Coste-efectividad del consejo sanitario antitabaco en atencion primaria de salud [Cost-effectiveness of simple anti-smoking health advice in primary health care]

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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
The intervention in the study was anti-smoking advice given by physicians or nurses in primary care. The advice was simple, individualised, verbal, and of 3 to 5 minutes' duration. It illustrated the advantages of being a non-smoker, and pressed to fix a possible date to stop smoking. An illustrative booklet to be read at home was also used to support the verbal advice. The advice was also followed by contact by mail or telephone.

Type of intervention
Primary prevention (anti-smoking advice).

Economic study type
Cost-effectiveness analysis.

Study population
The study population included patients presenting at primary care facilities for any reason, who had smoked at least 10 cigarettes per day in the last year and who were aged between 15 and 65 years. Patients were excluded when in a terminal state, with mental deficiency or severe psychological pathology, or when addicted to other drugs. Patients married to a patient already included in the study were also excluded.

Setting
The setting was primary care. The study was carried out at the Centro de Salud Otero in Oviedo, Spain.

Dates to which data relate
The effectiveness evidence and data on the resources used were gathered from June 1991 to May 1995. The price year was 1995.

Source of effectiveness data
The effectiveness evidence was derived from a single study and from authors' assumptions based on unpublished data.

Link between effectiveness and cost data
The costing was undertaken prospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
Power calculations were used to determine the sample size. In order to detect a 5% difference between the groups with a confidence (1-alpha) of 95% and a power (1-beta) of 90%, the required number of patients was 223 in each group. Assuming a 10% maximum loss, the optimal sample size was 496 patients. Patients presenting at the authors’
institution in the study period were enrolled in the study. Overall, 501 patients participated in the study. There were 242 in the intervention group (advice given) and 259 in the control group (no advice).

**Study design**
The study was an open, randomised controlled trial. The patients were assigned to one of the two study groups by a numeric randomisation process. The patients were followed for 3 years after enrolment in the study. They also underwent biochemical analyses to assess their abstinence from smoking. The loss to follow-up was 33 patients. Of these, 15 were in the intervention group and 18 were in the control group.

**Analysis of effectiveness**
The clinical study was analysed on an intention to treat basis. The primary health outcomes assessed in the study were the number of abstinent patients at 6 months, 1 year and 3 years, with and without biochemical analysis. The number of patients who received the advice from a physician or a nurse, and who were abstinent after 3 years, was also reported. It was not reported whether statistical analyses were conducted to show the comparability of the study groups.

**Effectiveness results**
The overall percentage of abstinent patients at 6 months was 6.59% (33 patients). There were 25 (10.33%) abstinent patients in the intervention group and 8 (3.09%) in the control group. The difference between the groups was 7.24% (95% confidence interval, CI: 3.6 - 10.9).

The percentage of abstinent patients at 1 year was 4.19% (21 patients). There were 16 (6.61%) abstinent patients in the intervention group and 5 (1.93%) in the control group. The difference between the groups was 4.68% (95% CI: 1.1 - 8.2).

The percentage of abstinent patients at 3 years without biochemical control was 3.39% (17 patients). There were 13 (5.37%) abstinent patients in the intervention group and 4 (1.54%) in the control group. The difference between the groups was 3.83% (95% CI: 0.69 - 6.96).

The percentage of abstinent patients at 3 years after biochemical control was 2.79% (14 patients). There were 11 (4.55%) abstinent patients in the intervention group and 3 (1.16%) in the control group. The difference between the groups was 3.39% (95% CI: 0.45 - 6.33).

The results were also considered in relation to the professionals who gave the advice.

Physicians dealt with 304 patients (158 in the intervention group and 146 in the control group). The overall rate of patients abstinent after 3 year with biochemical control was 2.6% (8 patients). There were 7 (4.4%) abstinent patients in the intervention group and 1 (0.7%) in the control group.

