

ORIGINAL ARTICLES

Effects of different intervention strategies in the implementation of a nationwide tobacco "Quit and Win" contest in Sweden

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Abstract

Objective – To compare the effects of two different strategies to recruit participants in a community based "Quit and Win" (Q&W) tobacco cessation contest in the years 1988 and 1989.

Design – The first strategy was based on nationwide mass media activities encouraging people to participate. The second strategy also included local mobilisation of collaborators at the county level in order to recruit as many participants as possible. A lagged design was used to evaluate the effectiveness of the two strategies. The mass media strategy was carried out nationwide both years. The second strategy was implemented in Stockholm County in 1988, and in Dalarna County in 1989. Data were collected before and after implementation, and included formative and outcome evaluations. Random samples of participants in the programme were followed up with a questionnaire distributed six months after the programme in order to collect data on tobacco use and sources of information about the Q&W contest.

Setting – All people in Sweden aged 16 years or over who reported using tobacco (including oral snuff) daily for at least one year were potential participants. From a baseline survey in 1988 it was estimated that the target population was 2.0 million tobacco users.

Main outcome measures – Data were collected from the participants' entry forms and six month follow up questionnaires sent to a randomised sample of participants in the 1988 (n = 946) and 1989 contests in Stockholm County (n = 879), Dalarna County (n = 890), and other Swedish counties (n = 845). Participants in the 1988 contest were also followed up after one year (n = 882), and four years (n = 724).

Results – In all, 12840 daily tobacco users participated in the 1988 Q&W contest and 17774 participated in the 1989 contest. In 1988, the participant rate was 19.3 per 1000 daily tobacco users in Stockholm County, 2.6 in Dalarna County, and 3.2 in other Swedish counties. The figures for 1989 were 12.7, 24.9, and 7.0, respectively.

After six months 24% of all the participants in 1988 reported to be tobacco-free, and in 1989 this figure was 27%. There was no significant difference in the outcome between the two intervention strategies; after four years almost 20% were still tobacco-free. The total cost per participant, including intervention and evaluation, was estimated to be US\$56 for the mass media strategy and US\$45 for the combined mass media and local organisational strategy. The corresponding cost per tobacco-free quitter at six months after the contest was US\$222 for the mass media strategy and US\$189 for the combined strategy.

Conclusions – The combined mass media and local organisation strategy succeeded in recruiting three to six times more participants than the mass media campaign alone. The cost-effectiveness of the combined approach was also considerably higher.

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Keywords: quit smoking contest; mass media; local mobilisation; cost-effectiveness; smokeless tobacco.

Introduction

The process of initiation and cessation of smoking is complex and involves different social and psychological factors.¹ A variety of approaches has been used in smoking cessation, some focusing on the individual smoker, and some targeting society (for example, by using media campaigns or legislative restrictions on the purchase and use of tobacco).² Significant progress has been achieved in the study of smoking and smoking cessation; nevertheless, major questions remain concerning the most effective methods to reach and involve a large number of smokers in the cessation process.³ To achieve a large reduction in smoking prevalence, it is necessary to expose many smokers to educational messages as well as supplying opportunities for smoking cessation.⁴ Community-wide smoking cessation approaches are based upon the assumption that social circumstances figure prominently among important factors supporting smokers' attempts to stop and to maintain abstinence.⁵ Such approaches have a greater potential for reaching a large number of people.^{4,6} One

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important aspect of these community based intervention strategies is that they provide a sustained intervention effect on a large segment of smokers, whereas only a small segment can be reached by, and is willing to attend, clinic based programmes.³

Several mass media based approaches to smoking cessation have been reported.⁷⁻⁹ In a review of 56 evaluated mass media programmes to reduce cigarette smoking among adults, the most successful programmes achieved various objectives: success in informing and motivating people to quit, persuading potential quitters to take special action such as calling a hot line number or quitting for a day, and getting smokers to quit over an extended period.¹⁰ In addition some media based campaigns have used contests as incentives to increase rates of participation and to motivate cessation.¹¹

