Cost effectiveness of a mass media-led anti-smoking campaign in Scotland

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Abstract

Objective—To evaluate the costs and outcomes associated with the Health Education Board for Scotland's general public anti-smoking campaign during the developmental stage and its first year of operation.

Design—Cost information collected retrospectively was combined with prospectively collected effectiveness data.

Subjects—A panel of 970 adults were recruited from a 1-in-10 random sample of adult callers to the telephone helpline (*Smokeline*). Those who smoked were subsequently interviewed at three weeks, six months, and one year follow up. Information on smoking status at one year and time spent as a non-smoker was available for 587 members of the panel.

Main outcome measures—Intermediate outcomes in the follow-up sample included a point prevalence and period prevalence measure of smoking cessation. Long-term outcomes were measured in terms of predicted reductions in mortality as a consequence of smoking cessation.

Results—At the 12-month point, 9.88% of individuals in the follow-up sample reported themselves as non-smokers and as having given up for at least six months in the previous year. Estimates of the cost per life-year saved as a result of the campaign range from £304 to £656.

Conclusions—Provided that the benefits of smoking cessation are broadly accurate, and the assumed level of quitting can be directly attributed to *Smokeline*, then this mass media-led anti-smoking campaign appears to have been cost effective.

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Keywords: anti-smoking campaign; smoking cessation; cost effectiveness

Introduction

The Health Education Board for Scotland's (HEBS's) anti-smoking campaign, targeted at adults in the general population, was launched in late October 1992. It was intended to make a significant contribution in Scotland towards the promotion of smoking cessation.¹ This paper assesses the cost effectiveness of HEBS's campaign. The costs of the campaign that are directly attributable to adults are estimated. This is complicated by the existence of a linked campaign aimed at young smokers and by the response of the younger age groups to the adult campaign. The adult costs are then compared with information relating to intermediate and

long-term outcomes to assess the cost effectiveness of this initiative as a method of encouraging smoking cessation within the Scottish population. Cost effectiveness, or the cost per unit of outcome, is estimated for the intermediate outcome (smoking cessation) and for the long-term outcome (predicted reductions in mortality as a consequence of smoking cessation).

Methods

BACKGROUND

Goals of the campaign

The major aim of HEBS's campaign was to contribute to a reduction in smoking prevalence in line with national targets. More specific objectives of the adult campaign were the following.

- To remind smokers and their families/friends of the negative consequences of smoking
- To challenge complacency about smoking
- To motivate and support smokers and their families/friends towards quitting smoking or encouraging and helping others to do so
- To provide direct advice, assistance, and support to smokers and their families/friends to enable smoking cessation action.

The design of the campaign was underpinned by the "transtheoretical" or "stage" model of behavioural change.² Used in an individual or group context the model emphasises the importance of ascertaining readiness to change by determining where people are located in the behavioural change cycle: pre-contemplation, contemplation, action, maintenance, or relapse. The subsequent intervention is then tailored to meet the identified need/stage. Such an approach could not be applied directly to a population-based intervention. However, some of the principles of this model can be used in developing interventions with larger groups. The purpose of the campaign was to facilitate movement around the stages of change or, more often, between contemplation and action. This purpose is reflected in the stated aims of the campaign.

Elements of the campaign

There were three interrelated features of the adult anti-smoking campaign.

- Mass media advertising including television, outdoor posters, and press
- *Smokeline*, a free telephone helpline
- *You can stop smoking*, a specially devised booklet providing practical advice on giving up smoking and staying a non-smoker.

Smokeline was launched via two related television advertisements ("Hospital", a hard-hitting realistic portrayal of a mother pleading from her hospital bed with her young son not

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to take up smoking; and "Presenter", in which a positive, sympathetic female counsellor offers encouragement to smokers and their families to call *Smokeline* which were regularly featured between 23 October and 15 November 1992 (first burst) and again between 8 February and 28 March 1993 (second burst). The second burst of advertising was more heavily weighted (1187 television ratings (TVRs)) than the first (750 TVRs). (TVRs provide an indication of the "weight" of advertising, by adding together the percentages of the target audience achieved for each individual broadcast of an advertisement. The higher the number, the more heavyweight the campaign. TVRs here relate to the Scottish network adult (over 15 years old) television audience.)

A new television advertisement ("Terminal") aimed at adults, featuring a man seriously ill with lung cancer and regretting the fact that he would miss seeing his family growing up, had its first airing on 7 September 1993 and ran intermittently until 17 October 1993. (This third burst was the lightest at only 259 TVRs.)

