Preventing failed appointments in general dental practice: a comparison of reminder methods

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Four systems for reminding patients about their appointments in order to reduce the rate of failed attendance in a dental practice were assessed: postal reminders sent on printed postcards by second class post three days in advance; manual telephone reminders given during working hours the day before the visit (a simple message about the time and day of the appointment with no mention of a charge for missing the appointment); automated telephone reminders using a personal computer to send out pre-recorded message to each patient on a prepared list (personalised messages sent between 6 and 8 pm, with redial until there was an answer or until the end time reached); automated telephone plus postal reminders for patients not on the telephone and manual telephone reminders for patients not contacted by the automated reminder system.

Type of intervention
Health care organisational issues.

Economic study type
Cost-effectiveness analysis.

Study population
Patients on the surgery day list of one dentist.

Setting
Dental practice. The economic analysis was carried out in Manchester, UK.

Dates to which data relate
Dates were not given.

Source of effectiveness data
The evidence for the final outcomes was based on a single study.

Link between effectiveness and cost data
Costing appears to have been prospectively performed on the same patient sample as that used in the effectiveness analysis.

Study sample
Power calculations were used to determine the sample size: with an assumed 10% response rate for the control group, 5% anticipated benefit, alpha of 5% and beta of 20%, 500 patients per treatment group were required. The study
sample consisted of 2,500 patients with 500 appointments in each study group: group 1 (no reminders), group 2 (postal),
group 3 (manual telephone), group 4 (automated telephone), and group 5 (automated telephone plus postal reminders
plus manual telephone).

**Study design**
This was a prospective cohort study, carried out in a single-handed dental practice. The duration of the follow-up was
not stated. Loss to follow-up appears not to have been relevant in the context in question.

**Analysis of effectiveness**
The principle used in the analysis of effectiveness was not explicitly reported. The effectiveness outcomes were the
number and percentage of failed appointments, the percentage of cancellations, and the percentage of individuals
exempt from National Health Service (NHS) charges. A logistic regression was performed to adjust for the effects of
the status of being exempt from NHS charges.

**Effectiveness results**
The number of failed appointments were as follows: no reminder, 47; postcard, 18; manual telephone, 23, automatic
telephone, 27; and combined group, 15.

The numbers of cancellations were: no reminder, 31; postcard, 53; manual telephone, 36; automatic telephone, 51; and
combined group, 48.

The percentages of exempt individuals were: no reminder, 43%; postcard, 51%; manual telephone, 29%; automatic
telephone, 52%; and combined group, 43% (p<0.001, for the difference between manual telephone group and other
groups).

Patients who received no appointment reminders were significantly more likely to fail to attend for their appointments,
controlling for whether they were exempt from charges or not, (p<0.0001). The odds of failure to attend were 3.41
times greater in those receiving no reminder (95% CI: 1.87 - 6.2). There was a significant reduction in the failed
attendance rate from 9.4% (with no reminder) to a minimum of 3% when reminders were provided. However, the form
of reminder made little difference to the failure rate. A significant difference was found in the failure rate between the
reminder and no-reminder groups, (p<0.001). There was no significant difference across the four groups who received
some form of reminder. A significant difference in failure rate was found by combining the four test groups and
comparing this with the control group, (p<0.001). Of the patients reminded, 9.4% cancelled their appointments,
whereas 6.2% of those not receiving reminders cancelled their appointments, (p>0.05). All of the reminder methods
were effective at improving attendance. However, there was no significant difference across the four reminder test
groups, indicating that the form of the reminder made no difference to the failure rate.

**Measure of benefits used in the economic analysis**
No summary benefit measure was identified in the economic analysis, and only separate clinical outcomes were
reported.

**Direct costs**
Costs were not discounted due to the short time frame of the cost analysis. Some quantities were reported separately
from the costs and cost items were reported separately. Cost analysis covered the costs of the surgery time wasted by
failed appointments, postage, reminder card, telephone call, and automated telephone (the expense of leasing the system
equipment for the duration of the study). The perspective adopted appears to have been that of the dental practice. The
price year was not explicitly reported. The cost analysis did not cover the cost of staff time in providing the reminders.

**Indirect Costs**
Indirect costs were not considered.

Currency
UK pounds sterling (€).

Sensitivity analysis
Sensitivity analysis was not conducted.

Estimated benefits used in the economic analysis
Estimated benefits were not applicable.

Cost results
All reminder methods provided a net cost saving to the practice during the operation of the study (4 - 5 weeks). The savings were: postal, 201; manual telephone, 280; automated telephone, 198; and automated telephone plus postal reminders plus manual telephone, 296.

Synthesis of costs and benefits
Costs and benefits were not combined since the appointment reminder systems were dominant strategies.

Authors' conclusions
Reminding patients using postal or manual telephone techniques is effective in improving attendance. All of the reminder methods, telephone and postal, provided net cost savings rather than additional costs.

CRD COMMENTARY - Selection of comparators
The choice of the "no reminder" as the comparator allowed the active value of the reminder strategies to be assessed.

Validity of estimate of measure of effectiveness
The effectiveness results are likely to be internally valid given the prospective nature of the study design and the power calculations performed. The issue of comparability of patients was not investigated. The methods used to allocate patients to the study groups were not reported in detail. The representativeness of the study sample to the study population can not be objectively assessed due to the lack of adequate information regarding the inclusion and exclusion criteria adopted.

Validity of estimate of measure of benefit
The authors did not derive a measure of health benefit. The study may therefore be regarded as a cost-consequences analysis.

Validity of estimate of costs
Some quantities were reported separately from costs. Adequate details of the methods of cost estimation were given. It appears that all relevant direct cost categories may not have been included in the cost analysis (the cost associated with staff time). The effects of different procedures on indirect costs were not evaluated. Statistical analyses were not performed on resource use or cost data. The price year was not specified. Cost results may not be generalisable to other settings due to lack of sensitivity analysis.
Other issues
The authors’ conclusion appears to be justified given uncertainties in the data. The issue of generalisability to other settings was not addressed, although some comparisons were made with other studies. The representativeness of the study sample to the study population was not addressed.

Implications of the study
Simple forgetfulness may have been one of the reasons for failure to attend for appointments. Other studies have arrived at similar conclusions. However, in this study there remained some patients who were unable to attend because of other factors, perhaps due to transportation problems or illness, and the authors were unable to reduce the failed attendance rate below 3%. Other possible approaches to prevention may be more effective at improving the attendance of this residual group of patients.

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