Particularly in the USA, there has been considerable experience in using contests as a method of influencing the lifestyle of the population.¹² To help smokers quit, "Quit and Win" contests have been developed as a population oriented strategy and have been implemented not only in the USA but also in Finland, the UK, Estonia, and Sweden.^{11, 13-22} The Quit and Win model is based on a variety of theories such as community organisation, behaviour change, diffusion of social innovation, and communication.²³⁻²⁶

In Sweden in 1988, about 27% of the adult population were daily smokers.²⁷ A unique feature in Sweden is the use of smokeless tobacco in the form of moist snuff, and 17% of men and 1% of women use such snuff daily.^{28, 29} Those who have stopped smoking during recent decades are men in higher socioeconomic groups with a well functioning social network.³⁰

The aim of this article was to compare two different strategies to recruit participants in a Swedish Quit and Win tobacco cessation contest in the years 1988 and 1989. The first strategy was based on nationwide mass media activities encouraging people to pick up entry forms at pharmacies and at local social insurance offices. The second strategy also included, in addition to the components of the first strategy, the organised local mobilisation of collaborators at the county level in order to recruit as many participants as possible to the contest. The local mobilisation took place in 1988 in Stockholm County and in 1989 in Dalarna County.

Methods

IMPLEMENTATION

The contest targeted all people in Sweden aged 16 and older who used tobacco (including smokeless tobacco) daily. Sweden has a population of approximately 8.5 million inhabitants, 1.6 million of whom live in Stockholm County and 0.3 million in Dalarna County. From a baseline study in 1988 it was estimated that approximately 2.0 million people used tobacco regularly.³¹ The number of tobacco users in

Stockholm County was estimated to be 408 000, and in Dalarna County, 83 000.

The contest was open to both smokers and users of smokeless tobacco. In order to qualify, the participants were to have used tobacco on a daily basis for at least one year. The campaigns were conducted during the autumn of 1988 and 1989 and started with a three week recruitment period before the quit day, when all participants were to stop using tobacco. The participants had to abstain from all types of tobacco during four weeks in order to be eligible to win prizes. The first prize was a trip for two to Hawaii.²² The winners had to submit signed guarantees by two independent witnesses that they had refrained from using tobacco, and a smaller sample also had to pass a salivary cotinine test in order to assess tobacco use during the days preceding the test. Tobacco-free individuals of all ages also had the opportunity to take part in an additional contest for recruiters (a person who enrolled a family member or friend in the contest); the first prize was a trip for two to New York.

THE 1988 QUIT AND WIN CONTEST

The nationwide mass media strategy

The nationwide mass media strategy was a call to participate in the contest published in written media and aired on television throughout Sweden. In 1988, the national mass media strategy mainly consisted of a 30 s TV spot, broadcast on five occasions during the actual recruitment period. It included a call to take part in the nationwide contest by picking up an entry form at one of the about 800 pharmacies or 400 local social insurance offices in the country. The TV spot was aired during prime time and had between 72 000 and 936 000 viewers aged 9-79 years. Furthermore, the staff in charge of the campaign participated in nationally broadcast radio programmes on several occasions. On one of these programs more than 6000 people responded by phoning the radio station.²² Press conferences resulted in 17 articles covering the contest in four national newspapers with a daily circulation of 231 000-580 000. A total of 27 local Swedish newspapers with a circulation of 4000-283 000 copies also published 34 articles. A few trade union journals also printed the entry form, as did several staff and organisation publications in Stockholm County.