Other media used during the campaign to reach adult smokers included three posters, "Table", "Bullet", and "Phone", displayed intermittently from December 1992 and carrying the *Smokeline* telephone number. "Table" was a billboard-sized poster of an empty hospital trolley, with the text "This table reserved for smokers". "Bullet" was also billboard-sized, and showed a bullet with the word "Quick" and a cigarette with the word "Slow". "Phone", a smaller poster, showed a hand clutching a telephone and emerging from a mound of cigarette butts, bearing the message "Want to stop? Phone the *Smokeline*". Four advertisements were also displayed in the press, over the period when television advertising was suspended, to ensure continuing high public awareness of the helpline.

A major element of HEBS's anti-smoking campaign was the establishment and successful promotion of *Smokeline*. This service, available for 12 hours (12 noon to 12 midnight) each day, has three major objectives.

- To provide an advice and information service, including helpful tips on how to give up and stay off cigarettes
- To provide general support, encouragement, and counselling where relevant
- To send *You Can Stop Smoking* to callers who request it.

Counsellors on *Smokeline* are recruited from either an addictions or medically based background and most have undertaken smoking cessation counselling in the course of their work. Every counsellor had received an intensive telephone skills training course run by the service's training manager.

You can stop smoking, available free and exclusively to callers to *Smokeline*, was developed on the basis of extensive qualitative research with regular and occasional smokers aged 18–50 years in the lower socioeconomic groups. It was designed to be a realistic, eye-catching, step-by-step guide, which recognises the smoker's fundamental belief that

Sample sizes and percentage of participants who were current smokers.

responsibility for quitting lies squarely with him or her, but offers practical help and advice to increase the likelihood of successful cessation.

Measuring campaign impact

The immediate impact of the campaign was measured in terms of the number of calls to *Smokeline* and of requests for the stop-smoking guide. In addition, information was gathered from a 10% sample (n = 8547) of adult callers to *Smokeline*. Baseline information included: smoking behaviour and history, sociodemographic characteristics (age, sex, housing tenure, employment status, and area of residence), and intentions to quit smoking. Of this sample 72% expressed a willingness to be contacted for future research interviews. A random selection from the 1-in-10 sample was made by taking the *n*th caller, the interval between callers being determined by the size of the intended sample. Data collected at follow-up interviews with this panel (at three weeks, six months, and 12 months) included evaluation of the *Smokeline* service and stop-smoking guide, current smoking behaviour, recent quitting, and attitudes toward HEBS's television advertisements. The numbers interviewed and the percentage who were current smokers are shown in the figure.

The major short-term outcome is the cessation rate achieved. However, there are other possible areas of benefit which can be identified in the short run, such as reduced consumption levels, a switch to lower tar brands, or both. For long-term outcomes, these include reductions in the levels of smoking-related morbidity and mortality. The long-term benefits of mortality reductions throughout the Scottish population were assessed by Prevent, a model developed in the Netherlands which simulates the effects of health promotion interventions on mortality.³

Characteristics of "Smokeline" callers

Over the period under review, 60% of adult callers to *Smokeline* were women. According to the 1991 census, 52% of the adult population

of Scotland are female. A survey specially undertaken by System 3 Scotland (an independent survey organisation) in 1992 for HEBS found that 54% of smokers in Scotland are female. Further information on *Smokeline* callers is available from the 10% random sample of adult callers to the service. In respect of sociodemographic characteristics, callers to *Smokeline* had a similar age profile to adult smokers but were younger than the general population as a whole (the proportions aged 16–44 years being 72%, 68%, and 54%, respectively). The employment status breakdown was also similar for *Smokeline* callers (16% unemployed) compared with all smokers (15%), but the unemployment rate was lower in the general population (10%). *Smokeline* callers were less likely to be home owners (41%) than the general population as a whole (52%). Finally, the distribution of *Smokeline* callers by area of residence was fairly similar to that of the general population of Scotland, with the exception that the central belt (especially Greater Glasgow) was somewhat over-represented, while the Islands, Borders, and Dumfries and Galloway were under-represented. It should be noted that the latter two regions were not covered by television advertising during the first phase.

