Cost-effectiveness of smoking cessation modalities: comparing apples with oranges?

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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
Two smoking cessation modalities: a self-help manual versus a group treatment (following the guidelines of the self-help manual) for cigarette smokers.

Type of intervention
Secondary prevention.

Economic study type
Cost-effectiveness analysis.

Study population
The study included cigarette smokers aged between 25 and 65 years.

Setting
Community. The study was carried out in Den Bosch, The Netherlands.

Dates to which data relate
Effectiveness and resource use data related to 1990. Similarly, 1990 prices were used.

Source of effectiveness data
Effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was undertaken on the same patient sample as that used for the effectiveness analysis and was, in part, performed retrospectively.

Study sample
The sample included the first 84 applicants requesting a self-help manual on the ‘quit line’ and the first 83 joining the group programme. The sample size was not determined by power calculations. The dropouts were considered smokers in the follow-up assessment.

Study design
This was a prospective cohort study conducted in one city. The duration of follow-up was 6 months.
Analysis of effectiveness
The analysis of the clinical study was based on intention to treat. The primary health outcome used in the analysis was quitting attempts and abstinence at the 6-month follow-up. A telephone interview was used to evaluate outcomes. At baseline, the groups were shown to be different in terms of previous quitting attempts and proportion of addicted smokers (worse prognosis in the group participants) and perception of self-esteem (higher for the self-help manual requesters).

Effectiveness results
The percentages of quit attempts undertaken were: for the self-help modality 33% and for the group programme, 77% (odds ratio (OR): 0.15, 95% CI: 0.07-0.31).

After the 6-month follow-up, 13% of self-help and 22% of group participants were abstinent, an outcome difference that was not ‘significant’ (OR not reported).

Clinical conclusions
The sustained abstinence from cigarettes may result in several years saved per individual.

Measure of benefits used in the economic analysis
The benefit measure was smoking quitters at six months after beginning participation in smoking cessation modalities. The odds ratios were adjusted to take account of differences between the characteristics of both participating groups in the clinical study.

Direct costs
Since the study window covered a period shorter than 1 year, cost discounting was unnecessary and was not applied to the cost estimates. Quantities and unit costs were reported separately from the total costs. The costs included costs to the provider and consumer made for developing, implementing and attending the programme. Start up (developing and preparation) costs were included or excluded as appropriate with the intention to reflect social implementation costs. Costs associated with recruitment of participants were considered common to both modalities and thus were excluded from the analysis. The same was also true for organisational costs and the costs of the evaluation study. Income resulting from charges to group participants was taken into account at the moment of analysing the distribution of costs among stakeholders. Out of pocket costs were also included. Cost data were based on the financial records of either the research project or the Municipal Health Service (MHS), data from the literature, and the authors’ judgement. The price data refer to 1990.

Currency
US dollars ($). The costs were computed in 1990 US dollars (exchange rate $1=1.82 Dutch guilders).

Sensitivity analysis
A sensitivity analysis was not carried out.

Estimated benefits used in the economic analysis
Out of 294 participants, the self help manual was estimated to yield 28-50 (from 95% CI) quitters, whilst the group programme for 118 would have a corresponding figure between 17-35 (95% CI). Therefore the combined-programme intervention would result in 45-90 quitters from the total of 412 participants.

Cost results
From a social perspective the total cost of the smoking cessation project was $58,351.
The costs for the self-help manual were $1,861.02 and for the group programme, $6,983.60. The analysis covered a period of 6 months.

Synthesis of costs and benefits
The estimated benefits and costs were combined into a cost per quitter measure for each modality in accordance with the authors’ cost definitions (perspectives).

From the perspective of the programme provider, the cost per quitter was $37.22-66.47 for the self-help manual versus $199.53-410.80 for the group programme.

From the programme consumer standpoint, the self-help manual cost $89.38-159.60, whilst the group programme cost $85.75-1411.84.

From a societal perspective (both modalities combined) the figures, depending on the definition of cost used, were $582.07-1,164.14 and $648.35-1,296.71.

Incremental analysis was not performed (average cost-effectiveness ratios were compared between groups).

Authors’ conclusions
From a social perspective, the smoking cessation project was more cost-effective than medical interventions. From the perspective of both the programme provider and the programme consumer, the self-help modality was more cost-effective (cost per quitter) than the group programme.

CRD COMMENTARY - Selection of comparators
The comparator used was that of 'no intervention', although no explicit justification was provided for its choice. The reference group was derived from the general population to determine the characteristics of the "average" smoker.

Validity of estimate of measure of benefit
The power of the study was limited by the small sample size. The main weakness of the clinical/effectiveness analysis, as the authors themselves acknowledge, lies in the lack of comparability between groups, which may simply reflect the self-selection of patients into the different modalities, thus leading to bias when results are compared with those for the different modalities without further adjustment.

Validity of estimate of costs
The cost-effectiveness comparison was based on average, rather than incremental, cost-effectiveness ratios.

Other issues
Sensitivity analyses were not conducted to address the issue of the uncertainty in the economic data and the issue of generalisability to other settings or countries was not addressed.

Implications of the study
Further studies are needed before any clear, valid statement about the cost-effectiveness of smoking cessation modalities can be confidently made.

Source of funding
None stated.
Bibliographic details

PubMedID
8936573

DOI
10.1006/pmed.1996.0110

Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Aged; Confidence Intervals; Cost-Benefit Analysis; Female; Follow-Up Studies; Humans; Logistic Models; Male; Manuals as Topic /standards; Middle Aged; Netherlands; Odds Ratio; Patient Participation; Patient Selection; Program Evaluation; Prospective Studies; Sampling Studies; Self Care /economics /standards; Self-Help Groups /economics /standards; Smoking Cessation /economics /methods; Treatment Outcome

AccessionNumber
21997008002

Date bibliographic record published
30/11/2000

Date abstract record published
30/11/2000