Local mobilisation - Stockholm County

A comprehensive community analysis was undertaken from 1985 to 1987 in the Stockholm Cancer Prevention Programme (SCPP).³² The purpose of the community analysis was to identify potential collaborators for the diet and tobacco action programmes. This analysis identified the following organisations as being the most appropriate ones to assist in the Quit and Win contest: occupational health services, municipal environment and health protection agencies, pharmacies, primary health care centres, dental health service clinics, non-governmental

organisations (NGOs) (for example, Non-Smoking Generation), and special sectors of the mass media (for example, trade union journals and in-house company journals). Occupational health services directors, representatives of all companies in the county with more than 500 employees, the county municipalities, and NGOs were invited to an information meeting about the campaign. The organisations and companies were invited to participate in the campaign by purchasing and distributing the campaign materials within their own organisations in order to recruit as many participants as possible. Each collaborating organisation thus took responsibility for its own work and expenditures. The campaign materials consisted of posters, entry forms, T shirts, sweat shirts, badges, streamers, etc.

The Department of Cancer Prevention at Karolinska Hospital was in charge of the national campaign and also for mobilising organisations in Stockholm County. The co-operation with the county council consisted mainly of posters being put up in hospitals, health care centres, public dental health clinics, and so on, and entry forms were distributed in waiting rooms. A newsletter was produced during the 1988 Quit and Win contests and distributed at regular intervals to the collaborating organisations.

THE 1989 QUIT AND WIN CONTEST

The nationwide mass media strategy

The process evaluation of the 1988 campaign showed that collaborating partners would have liked to see more mass media activity.²² The Department of Cancer Prevention therefore hired journalists to write articles about the contest and about tobacco related issues. Some of these articles were distributed to the news desks of the Swedish newspapers. A newsletter was also produced during the 1989 Quit and Win contests and distributed at regular intervals to the collaborating organisations. The campaign headquarters was also responsible for campaign advertising on buses throughout

the country and for four roughly 30 s TV spots, as well as taking part in several shows on national TV programmes with high visibility. All the local radio stations in Sweden were contacted and in several cases provided follow up coverage of the campaign.

A letter listing all available promotion material was sent to about 10000 organisations and companies throughout the entire country four months before the 1989 contest. In Stockholm County, this letter was also sent to all collaborators in the 1988 contest.

Local mobilisation – Dalarna County

In Dalarna County, the department of preventive dentistry was in charge of the county-wide intervention. Collaboration was established with the local bank offices and post offices so that the campaign material was displayed at all their local offices. The campaign also cooperated with most private and public dental care clinics, primary health care centres, and hospitals. Some occupational health centres and private firms also joined in. Table 1 offers an overview of collaborating partners in the 1988 and 1989 Quit and Win contests. As a complement to the national contest a separate contest was also arranged in Dalarna County with, for example, trips to New York as the first prize.

EVALUATION

The outcome studies in the 1988 contest were based on information from all entry forms in the contest ($N_1 = 12840$) including sex, age, tobacco use, occupation, and place of residence. Outcome studies performed in order to monitor if the participants actually had quit and stayed tobacco-free were done by mailed questionnaires of random samples of participants at six months ($n = 946$), one year ($n = 882$), and four years ($n = 724$). The response rates were 74 % for the six month follow up, 71 % for the one year follow up, and 78 % for the four year follow up. Similar outcome

Table 1 Number of collaborating partners in the 1988 and 1989 Quit and Win contests

	Stockholm County (1.6 million inhab)		Dalarna County (0.3 million inhab)		Rest of Sweden (6.6 million inhab)	
	1988 (n)	1989 (n)	1988 (n)	1989 (n)	1988 (n)	1989 (n)
<i>Mass media</i>						
Pharmacies	126	122	33	33	649	661
Social insurance offices	56	56	19	19	353	346
Newspapers/periodicals	5	2		2	1 ¹	14 ¹
<i>Organisations</i>						
Firms/authorities	68	52		1	5	58
Occupational health	96	53		1	5	73
NGOs ²	9	5		1	0	9
Municipalities ³	37	35	1	1	0	53
County councils ⁴	35	29	1	2	17	111
<i>Specific in the intervention counties</i>						
Hospitals/clinics	65	26		12		
PHC/HC centres ⁵	116	51		32		
Dental clinics	125	125		140		
Post offices				94		
Banks				42		

