land lines, were made one to three days prior to scheduled appointments during office hours, although one study attempted to contact patients into the early evening.² Callers usually spoke only with patients. However, in one study information was passed to caregivers/relatives.⁷ Calls were made by clinic clerical or professional staff, GPs and research assistants.

Three studies reported difficulty contacting patients. Burgoyne et al⁸, investigating the impact of reminders delivered one to two days before scheduled appointments, only contacted 54% (184/339) of those allocated to be called. An intention to treat analysis (ITA) did not find a significant difference between intervention and control groups with respect to the 'Did Not Attend' (DNA) rate. However, an intervention received analysis (IRA) found that successfully contacted patients were less likely to default than those receiving no reminder (29% [21/73] vs. 49% [304/617], $p < 0.01$).

Kluger and Karras⁹ reached only 55% (50/91) of subjects randomised to be 'phoned'. An ITA failed to demonstrate any significant differences in DNA rates between intervention and control groups, but an IRA found that DNA rates among intervention group patients receiving a reminder together with information about the clinic were lower than controls (20% [5/25] vs. 56% [14/25], $p < 0.01$).

Hershorn and Rivas¹⁰ compared the effectiveness of reminders made by clinicians and clerical staff. They contacted 59% (39/60) of those they intended to call. An ITA found no differences between study groups, whereas an IRA demonstrated that the attendance rate among those contacted was higher than that observed among the entire study sample although not statistically significant (74% [29/39] vs. 62% [61/99], $p > 0.05$).

These studies suggest that telephone reminders, if received, can have a positive impact on attendance and DNA rates. This is supported by other investigators.

Grover et al² examined the effectiveness of reminders delivered the day before appointments. Compared to controls, DNA rates were lower among intervention patients (10% [10/103] vs. 20% [24/121], $p < 0.05$).

Reti⁷ investigated DNA rates among patients referred to outpatient clinics following reminders the day before appointments from their GP or a hospital clerk. Patients in both groups were less likely to default than controls (GP: 3% [1/35], clerk: 8% [3/37], controls: 27% [10/37]). The difference between the intervention groups combined and controls was significant ($p = 0.004$).

Hochstadt and Tybula¹¹ assessed the effectiveness of reminders delivered one or three days before appointments. Compared to controls, attendance rates in both intervention groups were higher (one day: 91% [20/22], three day: 68% [15/22], controls: 45% [10/22]; $p < 0.05$).

Kourany et al¹² replicated the study undertaken by Kluger and Karras.⁹ DNA rates among intervention patients were lower than among controls although not statistically significant (phone: 14.3% [4/28], phone and orientation statement: 13.3% [4/30], controls: 34.6% [9/26]).

Macdonald and colleagues¹³ found that patients reminded the day before appointments were more likely to attend than controls (95% [182/191] vs. 76% [375/496], $p < 0.01$). However, the trial was methodologically flawed limiting the validity of its findings.

Finally, Ritchie et al¹⁴ found that patients discharged from casualty and advised to attend a subsequent outpatient appointment were more likely to do so if 'phoned after discharge than un-contacted patients (67.5% [135/200] vs. 54.5% [109/200], $p = 0.008$).

Postal reminders

Six studies examined the effectiveness of postal reminders.^{2,11,15,16,17,18} Three^{2,11,15} investigated the impact of 'standard' reminders (providing information regarding when and where to attend) received three days before appointments.

Grover et al² reported that DNA rates were lower among intervention compared to control patients (12% [11/92] vs. 20% [24/121], $p < 0.05$) while Hochstadt and Tybula¹¹ and Rusius¹⁵ reported improved attendance and DNA rates respectively among intervention compared to control patients (68% [15/22] vs. 45% [10/22], $p > 0.05$, and 13% [9/67] vs. 28% [22/77], $p < 0.05$ respectively).

Both Grover et al² and Hochstadt and Tybula¹¹ compared telephone and postal reminders. The former² found that the DNA rate among those receiving postal reminders was slightly

higher (12% vs. 10%). However, subjects in the 'phone group were contacted the day before scheduled appointments whereas postal reminders were received three days beforehand. The latter¹¹ reported that attendance rates among patients in both groups receiving reminders three days before appointments were identical.

