Mail and phone interventions for weight loss in a managed-care setting: weigh-to-be 2-year outcomes


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
The study examined mail- and phone-based weight-loss interventions for 18- and 24-month periods. Both interventions proceeded in parallel formats and comprised 10 interactive lessons, with all the lesson and homework materials mailed to the participants. The participants in the phone arm received the guideline and feedback through phone calls, whilst communication between participants in the mail arm and the counselling staff was by mail. The comparator was the usual care intervention. Usual care consisted of the members being given a list of weight-loss services such as phone counselling and a phone course.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised the members of a managed care organisation (MCO) in the Minneapolis/St Paul, Minnesota metropolitan area. The inclusion criteria were age 18 years or older and a body mass index (BMI) greater than 27.0.

Setting
The setting was managed care. The economic study was carried out in the USA.

Dates to which data relate
The effectiveness and economic data were gathered from August 1999 to October 2002. The price year was not reported.

Link between effectiveness and cost data
The cost data appear to have been collected prospectively alongside the clinical trial.

Study sample
Power calculations with 90% power (alpha 0.05, two-tailed) to detect a small effect size were performed. These suggested that a sample of at least 500 individuals per arm was required. Of the 3,294 individuals initially requesting information, 1,493 were excluded because they failed to meet the inclusion criteria, 60 refused to participate, and 342 were excluded for other reasons. Thus, 1,801 completed the baseline consent process. Of the 1,801 individuals enrolled in the study, 600 were assigned to the mail arm, 601 to the phone arm, and 600 to the usual care arm.
Study design
This was a multi-centre, randomised, controlled clinical trial that was carried out in the Minneapolis/St Paul, Minnesota metropolitan area, USA. Randomisation was conducted using a computer procedure that consisted of 15 blocks with the numbers 1, 2 and 3 indicating the three study arms. Randomisation was concealed until the interventions were assigned. The length of follow-up was 24 months. In the mail, phone and usual care arms, 85, 68 and 84 individuals, respectively, quit the study prior to 24 months, and 134, 128 and 106 were lost to follow-up.

Analysis of effectiveness
The analysis of the clinical study was conducted on an intention to treat basis. The health outcomes used in the analysis were the changes in weight from baseline to 18 and 24 months. The groups were comparable at baseline in terms of their demographic characteristics.

Effectiveness results
The mean weight losses were:

- in the mail arm of the study, 2.27 (standard error, SE=0.24) kg at 18 months and 0.73 (SE=0.22) kg at 24 months;
- in the phone arm, 2.35 (SE=0.24) kg at 18 months and 0.93 (SE=0.22) kg at 24 months; and
- in the usual care arm, 1.91 (SE=0.24) at 18 months and 0.59 (SE=0.22) at 24 months.

Clinical conclusions
The authors concluded that weight losses for the phone- and mail-based approaches were not significant.

Measure of benefits used in the economic analysis
The summary benefit measure used was the mean change in body weight. This was obtained directly from the effectiveness analysis.

Direct costs
Health service costs were included in the analysis. These included the costs of counselling, programme development, materials or supplies, and overheads. The unit costs were not provided separately from the quantities of resources used. Resource use was based on actual data derived from the sample of participants considered in the clinical study. The times spent in counselling and intervention development were recorded to estimate the relevant costs. The source of the unit cost data was not given. Discounting was not carried out and the price year was not reported.

Statistical analysis of costs
The costs were treated deterministically.

Indirect Costs
Productivity costs were not considered.

Currency
US dollars ($).

Sensitivity analysis
Uncertainty was not examined.
**Estimated benefits used in the economic analysis**
See the 'Effectiveness Results' section for the mean change in body weight.

**Cost results**
The cost per participant was $50.45 in the mail arm, $127.39 in the phone arm, and $42.18 in the usual care arm.

**Synthesis of costs and benefits**
Average cost-effectiveness ratios were calculated to combine the costs and benefits of the interventions under evaluation.

The cost per kg lost was $72.08 in the mail arm, $132.70 in the phone arm, and $71.50 in the usual care arm.

**Authors' conclusions**
The mail- and phone-based weight-loss interventions led to a greater reduction in weight than usual care. However, the phone-based programme appears to have been the least cost-effective, whilst the mail-based programme achieved similar cost-effectiveness to usual care.

**CRD COMMENTARY - Selection of comparators**
The selection of the comparator (i.e. usual care) was appropriate as it represented a typical strategy for weight management. There may well be other strategies for weight management. You should decide whether this is a valid comparator in your own setting.

**Validity of estimate of measure of effectiveness**
The effectiveness evidence was based on a randomised trial, which was appropriate for the study question. Details of the trial were well reported and the trial appears to have been well conducted, which suggests that the internal validity should be good. It was not clear whether any blinding was possible given the nature of the study. Power calculations were conducted to justify the sample size.

**Validity of estimate of measure of benefit**
The summary benefit measure was an intermediate, clinical outcome rather than a specific health benefit. However, it is a reasonable proxy for the expected health benefits. The measure used makes it difficult to perform comparisons with the benefits of other health care interventions.

**Validity of estimate of costs**
The perspective adopted in the economic study was that of the health care system. As such, only the direct intervention costs were included in the analysis. Resource consumption was estimated from the sample of patients included in the effectiveness analysis, thus it reflected actual treatment patterns. Much of the data on the quantities of resources used and the unit costs were not reported, which may limit the possibility of replicating the cost analysis in other settings. The cost estimates were specific to the study setting, thus caution will be required when extrapolating the cost results to other contexts. The price year was not reported, which will make reflation exercises in other time periods difficult. Discounting was not carried out when it might have been appropriate.

**Other issues**
The authors did not make explicit comparisons of their findings with those from other studies. The external validity of the analysis is likely to be low, as the issue of the generalisability of the study results to other settings was not addressed and no sensitivity analyses were conducted. The authors calculated average cost-effectiveness ratios when incremental
cost-effectiveness ratios would have been the appropriate measure. The authors did not discuss the limitations of their study.

**Implications of the study**
The authors noted that additional behavioural messages and strengthened engagement strategies are needed to increase the short- and long-term efficacy of mail- and phone-based weight-management interventions.

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None stated.

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**Other publications of related interest**
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**Indexing Status**
Subject indexing assigned by NLM

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