¹ One with nationwide coverage 1988, 13 in 1989

² Non-governmental organisations

³ Including administrations and schools

⁴ Including, for example, administrations in health care, dental care, and hospitals/PHC centres

⁵ Primary health care/health care

studies in 1989 were based on information from all the entry forms in the contest ($N_2 = 17774$). For that contest, only one survey was conducted at six months to follow up if the participants actually had quit and stayed tobacco-free. This study was done by mailed questionnaires of three independent random samples participating in Stockholm County ($n = 879$), Dalarna County ($n = 890$), and other Swedish counties ($n = 845$). The response rates were 71 %, 76 %, and 79 %, respectively.

Participants in the follow up studies were randomly selected from all participants in each contest. Comparisons of sex, age, socio-economic status, and tobacco consumption showed no significant differences between those who participated in the 1988 or 1989 contest, or those who answered the questionnaires.

Calculation of participant rates was based on prevalence of daily tobacco users for Stockholm County, Dalarna County, and the remaining counties in Sweden in 1988/89, presented per 1000 daily tobacco users. This calculation took into consideration the different prevalence rates of the three areas by

using base-line data from 1988 and 1989.^{31, 33} Quit rates were based on participants who responded to the mailed questionnaires.

Programme costs for the 1988 contest were used as a baseline and included costs of personnel, promotion (design and printing of campaign material, etc.), distribution, and overhead costs for the project group and all collaborating organisations. This did not include costs for donated services, prizes, or some of the media space. Personnel costs were based on an inquiry of the project group and collaborating organisations in which they estimated the number of people, time spent, and salary for each person involved in the programme. The costs were divided into intervention and evaluation costs. The cost-effectiveness of the two interventions was calculated by relating the cost per recruited participant to the outcome in the form of tobacco-free participants six months after the contest. Those living in Stockholm County who were recruited by the mass media strategy are presumed to have quit to the same extent as participants from the rest of Sweden. The costs are expressed in US dollars (\$1 was equivalent to approximately 6.14 SEK, the average rate of exchange in 1988).

SAS (Statistical Analysis System) and EPI-INFO were used for the statistical calculations.^{34, 35}

Results

In all, 12840 daily tobacco users participated in the 1988 Quit and Win contest and 17774 participated in the 1989 Contest (table 2). Participant rates per 1000 daily tobacco users in 1988 were 19.3 in Stockholm County, 2.6 in Dalarna County, and 3.2 in other Swedish counties. Similar figures for 1989 were 12.7, 24.9, and 7.0, respectively.

The six month follow up of 1988 showed that 24 % of all the participants reported that they were still tobacco-free (table 3). Similar figures for Stockholm County were 23 %, for Dalarna County 31 %, and 25 % for the rest of the counties in Sweden. In the 1989 Quit and Win contest, the six month follow up showed an overall quit rate of 27 % (25 % for Stockholm County, 30 % for Dalarna County, and 28 % for the remaining Swedish counties). In this six month comparison there was no significant difference in tobacco abstinence rates between the two intervention strategies. Twenty one per cent of participants in the 1988 contest reported that they were tobacco-free after one year, and 20 % remained tobacco-free after four years (figure).

The total direct cost for the mass media strategy in the 1988 Quit and Win contest was estimated at US\$354000. The corresponding cost when the local organisational strategy was also included was US\$576000. The incremental costs of mobilisation of the additional local organisational strategy in Stockholm County was US\$222000 (table 4). The total cost per participant was estimated at US\$56 for the mass media strategy and US\$45 for the combined mass media and local organisation

The proportion (%) of tobacco-free individuals among participants in the 1988 Quit and Win contest after 1, 6, 12, and 48 months and in the 1989 contest after 1 and 6 months.