Smokeline callers, although as likely (70%) as smokers in general (72% in the System 3 Scotland survey) to have attempted to quit in the past, tended to have been less persevering in their attempts (43% quitting for more than one week on any occasion *vs* 58% of smokers in general). *Smokeline* callers were also significantly more likely than smokers in general to report an overwhelming desire to quit (58% “desperate” to do so *vs* 17% of smokers in general, with a third (33%) claiming that they will do so “immediately”, compared with about 1% of smokers in general). The consumption of cigarettes among *Smokeline* callers was higher (with 56% as compared with 42% smoking more than 20 per day).

COSTS OF THE CAMPAIGN

In identifying costs, the study concentrates on the resources used by HEBS in the developmental stage and first year of the campaign. There was a six-month lead-in period to the campaign from April 1992 to October 1992. To evaluate fully the resources used, it is important that the developmental costs are included. The first year of the campaign ran from 23 October 1992 until 22 October 1993. Costs were classified into five main groups: developmental and maintenance costs; mass media advertising; telephone helpline; information booklet; and research costs. To achieve consistency between outcomes achieved and the costs of the campaign, an attempt was made to include only those costs that could be attributed to the adult (>16 years) age group.

The staff costs included in this evaluation were divided into those associated with the developmental stage and those associated with maintenance during the first year of the campaign. In each case, the staff involved were identified and estimates made retrospectively

of the amount of time input (as a proportion of total time) allocated to this campaign for each individual. This time input was then costed as a proportion of each individual's total gross salary. The overhead costs were also divided into those associated with the developmental stage and those associated with maintenance during the first year of the campaign. They were derived by calculating the salary costs associated with the campaign as a proportion of all salary costs and applying the same proportion to total overhead costs, separately for each period.

Costs for the adult media plan were broken down into those associated with buying advertising space and those associated with production. It was recognised that during the first year of the adult campaign there was a potential for overlap in the effectiveness of mass media, given that a youth campaign (aimed at the 14–18-year-old age group) was being run simultaneously with the *Smokeline* campaign. It is possible that some of the individuals who responded to *Smokeline* in the 16–18-year-old age group responded as a consequence of information obtained via the youth campaign. As such, it is appropriate to take account of the potential influence of the youth campaign and the costs associated with it. Unfortunately, the exact extent of the overlap in practice is not known. It was therefore necessary to use a range of assumptions about the potential influence of the youth campaign and the proportion of the costs of the youth campaign that might be associated with *Smokeline* outcomes. There is no satisfactory method for defining the appropriate proportion. However, by employing a range of assumptions the sensitivity of the results of the evaluation of the adult campaign can be assessed.

Smokeline was a major element of HEBS's anti-smoking campaign. During the first year of its operation (23 October 1992 to 21 October 1993) the helpline received 129 717 “interactive” calls. A call is recorded as “interactive” when a counsellor has offered information to a caller or has begun a process of encouraging a caller to clarify his or her request for information. For the purposes of this evaluation, it was necessary to isolate the number of callers within the adult (>16 years) age group. However, due to technical difficulties, accurate information on the adult/child split was not available for the entire period of interest. Lower, central, and upper estimates of the number of adult callers as a proportion of all callers to *Smokeline* have been included in the analysis (40%, 61%, and 82%, respectively). These figures are based on different assumptions regarding the reliability of the adult/child information during different weeks of the campaign. The lower estimate is based on the proportion of adult callers recorded during weeks 31–52 (the period for which the data are most reliable). The upper estimate takes the data for weeks 1–3 and 9–52 at face value and assumes that the proportion in weeks 4–8 (the period for which the data are least reliable) was the same as recorded in weeks 9–30. The total costs of the telephone helpline

Table 1 Costs (in £s) of anti-smoking campaign

	Estimate of adult callers		
	Lower	Central	Upper
Total costs (£)			
Excluding youth campaign costs	1 316 302	1 347 692	1 376 621
Plus 20% youth campaign costs	1 401 201	1 432 591	1 461 520
Plus 40% of youth campaign costs	1 486 101	1 517 491	1 546 420

were calculated and adjusted to allow for each of these three estimates.

There are two other potentially significant influences which, due to the difficulties associated with their measurement, have not been taken into account. Firstly, the operators of *Smokeline* observed that approximately half of all calls received by the service from young callers were from non-smoking children making enquiries about how to help other members of the family stop smoking. Secondly, there may be an opportunity cost associated with young callers, in that some adult callers could have been displaced as a result. The number of staffed lines ranged from two to 10 and averaged six in the first year. A total of 110 230 calls were “lost” (more than half of these in the first month of the campaign). It is not clear how to take into account the potential influence of children calling on behalf of adults or the loss of genuine adult callers as a result of children calling.

