Cost-effective primary care-based strategies to improve smoking cessation: more value for money
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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.

CRD summary
The objective was to assess the cost-effectiveness of three smoking cessation strategies that combined training for general practitioners (GPs) with financial incentives, medication for patients, or both. The authors concluded that GP training and full patient reimbursement for nicotine replacement therapy, with or without financial incentives for GPs, were cost-effective smoking cessation interventions. The methods were valid and the main limitations were highlighted and discussed. The conclusions reached by the authors reflected the scope of their analysis.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The aim was to compare the cost-effectiveness of three smoking cessation strategies that were provided by general practitioners (GPs) to patients who were aged between 36 and 75 years, were smoking at least 10 cigarettes per day, and were visiting their GPs for a general check-up.

Interventions
The three strategies were training with incentives, training with medication, and training with incentives and medication. The training was provided by the GP and was on smoking cessation methods. The incentives were remuneration for the GP for each abstinent patient. The medication was nicotine replacement therapy, bupropion hydrochloride, or both and it was free to the patients (up to a maximum of 130 Euros). These strategies were compared with the usual care.

Location/setting
Germany/primary care.

Methods
Analytical approach:
The analysis was based on a multi-centre trial, with a one-year time horizon. The authors reported that a third-party payer (health insurance) perspective was adopted in the economic analysis.

Effectiveness data:
The effectiveness data were based on a multi-centre cluster-randomised trial, with 82 practices randomised to the four groups. There were 20 practices for usual care, 21 for training with incentives, 21 for training with medication, and 20 for training with incentives and medication. These included 94 GPs and 577 patients. Further details of randomisation and the results were published elsewhere (Twardella, et al. 2007, see ‘Other Publications of Related Interest’ below for bibliographic details). The data were analysed on an intention-to-treat basis. The primary clinical outcome was the prevalence of abstinence after one year and abstinence was defined as having a serum cotinine level below 15ng per mL.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The point prevalence of abstinence was the measure of benefit.

Cost data:
The economic analysis included the cost of counselling for patients, tutorial sessions for GPs (including expenditure and fees for the tutor), nicotine replacement therapy and bupropion hydrochloride, and remuneration for GPs. The mean cost per treated patient was reported for each category. All costs were reported in Euros (EUR) for the price year 2003.

Analysis of uncertainty:
To account for the non-normal distribution of the incremental cost-effectiveness ratios (ICER), non-parametric bootstrap techniques were used. The parameter uncertainty was investigated using multi-way sensitivity analysis, by varying either the measure of benefit or the cost parameters (cost-free advice by GPs and decreased tutor costs). The results were presented as cost-effectiveness acceptability curves, for various willingness-to-pay thresholds.

Results
The expected prevalence of abstinence at one year was two patients (2.7%) for usual care, five patients (3.5%) for training with incentives, 17 patients (12.1%) for training with medication, and 32 patients (14.6%) for training with both incentives and medication. There was a statistically significant difference between medication and usual care (p=0.05) and both and usual care (p=0.02), but not between incentives and usual care (p=0.75), nor between medication and both. The total intervention cost per patient treated was zero for usual care, EUR 14.16 with incentives, EUR 39.10 with medication, and EUR 50.04 with both.

When medication was compared against usual care, the incremental cost per 1% increase in abstinent patients was EUR 4.14. When both was compared against usual care the ICER was EUR 4.21 per 1% increase in abstinent patients. When medication was compared with both the ICER was EUR 4.37 per 1% increase in abstinent patients.

These results were relatively robust to the variations tested in the sensitivity analyses.

Authors' conclusions
The authors concluded that training GPs on smoking cessation and full patient reimbursement for nicotine replacement therapy with or without further financial incentives for GPs, were cost-effective smoking cessation interventions, compared with the usual care in the authors' setting.

CRD commentary
Interventions:
The interventions were described and were chosen to reflect the options available in the authors' setting. Usual care was used as a comparator, but it was not described.

Effectiveness/benefits:
The RCT used to derive the clinical data was an appropriate source, given the strengths of its design. The randomisation procedures, power calculations, and comparability of groups at baseline were not reported and this makes it difficult to objectively assess the validity of this data. The measure of benefit was derived directly from the clinical data. This benefit measure was intervention and disease specific and did not take into account the impact of the interventions on a patient's quality of life. It also does not allow cross-disease comparisons.

Costs:
The costs reflected the perspective stated, but the costs and quantities of resources were not reported separately, which may limit both the transparency and the reproducibility of the analysis. The sources of costs, the price year, and the use of statistical tests were reported.

Analysis and results:
The incremental synthesis of the costs and benefits was appropriately performed. The issue of uncertainty and the skew in the data were comprehensively addressed and the results were well reported. The authors discussed some of the limitations to their study and these mainly related to the effectiveness data. They compared their findings with those of previous studies and briefly discussed the differences. The study was generally well reported, except for the synthesis.
methods, which could have been clearer.

**Concluding remarks:**
The methods were valid and the main limitations were highlighted and discussed. The conclusions reached by the authors reflected the scope of their analysis.

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**Other publications of related interest**

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