Cost-effectiveness of the Australian National Tobacco Campaign

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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
This study examined the cost-effectiveness of the first phase of the Australian National Tobacco Campaign (NTC) in comparison with the pattern of care before the implementation of this programme. The authors concluded that the first phase of the NTC was unequivocally cost-effective as it was both cost-saving and effective. The study appears to have been based on valid methodology, but was characterised by limited reporting of the sources used. Nevertheless, the authors’ conclusions appear to be robust.

Type of economic evaluation
Cost-effectiveness analysis, cost-utility analysis

Study objective
The objective was to examine the cost-effectiveness of the first phase of the Australian National Tobacco Campaign (NTC) in comparison with the pattern of care before the implementation of the programme.

Interventions
The NTC was an intensive mass media anti-smoking campaign, the first phase of which ran from June to November 1997. It involved intensive new anti-smoking advertisements on television and a range of support services, especially quit lines for smokers who were attempting to quit. The comparator was the care delivered before the implementation of the intervention.

Location/setting
Australia/community.

Methods
Analytical approach:
The economic evaluation used a Markov model, namely the quit benefits model (QBM), which predicted the benefits of smoking cessation in quitters taking account of four main smoking-associated diseases. The time horizon of the model was a lifetime (up to the age of 85 years). The authors stated that the perspective of the health care system was adopted.

Effectiveness data:
The clinical data came from a selection of known, relevant sources, including published studies and the report of the programme implementation which gathered data by means of household telephone surveys. Around 2,000 Australians aged 18 and over were interviewed in May 1997 and around 4,200 were interviewed in November 1997. The bulk of the evidence came from Australian sources and was supplemented by data from international studies when required. The primary clinical outcome was the reduction in smoking prevalence due to the anti-smoking campaign.

Monetary benefit and utility valuations:
The utility estimates came from two published sources, which were a meta-regression of 20 studies and an international registry. No other details were given.

Measure of benefit:
The two summary benefit measures were life-years (LYs) and quality-adjusted life-years (QALYs). Both were calculated using the QBM and were discounted at an annual rate of 3%. The number of avoided cases of the four smoking-associated diseases, which were lung cancer (LC), acute myocardial infarction (AMI), stroke, and chronic obstructive pulmonary disease (COPD), were also reported.
Cost data:
The economic analysis considered two main categories of costs, which were the cost of the programme implementations, and the cost saved due to the reduced incidence of the four smoking-associated diseases. A breakdown of cost items was not provided. All the costs and quantities were based on Australian data, except for the cost of COPD which was derived from a Canadian study. All costs were in Australian dollars (AUD) and were discounted at an annual rate of 3%. The price year was 2001.

Analysis of uncertainty:
In a deterministic analysis, different time horizons were considered. In an alternative scenario, it was assumed that only half the reduction in smoking prevalence was due to the NTC. A first-order Monte Carlo simulation was used to generate confidence intervals around the mean outcomes of the model.

Results
For 190,000 quitters, the NTC reduced the four smoking-associated diseases (11,000 fewer cases of AMI, 10,000 of LC, 32,000 of COPD, and 2,500 of stroke) and gained 323,000 LYS and 407,000 QALYs. The cost-savings associated with the reduction in the four smoking-associated diseases amounted to AUD 740.57 million. Considering the programme costs, the net cost of the NTC led to a saving of AUD 730.5 million. Thus, the NTC was the dominant strategy over usual care because it was simultaneously less expensive and more effective.

The sensitivity analysis indicated that, by four years after the NTC implementation, the predicted health care cost savings exceeded the AUD 10.1 million cost of the programme. The study findings remained unchanged when the programme efficacy was halved.

Authors' conclusions
The authors concluded that the first phase of the NTC was unequivocally cost-effective since it was both cost-saving and effective.

CRD commentary
Interventions:
The selection of the comparators was appropriate in that the pre-programme pattern of care was compared with the first phase of the NTC. The NTC programme was described in more depth in a specific report.

Effectiveness/benefits:
The approach used to identify the relevant sources of data was not described. Thus, the authors may have identified these sources selectively, without performing a literature review. Limited information on the methods and characteristics of the sources was provided. However, some of them were validated studies, which should ensure the validity of the clinical inputs. In general, a more detailed level of reporting would have been helpful. Limited information was also reported on the derivation of the utility estimates used to calculate the QALYs. LYS and QALYs are appropriate measures of benefits, which allow cross-disease comparisons.

Costs:
The analysis of costs considered only the direct medical costs, which were relevant to the health care payer. These costs were presented as macro-categories and were not broken down into individual items, which reduces the transparency of the economic analysis. The sources of costs were mentioned, but were not described. The costs were treated deterministically and the impact of variations in the cost estimates was not investigated in the sensitivity analysis. The price year and the use of discounting were reported.

Analysis and results:
A synthesis of the costs and benefits was not required given the dominance of one strategy over the other. The study findings were clearly presented. The sensitivity analyses addressed the issue of uncertainty using a comprehensive simulation methodology. The impact of single model inputs on the study results was restricted to changes in the efficacy rate. The authors pointed out that the QBM was a conservative model, which might underestimate the benefits of a smoking-cessation campaign. The authors acknowledged that the assumption regarding the efficacy of the programme, (namely that all quitters were attributable to the programme) could represent a drawback of the analysis, but some
justifications for such an assumption were provided. The authors compared their findings with those of other economic evaluations of smoking campaigns which also showed the dominance of these interventions.

Concluding remarks:
The study appears to have been based on valid methodology, but was characterised by limited reporting of the sources used. Nevertheless, the authors’ conclusions appear to be robust.

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