The main reason for individuals making contact with a counsellor through the telephone helpline was to obtain the stop-smoking guide. Among the 10% random sample of adult callers, 47% were given advice/counselling and 96% were sent a copy of the guide. In the first year 79 013 booklets had been dispatched. The total costs of production and dissemination of the information booklet (including design fees, printing and reprinting copies) were estimated.

BENEFITS OF THE CAMPAIGN

The intermediate outcomes of the campaign were obtained by follow up of smokers recruited to the panel study (see above). The long-term benefits of smoking cessation were examined using the Prevent model. Because this model concentrates solely on mortality reductions, these have been made the central focus for this evaluation. However, there are also likely to be considerable benefits in terms of reduction in morbidity levels as a result of smoking cessation. Mortality results were expressed by the Prevent model for all diseases. To use the model it is necessary to feed in the relevant data. This analysis has used data provided by the Scottish Office relating to the age structure of the Scottish population, projected demographic change, and the distribution of risk factors, such as smoking, cholesterol, and hypertension. Given this information, the model predicts an autonomous trend in mortality for Scotland; that is, it estimates the number of deaths that would occur as a result of exposure to these risk factors if no health intervention were to take place. Using this autonomous trend as a starting point, it then estimates the number of deaths that would

occur if an intervention were made. The difference between the autonomous trend and the intervention trend is the effect of the intervention on forecast mortality.

With regard to the prevalence of risk factors, two main sources have been used: the *General Household Survey (GHS)*⁴ and the *Scottish Heart Health Survey (SHHS)*.⁵ The proportions of smokers in each age band for males and females were taken from the GHS. They were banded into light, medium and heavy smokers by looking at the results of the SHHS. The same approach was taken for those no longer exposed to risk. GHS data were used to determine the proportions of the population that had given up smoking.

Results

The costs of the HEBS anti-smoking campaign are shown in table 1. The total costs excluding the youth campaign are estimated to vary between £1 316 302 and £1 376 621. The potential overlap with the effects of the youth campaign was allowed for by using 20% and 40% of the youth campaign costs. This raises the estimate to a maximum of £1 546 420 (where 40% of the youth campaign costs are included and the upper figure of the proportion of adult calls is employed) and a minimum of £1 401 201 (where 20% of the youth campaign costs are included and the lower figure of the proportion of adult calls is employed).

Mass media advertising represented nearly two-thirds of the total cost, with television making up two-thirds of media costs and press and posters the remainder. The mass media costs were split between production (37%) and space/airtime (63%). The costs of the helpline and the smoking cessation guide were broadly comparable and together represented nearly a quarter of the total cost of the campaign.

The 970 adult callers originally recruited to the panel study contained 848 smokers. A number of these smokers were lost to follow up over the 12-month period (figure). At the 12-month follow-up point, of the 607 individuals in the sample, 23.6% reported themselves as non-smokers, 42.5% of the sample reported quitting at some point during the preceding period, 19.6% were smoking less, and 21.6% had switched to a lower tar brand of cigarettes.

Data on smoking status at 12 months and on period of time as a non-smoker were available for 587 individuals. Of these 58 (98.8%) were currently non-smokers and had spent at least six months during the follow-up period as non-smokers. This is taken to be the period prevalence measure of quitting. (For further analysis of the period prevalence measure of quitting, see Platt *et al*⁶). While it is not known how many had been non-smokers for at least the previous six months, 48 of the 58 had been non-smokers for at least 80% of the follow-up period.

Assuming that the results achieved in the follow-up group are representative of those across all of the individuals in the adult age

Table 2 Costs of anti-smoking campaign in relation to the number of adult callers (assuming a 9.88% quit rate)

	Estimate of adult callers		
	Lower	Central	Upper
Cost per individual cessation (£)			
Excluding youth campaign costs	327	221	168
Plus 20% of youth campaign costs	348	235	179
Plus 40% of youth campaign costs	369	249	189

Table 3 Cost per undiscounted (discounted) life year in relation to the number of adult callers