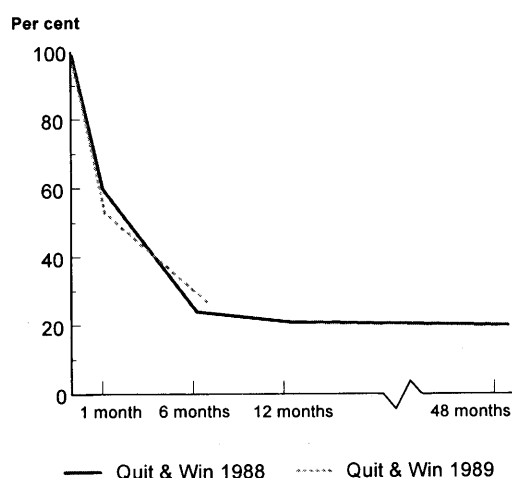


Table 2 Participant rates per 1000 daily tobacco users in the 1988 and 1989 Quit and Win contests in Stockholm and Dalarna counties and rest of Sweden

	1988			1989		
	n	%	Per 1000 daily tobacco users	n	%	Per 1000 daily tobacco users
Stockholm County	7860	61.2	19.3	5163	29.0	12.7
Dalarna County	214	1.7	2.6	2064	11.6	24.9
Rest of Sweden	4766	37.1	3.2	10547	69.4	7.0
Total	12840	100.0	6.4	17774	100.0	8.9

Table 3 Reported tobacco-free and smoke-free at six month follow up in 1988 and 1989 Quit and Win contests

	1988			1989		
	All tobacco users (%)	Smokers (%)	n ¹	All tobacco users (%)	Smokers (%)	n ¹
Stockholm County	22.5	20.4	426	25.0	23.4	625
Dalarna County	30.8	15.4	13	30.1	22.6	680
Rest of Sweden	25.3	23.3	257	27.6	24.0	666
Total Sweden	23.7	21.4	696	27.0	23.0	3418 ²

¹ The number of all tobacco users in the sample

² Weighted

Table 4 Cost-effectiveness (US\$) for the two strategies in the 1988 Quit and Win contest (1988 price level)

	Strategy		Incremental costs and effects (II)-(I)
	(I) Mass media	(II) Mass media and local organisational	
Intervention			
Project group			
- personnel costs	47231	74104	26873
- promotion, design of materials, campaign materials etc.	121009	180782	59773
- prizes	10261	10261	0
- distribution	2606	7655	5049
- rent, overhead, administration, other costs	7492	14821	7329
Collaborating organisations			
- personnel	40065	102280	62215
- others		34201	34201
Other costs			
- Sponsored materials etc.	36482	36482	0
Direct intervention costs	265146	460586	195440
Evaluation			
Personnel	58469	68730	10261
Consultancy costs		13029	13029
Material	27687	30782	3095
Rent and other costs	2443	2443	0
Direct evaluation costs	88599	114984	26385
Total costs	353745	575570	221825
Participants	6290 ¹	12840	6550
Costs/Participant	56	45	34

¹ The participant rate was 19.3 in Stockholm County and 3.2 in the remaining Swedish counties (table 2). Thus, "the organisational work" in Stockholm County raised the rate of participation from approximately 3 to 19/1000 daily tobacco users. The quotient of these two levels is 6. This means that the mass media strategy in Stockholm County accounted for the recruitment of 1310 participants (7860/6), and that the number added by the additional organisational strategy is 6550 participants (7860-1310). The total number of participants recruited through the mass media strategy is 6290 people (1310 in Stockholm County and 4980 in the remaining counties of Sweden).

strategy. The incremental costs for the intervention in Stockholm County were estimated at US\$34. If only intervention costs were included, then similar costs for the three alternatives would be US\$42, US\$36, and US\$30, respectively. Cost-effectiveness per quitter after six months was based on quit rates presented in table 3. This resulted in US\$222 per quitter for the mass media strategy and US\$189 for the combined mass media and local organisational strategy. The incremental costs for the local organisational intervention in Stockholm county was US\$153.