Nurses dealt with 197 patients (84 in the intervention group and 113 in the control group). The overall rate of patients abstinent after 3 year with biochemical control was 3% (6 patients). There were 4 (4.8%) abstinent patients in the intervention group and 2 (1.8%) in the control group.

**Clinical conclusions**
The simple anti-smoking advice was effective in reducing the number of smokers in comparison with no advice, (p=0.043). Advice given by nurses was less effective than that given by physicians.

**Methods used to derive estimates of effectiveness**
The authors made conservative assumptions about the percentage of ex-smokers who, after 3 years, took up smoking again (relapse rate). Their assumptions were based on different studies. Due to the lack of specific Spanish estimates, the authors also assessed the life expectancy of male and female ex-smokers for different age classes. To do this, they
used unpublished data from the USA. The life expectancy was either discounted at 5% or not discounted.

**Estimates of effectiveness and key assumptions**
The percentage of ex-smokers who take up smoking again after 3 years, was 10%. Therefore, in 100 patients, the average number of patients who quit smoking was 3.05 (95% CI: 0.41 - 5.70).

The discounted and undiscounted life expectancies for men were:

- 0.99 and 5.08 years in the 35- to 39-year age group;
- 1.07 and 4.60 years in the 40- to 44-year age group;
- 1.10 and 4 years in the 45- to 49-year age group;
- 1.07 and 3.32 years in the 50- to 54-year age group;
- 0.97 and 2.60 years in the 55- to 59-year age group;
- 0.83 and 1.90 years in the 60- to 64-year age group; and
- 0.66 and 1.32 years in the 65- to 69-year age group.

The discounted and undiscounted life expectancies for women were:

- 0.54 and 3.18 years in the 35- to 39-year age group;
- 0.60 and 2.94 years in the 40- to 44-year age group;
- 0.64 and 2.64 years in the 45- to 49-year age group;
- 0.65 and 2.28 years in the 50- to 54-year age group;
- 0.63 and 1.85 years in the 55- to 59-year age group;
- 0.56 and 1.40 years in the 60- to 64-year age group; and
- 0.45 and 0.97 years in the 65- to 69-year age group.

**Measure of benefits used in the economic analysis**
The benefit measure used in the analysis was the life-years saved (LYS) with the anti-smoking advice.

**Direct costs**
No discount rate was used because the costs were already inflated. The unit costs were reported. The cost/quantity boundary was unclear. The health services included were the time spent for the advice during the medical visit (by the physician or the nurse) and the cost of the supporting documentation. The quantities of resource use were estimated using data from the trial. The cost estimates were derived from tariffs used at the Centro de Atencion Primaria for uninsured patients. The data on the resource use were gathered from June 1991 to May 1995. The price year was 1995.

**Statistical analysis of costs**
No statistical analysis was reported.

**Indirect Costs**
The indirect costs were not included.

**Currency**
Spanish pesetas (Pta).

**Sensitivity analysis**
Sensitivity analyses were conducted to assess the uncertainty due to possible variability in the data. The factors varied were the effectiveness rate (varied according to the 95% CIs), the role played by physician or nurse advice on the effectiveness and costs, no discount rate for benefits, a 20% variation in the total cost, and the cost of the advice (66 or 50% of the visit). The type of analysis conducted was not reported.

**Estimated benefits used in the economic analysis**
The LYS were not reported, but were directly combined in the cost per life-year gained.

**Cost results**
The cost of 100 advice sessions was Pta 223,871.3 (60.7% given by physicians and 39.3% by nurses). The cost of 100 booklets was Pta 3,000. The total cost of anti-smoking advice over no advice was Pta 226,871.3.

**Synthesis of costs and benefits**
An average cost-effectiveness analysis was performed.

For men, the cost per LYS was:
- Pta 75,135.4 in the 35- to 39-year age group;
- Pta 69,517.8 in the 40- to 44-year age group;
- Pta 67,621.8 in the 45- to 49-year age group;
- Pta 69,517.8 in the 50- to 54-year age group;
- Pta 76,684.6 in the 55- to 59-year age group; and
- Pta 89,619.3 in the 60- to 64-year age group.