	Estimate of adult callers		
	Lower	Central	Upper
Cost per life year (£)			
Excluding youth campaign costs	176 (581)	120 (398)	92 (304)
Plus 20% of youth campaign costs	187 (618)	128 (423)	98 (323)
Plus 40% of youth campaign costs	199 (656)	136 (448)	103 (342)

group who contacted *Smokeline*, the employment of the central estimate of 61 782 adult callers (or approximately 4.5% of all adult smokers in Scotland) and the period prevalence method of quitting results in an estimated 6104 individuals (approximately 0.44% of all adult smokers in Scotland) quitting with direct help from *Smokeline*. Employing the lower and upper estimates of adult callers results in estimated quitting of between 4029 and 8179 individuals (0.29% and 0.60% of all adult smokers in Scotland, respectively). These are estimates of the likely incremental effect of the campaign. Inferential evidence of the campaign's contribution to an accelerated decline in smoking in Scotland over the period 1992–1994 is provided in Platt *et al.*⁶

Our confidence in these estimates is largely dependent upon the extent to which problems of sample bias and reporting bias can be dismissed. Evidence presented by Platt *et al*⁶ suggests that the panel sample followed up at one year was representative of the original panel sample in respect of a whole range of motivational factors shown to be key predictors of quitting behaviour in these cohorts.⁷ Biased sample attrition is therefore unlikely to invalidate the findings reported here. The acceptability of using uncorroborated self-reports and the likely impact on estimating current smoking behaviour are also discussed in Platt *et al.*⁶ On the basis of the available evidence it would appear that self-reports of smoking status are fairly accurate. Practical and logistical difficulties associated with attempts to achieve biochemical validation on smoking cessation in large-scale campaigns have been identified by Gruder *et al.*⁸

COST EFFECTIVENESS

The cost per cessation of this campaign can be estimated by dividing total costs by the estimated numbers stopping. The costs per cessation are shown in table 2 according to varying assumptions regarding the estimated number of adult callers, and hence the number of individuals in the adult years age group who can reasonably be expected to have given up smoking as a result of the campaign, and the

total costs attributable to the *Smokeline* campaign (as defined earlier in table 1). Table 2 illustrates the results using the period prevalence measure of the proportion of individuals who were non-smokers at 12 months and who had given up for at least six months during the previous year (9.88% quit rate). The results for a 9.88% quit rate range from £168 per individual cessation (employing the upper estimate of the number of adults calling *Smokeline* and hence stopping smoking as a result, and excluding any possible influences of the youth campaign) to £369 per individual cessation (allowing for 40% of the youth campaign costs and employing the lower estimate of the number of adults calling *Smokeline*, and hence stopping smoking).

If the central estimate of the percentage of all smokers in Scotland who made contact with *Smokeline* (4.5%) is combined with the estimated period prevalence quit rate of 9.88%, this would suggest that approximately 0.44% of smokers in Scotland quit as a direct consequence of the campaign. Assuming that only these individuals will potentially give up smoking as a result of the campaign, the model predicts that a total of 11 182 life-years will be gained over a 30-year period.

The figures on years of life gained can then be compared with the costs of the campaign. Table 3 illustrates the cost per life-year gained according to the number of adult callers, the quit rate, and the alternative total cost scenarios. The results vary according to the assumptions adopted, ranging from £92 per life-year (assuming the upper estimate of the number of adult callers to *Smokeline* and taking total costs not including the youth campaign) to £199 per life-year (assuming the lower estimate of the number of adult callers to *Smokeline* and taking total costs including 40% of the youth campaign costs). If life-years are discounted to take account of their timing, the cost per life-year gained is estimated to be within the range of £304 to £656. A discount rate of 6% was used; that is, years of life saved in year *t* were multiplied by 1/(1.06)^{*t*}. The roughly threefold difference between the cost per discounted and undiscounted outcome is a consequence of a large proportion of the health benefits accruing many years after the costs of the programme are incurred.

The analysis has concentrated upon the likely impact of *Smokeline* on smoking among callers, ignoring the effect on the rest of the Scottish smoking population. It is possible that the campaign may have had positive impact on some individuals who did not contact *Smokeline* but who decided to quit smoking as a result of it. Alternatively, it is also possible that the campaign has had a negative influence on those smokers within Scotland exposed but not responding to the messages. However, the analysis reported in Platt *et al*⁶ supports the assumption of a neutral effect on non-users of the service.

Discussion

A recent review of the cost effectiveness of smoking cessation literature notes an absence

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of economic evaluations of mass media campaigns.⁹ However, there are several other related interventions with which a comparison can be made.