Three studies compared the effectiveness of modified 'standard' reminders ('reminders +'), including:

- **'Warning' reminders** - Containing warnings that patients would fall to the bottom of the waiting list following failure to attend;
- **'Reward' reminders** - Containing the offer of rewards should patients attend;
- **'Orientation' reminders** - Containing information describing the clinic, and
- **'Appointment change'** reminders - Containing slips which patients could use to reschedule appointments

Parrish and colleagues¹⁶ found that 'warning' and 'reward' reminders were more effective at increasing attendance rates than 'standard' reminders ('warning': 82% [27/33], 'reward': 61% [20/33], 'standard': 42% [14/33], $p < 0.01$). The difference between 'warning' and 'reward' reminders was also significant ($p < 0.01$).

Swenson and Pekarik¹⁷ compared 'orientation' and 'standard' reminders delivered one or three days before appointments. Although there was a trend towards reminders reducing DNA rates, only the difference between 'orientation' reminders delivered the day before appointments and controls was statistically significant (17% [5/30] vs. 43% [13/30], $p < 0.05$). There was also a statistically insignificant trend favouring one day reminders over three day reminders and 'orientation' reminders over standard reminders.

Maclean et al¹⁸ compared the effectiveness of 'warning', 'appointment change', 'combined' and 'standard' reminders. No significant differences in DNA rates were found. However, the DNA rate among intervention groups combined was lower than that experienced by the clinic in general during the study period (6.7% [5/75] vs. 20.6% [52/252], $p < 0.01$).

Discussion

Telephone reminders appear an effective means of increasing attendance and/or reducing DNA rates at new outpatient appointments. However, their impact is dependent on being able to contact patients. Further studies investigating means of promoting this (eg calls to mobile 'phones, automated calling systems, out-of hours calling) are warranted. Limited evidence suggests that the optimal time to contact patients is the day before scheduled appointments,¹¹ and that reminders delivered in conjunction with orientation statements may be more effective than reminders alone.¹²

Postal reminders were also found to be effective. Although limited, the literature suggests that the impact of 'standard' reminders is similar to that of telephone reminders.^{2,11} There is also a suggestion that 'reminders +' are more effective than 'standard' reminders.^{16,17}

However, no evidence was found regarding alternative means of delivering reminders, including e-mail and text messaging. In addition, the impact of implementing initiatives on inequalities in access to services was not considered by any of the studies included in this review. Finally, little information was provided regarding the costs of initiatives or how they were perceived by patients.

Although conducted in a thorough fashion, this review has limitations. It was undertaken by a single reviewer, raising the possibility of reviewer bias. Hand-searching was not performed and non-English language papers were not included. Therefore, it is possible that relevant material was missed.

The majority of the studies contributing to this review were conducted in psychiatric settings out with the UK, raising issues of generalisability. Furthermore, the methodological quality of the evidence base is generally poor. A number of trials claiming to have undertaken randomisation failed to describe how. In many studies blinding was poorly addressed, study participants were inadequately described and only a small number of participants were recruited. Finally, definitions of 'attendance' and 'non-attendance' were not always clear and sometimes varied. For example, Grover et al² described patients as having attended if they cancelled more than twenty four hours before appointments. However, Swenson & Pekarik¹⁷ classified attendance simply as appearing at the scheduled date and time.

Conclusions

This review suggests that reminders can increase attendance and reduce non-attendance. However, initiatives should be piloted with a robust evaluative framework to assess their impact on inequalities in access to care, as well as the headline attendance and DNA rates.

References

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Table III: Details of Studies Included in the Review

Study	Study Type	Setting	Intervention
Grover et al ²	RCT	General medical clinic, Canada	Telephone and postal reminders
Reti ⁷	CT	Secondary care clinics, New Zealand	Telephone reminders
Burgoyne et al ⁸	RCT	Adult psychiatric clinic, USA	Telephone reminders
Kluger and Karras ⁹	RCT	Mental health clinic, USA	Telephone reminders and orientation statements
Hershorn & Rivas ¹⁰	RCT	Mental health clinic, USA	Telephone reminders
Hochstadt & Trybula ¹¹	CT	Mental health clinic, USA	Telephone and postal reminders
Kourany et al ¹²	RCT	Child psychiatric clinic, USA	Telephone reminders and orientation statements
Macdonald et al ¹³	CT	Mental health clinic, New Zealand	Telephone reminders
Ritchie et al ¹⁴	RCT	Secondary care clinics, Australia	Telephone reminders
Rusius ¹⁵	RCT	Adult psychiatric clinic, UK	Postal reminders
Parrish et al ¹⁶	RCT	Paediatric psychology clinic, USA	Postal reminders
Swenson and Pekarik ¹⁷	RCT	Mental health clinic, USA	Postal reminders
Maclean et al ¹⁸	RCT	Mental health clinic, Canada	Postal reminders

RCT: Randomised controlled trial *CT: Controlled trial*