For women, the cost per LYS was:
- Pta 135,748.2 in the 35- to 39-year age group;
- Pta 123,973.4 in the 40- to 44-year age group;
- Pta 116,225.1 in the 45- to 49-year age group;
- Pta 114,437 in the 50- to 54-year age group;
- Pta 118,069.9 in the 55- to 59-year age group; and
- Pta 132,828.6 in the 60- to 64-year age group.

Varying the efficacy of anti-smoking advice from 0.41 to 5.70, the cost per LYS ranged from Pta 558,934 to Pta 40,204 for men. The corresponding range for women was Pta 1,024,712.3 to Pta 73,704.4.
When the advice was given by a physician, the cost per LYS was Pta 89,418.5 for men and Pta 163,933.9 for women. On the other hand, when the advice was given by a nurse, the cost per LYS was Pta 43,954.9 for men and Pta 80,584 for women, if the cost of the nurse was 38% that of the physician. If the cost of the nurse was 50% that of the physician, the cost per LYS was Pta 54,714.9 for men and Pta 100,310.6 for women. If the cost of the nurse was 75% that of the physician, the cost per LYS was Pta 81,523.4 for men and Pta 149,459.5 for women.

If the benefits were not discounted, the cost per LYS would have been Pta 14,642.5 for men and Pta 23,391.2 for women.

Varying the total cost of anti-smoking advice by plus or minus 20%, the cost per LYS ranged from Pta 89,963.8 to Pta 59,313.5 for men and from Pta 164,933.6 to Pta 108,741.4 for women.

Varying the cost of the advice as 66 or 50% of the cost of the visit, the cost per LYS ranged from Pta 50,421.4 to Pta 43,155.4 for men and from Pta 92,439.3 to Pta 79,118.8 for women.

**Authors' conclusions**

The cost-effectiveness of anti-smoking advice performed in primary care was quite favourable. In addition, it was comparable to other preventive interventions used in the health sector. Although advice given by nurses was slightly less effective than that given by physicians, its cost per life-year saved (LYS) was almost the same for both the professionals.

**CRD COMMENTARY - Selection of comparators**

The reason for the selection of no advice as the comparator was clear. The aim of the study was to assess the active value of the anti-smoking advice. Further, no advice represented the clinical practice in primary care at the authors' institution. You should consider whether anti-smoking programmes are currently used in your own setting.

**Validity of estimate of measure of effectiveness**

The estimate of effectiveness is likely to be of a high validity due to the randomisation process used and the large sample size. However, the demographic and medical data for the patients were not reported to show the comparability of the groups. Since the patients enrolled in the study were unselected, the study population could potentially be the general population in Spain. To ensure the detection of statistically significant differences in the effectiveness between the groups, power calculations were performed in the planning phase of the study. The estimates of the life expectancy were derived from the US setting and then applied to Spanish patients. The authors pointed out that this could have underestimated the true data. However, the US database was chosen due to the lack of Spanish data.

**Validity of estimate of measure of benefit**

The benefit measure was represented by life-years gained with the anti-smoking advice. It was obtained by aggregating several health outcomes assessed in the effectiveness analysis. The measure appears to have been appropriate because it allowed comparisons to be made with other interventions.

**Validity of estimate of costs**

The cost analysis included only the cost of visit time and the supporting booklet. The perspective of the study was unclear. Although the costs were treated in a deterministic way in the base-case, wide ranges of variations were used in the sensitivity analyses.

**Other issues**

The authors stated that an incremental analysis comparing the cost and effectiveness of the advice given by nurses or physicians was not performed, because this did not represent a true choice. The results of the analysis were compared with those from several other studies published in Spain and abroad. These comparisons were appropriate.
generalisability of the study was ensured, since sensitivity analyses were conducted on almost all of the data used in the analysis.

**Implications of the study**
The authors suggested that anti-smoking advice given by nurses should be routinely performed in the primary care setting. The intervention was more favourable for the patients in the 45- to 54-year age group.

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None stated.

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