The evaluation of the Heartbeat Wales no-smoking intervention programme (a national programme implemented over a four-year period from 1985 to 1989) reports a cost per discounted working life-year saved within a range from £7.86 to £87.30 (adjusted for 1993 price levels).¹⁰ At first sight, these estimates appear substantially lower than those calculated for the *Smokeline* campaign. However, there are a number of differences between the studies which should be borne in mind when interpreting these figures. There was no formal follow up of the effects of the Heartbeat Wales campaign. The effectiveness of the campaign was estimated from the reduction in smoking prevalence throughout Wales observed over the period of interest, combined with estimates of the years of working life gained as a result of reductions in smoking-related illnesses. It is possible that the effectiveness of the campaign was overestimated as a result, although the authors did attempt to allow for this in their sensitivity analysis. In addition, this campaign did not make use of mass media advertising, relying more extensively on the provision of anti-smoking information in the form of advice from health professionals, information leaflets, etc. As such, it was less expensive to administer than the *Smokeline* campaign. In addition, estimated savings in future health service costs and avoided losses of production were included, thus reducing the cost per life-year saved.

A cost-effectiveness study of routine physician counselling against smoking, undertaken in the United States, reported a cost per discounted life-year saved of \$705 to \$988 for men and \$1204 to \$2058 for women depending upon age (presumably 1987 prices).¹¹ The study was non-experimental and used no original data. The cost of physician counselling was based on the amount of time that would be spent advising smokers to quit and the cost of information leaflets, etc. The effectiveness of counselling was measured in terms of the number of patients who would quit smoking if given this advice and the number who would quit independently.

Transdermal nicotine patches, as an adjunct to physician counselling, have recently been estimated to save quality-adjusted life-years at a cost of between \$4390 and \$10 943 (in 1995 prices).¹² The analysis used a decision-analytic model with estimates of effectiveness drawn from a review of the literature.

Another American study looked at the cost effectiveness of nicotine gum in combination with physician's advice.¹³ This study was also non-experimental (in common with the majority of studies undertaken on the cost effectiveness of smoking cessation). The results of this study were similar to those in the previous study in that it was found to be more cost effective to treat males rather than females. The cost per discounted life-year saved for males was estimated at \$4113 to \$6465

whereas the cost per discounted life-year saved for females was estimated at \$6889 to \$9473 (1984 prices). The principal reason for this difference is that women tend to suffer less in terms of deteriorations in their health as a consequence of smoking. Cessation will therefore yield fewer health benefits for females.

The estimated cost per quitter in a comparison of the cost effectiveness of three different programmes in California (a smoking cessation class, an incentive-based quit contest, and a self-help quit-smoking kit) was \$266, \$161, and \$45, respectively (in terms of 1981 prices).¹⁴ Cessation estimates were based on self-reported abstinence on average five weeks after quitting.

Finally, a Swedish study of a "Quit and Win" contest, promoted primarily through the mass media, estimated the cost per (discounted) life-year saved as being between \$1092 and \$1222 (in terms of 1988 prices and assuming a 5% discount rate).¹⁵

Overall the results from the *Smokeline* campaign compare reasonably favourably with those from other smoking cessation evaluations, suggesting that a mass media-led campaign may be a more effective medium for encouraging smoking cessation than others (although caution should be exercised when making comparisons between different countries and different years). It is also the case that the costs per life-year saved for smoking cessation programmes compare favourably with those for a wide range of healthcare interventions. However, considerable care must be taken when making comparisons across markedly different areas of healthcare. The measurement of effectiveness and, in particular, the identification of cause and effect is arguably less robust with respect to smoking cessation programmes than for many other forms of intervention.

This study demonstrates some of the difficulties in establishing the cost effectiveness of mass media-led campaigns to reduce cigarette smoking. Some of these difficulties are well known, such as those associated with accurately measuring effectiveness. Others are less familiar, such as those caused by the interaction of distinct adult and youth campaigns. However, provided that the benefits of smoking cessation predicted (using the Prevent model) are broadly accurate, and that the assumed levels of quitting can be directly attributed to *Smokeline*, then this general public anti-smoking campaign appears to have been cost effective. The cost per life-year saved is sensitive to the number of adult callers assumed, but even using the lower estimate of adult callers, the campaign generates additional life-years at what would be regarded as a reasonable cost. The findings lend further support to the accumulating evidence that mass media-led anti-smoking initiatives with a social support component are an effective and cost effective mechanism for promoting smoking cessation in the general public.

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A man in Cotabato, Philippines sells a single cigarette for about US\$0.06. Source: Washington Post, 17 November 1996.