

Missed appointments have been a concern for medical practices for decades and practices have also been sending patient appointment reminders for decades. It seems obvious that reminding patients will be effective in reducing no show rates, but what does research show? In this white paper, we summarize research on the effect of reminders on no show rates published in peer-reviewed academic journals. We find convincing evidence for the effectiveness of reminders.

A historical review of research on appointment reminders

Back in the 1970s and 1980s, numerous articles demonstrated that mailed and telephone reminders reduced no show rates in a hospital outpatient department (Shonick & Klein, *Medical Care*, March 1976, Vol. XIV, No. 3, pp. 286-289), adult primary care internal medicine center (Bigby et al. *JAMA* 1983;250:1742-1745), and community mental health center (Swenson & Pekarik, *Community Mental Health Journal*, September 1988, Vol. 24, No. 3, pp. 205-218). Macharia et. al (*JAMA* 1992 Apr 1;267(13):1813-7) conducted a quantitative meta-analysis of randomized trials and found that mailed reminders and phone reminders were both effective at reducing broken appointments.

The present state of research on appointment reminders

No shows remain an important issue for medical practices and thus, research on the effects of reminders on no show rates continues. Research continues to look at traditional reminders such as letters, postcards and non-automated phone calls. Since technology allows practices to send new types of reminders with ease, researchers have answered the call by examining the effectiveness of automated reminders as well as new reminder types (e.g., e-mail, SMS).

More recent research has demonstrated that leaving a reminder message on an answering machine is as effective as reaching a live person (Haynes & Sweeney, 2006), having a physician make the reminder call does not reduce no show rates compared to having a staff member make the call (Reti, 2003), sending multiple reminders is more effective than sending one reminder (Irigoyen et al. 2000), and new methods are effective (Downer et al. 2005; Koshy et al. 2008; Lim & Varkey, 2005).

It is impressive that reminders have been effective at reducing no show rates across a variety of clinical settings, including outside the U.S. Since all types of reminders have been shown to be effective, practices should look for a cost-effective, efficient means of sending appointment reminders.

A summary of research on the effectiveness of appointment reminders follows.

Since all types of reminders have been shown to be effective, practices should look for a cost-effective, efficient means of sending appointment reminders.

Article	Study characteristics	Key findings
<p>Hashim, Franks & Fiscella, Effectiveness of Telephone Reminders in Improving Rate of Appointments Kept at an Outpatient Clinic: A Randomized Controlled Trial. <i>J Am Board Fam Pract</i> May–June 2001 Vol. 14 No. 3, pp. 193 – 196.</p>	<p>Patients with appointments randomized to receive reminder 1 day before scheduled appointment or not (control). Phone reminder calls were made by medical assistants.</p>	<p>19% no show rate for those who received reminders, 26% for the no-reminder group (P = .0065)</p>
<p>Lim & Varkey, E-mail Reminders: A Novel Method to Reduce Outpatient Clinic Nonattendance. <i>The Internet Journal of Healthcare Administration</i>, 2005, Vol. 3, No. 1.</p>	<p>Looked at monthly nonattendance rate at an employee health outpatient clinic in an academic medical center 3 months before and after implementing an e-mail reminder system.</p>	<p>The nonattendance rate for patients who received e-mail reminders decreased by 35% (from 9.7% pre-intervention to 6.3% post-intervention, p = .002) while there was no change in non-attendance rate for those who did not receive reminders.</p>
<p>Irigoyen, Findley, Earle, Stambaugh & Vaughan, Impact of Appointment Reminders on Vaccination Coverage at an Urban Clinic. <i>Pediatrics</i>, October 2000, Vol. 106, No. 4, pp. 919-923.</p>	<p>Used a controlled trial with children assigned to one of four groups: control, telephone reminder, postcard or telephone reminder and postcard.</p>	<p>Those who received phone and postcard reminders were 1.75 times more likely to keep their appointments than the control. Using both postcard and telephone reminders was more effective than using either alone.</p>
<p>Lee & McCormick, Telephone reminders to reduce non-attendance rate for endoscopy. <i>J R Soc Med</i> 2003;96(11):547–548.</p>	<p>If patient wasn't reached, up to 3 calls were made; 83% of patients were reached.</p>	<p>Telephone reminders reduced nonattendance rate from 23.3% to 5.7%.</p>
<p>Haynes & Sweeney, The Effect of Telephone Appointment Reminder Calls on Outpatient Absenteeism in a Pulmonary Function Lab. <i>Respir Care</i> 2006;51(1):36–39.</p>	<p>Examined outpatient appointment records from April to November 2004. The data included whether the reminder call was successfully made and whether the appointment was kept.</p>	<p>Leaving the reminder on the answering machine proved as effective as having a direct conversation with the patient. The absentee rate of those who could not be reached was significantly higher than those who could be reached (11.7% vs. 4%).</p>
<p>Downer, Meara & Da Costa, Use of SMS text messaging to improve outpatient attendance, <i>Med J Aust</i>, October 2005, 3:183(7): 366-368.</p>	<p>Cohort study with historical control, sent SMS text reminders to patients at five outpatient clinics who provided mobile telephone contact number.</p>	<p>Failure to attend rate was significantly lower for SMS reminder group (12 – 16% for individual clinics) compare to control group 19 – 39%).</p>

Article

Study characteristics

Key findings

<p>Koshy, Car & Majeed, Effectiveness of mobile phone short message service (SMS) reminders for ophthalmology outpatient appointments: A observational study. BMC Ophthalmology 2008, 8:9</p>	<p>In the intervention group, SMS reminders were sent to patients with appointments in a hospital ophthalmology department in London. Patients in the control group did not receive any type of reminder.</p>	<p>Receiving an SMS appointment reminder reduced likelihood of appointment non-attendance by 38% compared to the control group. Non-attendance rates were 11.2% for the intervention group and 18.1% for the control group.</p>
<p>Reti, Improving outpatient department efficiency: a randomized controlled trial comparing hospital and general practice telephone reminders. N Z Med J. 2003 June 6;116(1175):U458</p>	<p>Explored whether appointment reminder calls from a general practitioner (physician) were more effective than calls from a hospital clerk in a hospital outpatient setting.</p>	<p>Both the hospital and GP group had significantly lower (8%, 3% respectively) no show rates than the control group (27%), but there was no statistically significant difference between the hospital and GP groups.</p>