Discussion

In the Quit and Win contests of 1988 and 1989, a total of 30600 tobacco users participated. In the 1988 and 1989 contests, about a third of the men used oral snuff which is mostly a male practice. The contest attracted slightly more women (55%) than men (45%) over the years. Women were also younger, with a mean age of about 36 years as compared to 39 for men. Furthermore, predominately manual workers and non-manual workers took part, groups which until now have been difficult to reach.²²

Other international studies have also shown that Quit and Win contests are able to recruit many participants.¹¹ In Sweden, more than 65000 people have participated in the four national contests carried out in 1988 and 1991. Earlier Quit and Win studies have focused primarily on whether participants have remained tobacco-free or not, or have studied the method in terms of cost-effectiveness. Our study has instead attempted to study the effects

of two different intervention strategies in recruiting participants to the contest. The first strategy was based on nationwide mass media activities; the second strategy also included, in addition to the components of the first strategy, an organised local mobilisation of collaborators at the county level to recruit participants.

Basic experimental design that includes a randomised control is an ideal method of evaluation.³⁶ This design, however, has proved unsatisfactory for evaluating intervention programmes focused on influencing human behaviour and social interaction.³⁷ The artificial assignment of individuals to an intervention group can place unacceptable constraints on the intervention design.³⁸ A group reached using mass media cannot be considered a random sample of the target population; rather, the group is limited to those exposed to the media message.³⁷ Because this study compares two types of intervention, a design was chosen that could evaluate both strategies. A modified time-series design was employed to compare areas instead of groups exposed to similar interventions but at different times.³⁹ This approach, however, limits generalisation of causal effect as compared to a randomised control study.

Both contests together recruited about 2% of Sweden's tobacco users. This may seem to be a small share, but when applied to the general public it amounted to more than 30000 participants. In the 1988 contest 7800 participants in Stockholm County were mobilised, considerably more than the 600 who had attended the county's smoke cessation clinic or cessation programmes at one of the 116 public health centres during that year.³⁷

Regarding mass media strategy, our study emphasises what several other studies have demonstrated, that the mass media are able to reach many people and are effective in attempts at tobacco prevention.^{7,8} One explanation for this result could be that the mass media campaign was linked to all the pharmacies and social insurance offices in the country. These are places where most people go and where they could find posters about the contest, amplifying the message in TV spots to pick up a folder and take part in the contest. Sweden's 800 pharmacies accounted for a considerable proportion of the forms delivered in both campaigns, corresponding to about 35% of the participants. This underscores previous findings that pharmacies can be important disseminators of health messages.⁴⁰ The number of participants recruited through social insurance offices and newspapers was lower but remained relatively stable during both years.

It is possible that the impact of the mass media campaign would have been greater if an intensified television campaign had been conducted to recruit more participants. In a similar contest in San Diego County, California (1985/86), television was the most effective medium for involvement and recruited 54% of the participants.¹⁷ Commercial broadcasting did not exist in Sweden at the time of the contests. Instead, the Swedish Television Company (a public service com-

pany) broadcast the messages. Five prime time spots were aired in 1988 and four in 1989 as public service announcements (PSAs). The only cost for the contest PSAs was about US\$14 000 to produce the 30 second spot each contest year. Commercial TV coverage can be a considerable cost for a local community intervention with an often limited budget.

We showed that by combining the mass media approach with the local involvement of organisations, recruitment activities can reach even more participants. Other studies (for example, the Stanford three community study and Minnesota heart health program) have resulted in similar observations.^{41, 42} This was found in both the 1988 Stockholm County contest and in the 1989 Dalarna contest, where the local organisational strategy was implemented. Furthermore, this study showed that the effects of the more extensive organisational approach applied in Stockholm County in 1988 partly remained during the 1989 campaign, when only a minimal effort was needed to get organisations involved.

