Methods to reduce outpatient non-attendance

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CRD summary
This review concluded that interventions to remind patients to attend their out-patient appointments modestly improved attendance. Telephone reminders were most effective, then text and postal reminders, and text messages were most cost-effective. Since the review did not truly compare the relative effects of each method, nor evaluate cost-effectiveness, these conclusions may not be reliable.

Authors' objectives
To compare the efficacy of various interventions to remind patients to attend their out-patient appointments, to reduce non-attendance.

Searching
PubMed was searched for English-language publications, from November 1999 to November 2009. Search terms were reported. Further studies were identified by examining the bibliographies of retrieved articles.

Study selection
It appears that controlled studies of interventions by telephone, mail, text or short message service (SMS), email, or open or advanced access, to reduce out-patient non-attendance, were eligible for inclusion. Inclusion was restricted to studies performed in industrialised countries. Studies of reminders to make screening appointments, without evaluation or management by a health care provider, were excluded.

Studies selected for the review were based in hospital and community clinics, covering a range of specialties (primary care; orthodontics; geriatric care; mental health; diabetes; alcohol treatment; pediatrics; health promotion; urology; ophthalmology; ear, nose and throat; colposcopy; and others) across Europe, North America, Asia, Australia and New Zealand. Observational studies and randomised controlled trials were identified.

Two authors selected studies, based on their titles and abstracts; it was unclear whether these decisions were agreed between the authors or made independently.

Assessment of study quality
The authors did not state that they assessed study quality.

Data extraction
Basic study characteristics were extracted, alongside the percentage reduction in non-attendance, for each intervention, and the number of participants or appointments. The authors did not state how many reviewers extracted these data.

Methods of synthesis
A weighted average effect was calculated by multiplying the difference in non-attendance, between intervention and control groups, for each study, by its sample size, and then dividing the sum of these values, across studies, by the total number of participants or appointments.

Results of the review
A total of 42 studies, reporting 49 data sets, were included in the calculations of weighted average effects.

Telephone reminders: There were 25 studies, with 40,164 patient appointments; in 23 studies, there was a decrease in non-attendance with telephone reminders; and 15 of these were statistically significant. The weighted average reduction in non-attendance was 9.4%.

Text or SMS: All 12 studies, with 88,547 patient appointments, demonstrated a decrease in non-attendance with text reminders, and nine were statistically significant. The weighted average reduction in non-attendance was 8.6%.
**Letters or postcards**: All seven studies, with 6,621 patient appointments, demonstrated a decrease in non-attendance with postal reminders, and four of them were statistically significant. The weighted average reduction in non-attendance was 7.6%.

**Open access**: In five studies, with 17,334 patient appointments, the weighted average reduction in non-attendance was 16.1%. Excluding two studies, which used same day or immediate access, reduced this to 6.1%, for three studies, with 8,560 appointments.

**Cost information**
Two studies reported that the cost of telephone reminders was offset by the net revenue generated by the extra patients seen. One study reported that postcard reminders yielded a better return on investment than telephone reminders, and another noted potentially significant cost savings with reminder letters. Six studies assessed SMS reminders to be cost-effective, and two studies reported SMS reminders to be less expensive than telephone reminders, with no significant difference in efficacy. Findings from studies of open-access scheduling were inconsistent.

**Authors’ conclusions**
All interventions improved attendance modestly at varying cost. The greatest improvement was with telephone reminders, followed by text or SMS and postal reminders. Text messaging was the most cost-effective of the three, but its applicability may be limited. Open access was beneficial, particularly same-day or immediate access.

**CRD commentary**
This review addressed a broad research question to evaluate the impact of all methods for reducing out-patient non-attendance. The methods used to identify and select studies for inclusion were generally clear, but publication bias cannot be ruled out. No attempts to assess study quality or minimise errors and bias in the review process were mentioned.

The included studies were extremely diverse in their populations, settings, and research methods, but the analysis was based on a simple weighted average for each approach (telephone, text, post, or open access). The influence of other relevant factors on non-attendance was not explored. The authors acknowledged that only the more recent studies, of electronic rather than paper reminders, were likely to be relevant now.

Potential publication bias notwithstanding, the authors’ conclusion that most of the included interventions modestly improved attendance appears to be reliable, but they did not investigate the factors that might influence the effectiveness of these interventions in different populations and settings. The different reminders were not compared with each other, so their conclusion that telephone reminders were better than text and post reminders may not be reliable. There was no formal evaluation of cost-effectiveness, so their conclusion about the relative cost-effectiveness of these interventions also may not be reliable.

**Implications of the review for practice and research**

**Practice**: The authors did not state any implications for practice.

**Research**: The authors stated that further studies were needed to determine the settings in which open-access scheduling might be most effective and cost-effective.

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