Our study of two counties indicated that more extensive local involvement, including a broad mobilisation of collaborating partners, resulted in greater participation in a Quit and Win contest. One of the reasons why greater efficiency is achieved by having an organisation on board is the creation of local involvement.^{43, 44} If a comparison is made between the two counties where more intensive recruitment was done, considerable differences in the results still emerge. Dalarna County may have had more participants because a local contest was held there at the same time, and there may have been more incentive for tobacco users to join the Quit and Win contest. Another explanation for the differences among participants per 1000 tobacco users 16 years of age and older could be that Dalarna County is a rural county, whereas Stockholm is a decidedly urban county. Earlier studies (for example, the Minnesota heart health program) have suggested that it is more difficult to mobilise organisations and participants in urban areas.⁴⁵

During the 1989 campaign in Dalarna County, primary health care centres/hospitals, public dental clinics, and municipalities recruited the majority of the participants. By cooperating with banks and the county postal service the campaign material was displayed and disseminated to a large number of inhabitants. Some 10% of the participants entered the contest after picking up forms at public dental clinics. In Stockholm County, the public dental health service also cooperated in supplying posters and folders in all the waiting rooms but did not reach as many participants (2%). The dental health service may have recruited more participants in Dalarna County because most of the private dentists took part there and they reached the adult population to a higher degree. The public dental health service is mainly responsible for supplying dental care to children and young people, and it was this service that participated in Stockholm. Another reason could be that the dental health care service in Dalarna

actively informed the patients to a greater extent about the detrimental effects of smoking on oral health.⁴⁶

In both the USA and Europe, Quit and Win contests have been studied using cost-effectiveness analyses.^{14, 15, 17, 20, 47-49} They have focused mainly on cost per quitter or years of life saved. In this study we illustrated cost-effectiveness on the basis of the number of recruited participants related to the costs of two different intervention strategies. This was related to cost per participant and numbers of tobacco-free participants after six months. From a cost-effectiveness viewpoint, the results of the additional local organisational approach were more favourable with a cost of US\$34 compared with US\$56 for the mass media only strategy. When these costs are adjusted to the 1988 level, they compare well with similar contests from the community intervention trial for smoking cessation (COMMIT) (US\$79), the San Diego contest (US\$75), and the Stanford five city project (US\$71) where costs are adjusted to their 1991 value.⁴⁹

Cost-effectiveness per tobacco-free participant at the six month follow up was US\$222 for those recruited by the mass media strategy and US\$189 for those recruited by the local organisational strategy. Other comparable six month follow up studies could not be identified. However, an eight month follow up study was done in a Quit and Win contest in Raleigh, North Carolina (USA) as part of COMMIT. Cost-effectiveness there was calculated to be US\$428 and was based on a continuous abstinence rate of 16%.⁴⁹ Independent of chosen strategy the Swedish study could be considered more cost-effective because 30% were tobacco-free at the 12 month follow up (point estimate), and of these, 21% were tobacco-free throughout the contest period.

A corresponding cost-effectiveness study for the 1989 contest could not be performed. However, costs were believed to be lower, based on the contest's final financial statement. This can be explained mainly by the fact that the first contest in 1988 included a number of initial costs such as production of logotypes and the establishment of a contact network, which were than used in subsequent contests. This hypothesis is supported by the results of the Pawtucket contest.⁴⁷

Long term effects have been measured for participants in the 1988 contest after one and four years, showing that about one in five participants reported remaining tobacco-free. These long term results probably also apply to the participants in the 1989 contest, if the results of the six month follow up for the participants in the 1989 contest are taken into account. Long term effects seem to be similar to those found using various other methods for quitting smoking.² In view of the fact that smoking relapses mainly occur within six months, it is important that contests in the future incorporate elements offering support and incentives to participants to remain tobacco-free during this period.

In summary our study confirmed that a

nationwide mass media strategy was capable of recruiting many participants to a Quit and Win contest. The short term effect on the mass media strategy in terms of the proportion of participants remaining tobacco-free after six months was equal to that of the combined strategy, which used local organisational efforts to recruit participants in addition to the mass media. However, the combined strategy managed to recruit three to six times more participants than the mass media strategy alone. The combined approach was also much more cost-effective.

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