

SPECIAL COMMUNICATION

Choosing the most effective health promotion options for reducing a nation's smoking prevalence

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Abstract

In a number of countries government targets have been set for the reduction of national smoking prevalence by the year 2000. This paper appraises the options available to regional and local health departments for their achievement and applies the findings to England, as an example.

Achievement of the year 2000 national targets will require rapid implementation of cost effective interventions with a major impact both on public policy – for example, cigarette taxation – and on the behaviour of large numbers of smokers. Interventions in this category include mass communications and opportunistic advice from the family doctor.

However, the value of other options is less certain in the short term. For example, neither workplace restrictions nor school programmes have proved to have permanent effects on prevalence, although both help to promote longer term favourable changes in the social environment.

Within a comprehensive strategy, priority should be given to the creation of unpaid publicity in the media, paid advertising to promote cessation, and advice to individual smokers from the family doctor. The effects of these leading interventions can be magnified by supporting activities in the workplace, schools, and elsewhere. The whole strategy should be guided by a comprehensive monitoring programme, and its components should be implemented simultaneously as far as possible. Effective use of mass communications is crucial to the success of the whole campaign.

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Introduction

Smoking remains the single most important preventable cause of disease and premature mortality in England – SIR DONALD ACHESON¹

Following the example set by the World Health Organisation (WHO),² the United States,³ and other governments, the British government

has proposed that the prevalence of adult cigarette smoking should be reduced by one third in England by the year 2000.⁴ This paper reviews the most effective interventions for achieving this target that are available to regional and local health departments within the National Health Service (NHS) in England, acting in partnership with other local agencies, including town councils, employers, and community and voluntary groups. Many of the conclusions apply equally to local health departments in other industrialised countries, especially Western Europe, North America, and Australia, from which the evidence cited in this paper is mainly drawn.

England forms part of the United Kingdom of Great Britain (England, Scotland, and Wales) and Northern Ireland (see appendix). Health care is generally provided free to all citizens in the United Kingdom by the NHS. General practitioners (GPs) – that is, family doctors – are remunerated mainly on a capitation basis, although fees are also paid for providing specific services, including some aspects of health promotion.

In this review prevalence, rather than cigarette consumption per head or total cigarette sales, is taken as the prime indicator of success in view of the fluctuations in consumption statistics (fig 1). This paper also focuses on a whole population approach; many health departments may also wish to implement programmes targeted at groups with special needs – for example, low earners or pregnant women and their partners. All such programmes are likely to prove more cost effective in the context of the approach described here, especially if they are complemented by supportive government policy, particularly fiscal policy.^{5,6}

Current trends in adult prevalence in Great Britain

Trends in the prevalence of cigarette smoking in Great Britain are shown in figure 2; the faster decline in men has been attributed to their higher initial level, switching to other forms of smoking, and higher premature mortality from smoking.⁷ Since 1948 a marked social class and north-south regional gradient has developed.^{8,9} There is no indication of the emergence of a "hard core" of heavier smokers, as the prevalence of both light (under

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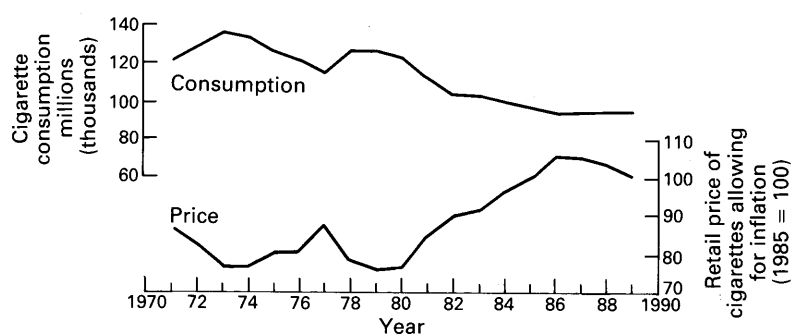


Figure 1 Relation of real price to consumption in the United Kingdom, 1971–89.
Source: Townsend¹⁶

20 cigarettes daily) and heavy smoking has declined at the same rate since 1982.⁸

There are now about 10 million ex-regular cigarette smokers in England.⁸ As many as 90% of them gave up without any form of assistance – for example, enrolment in a course – apart from opportunistic advice from their GP¹⁰; much the same applies in the United States.¹¹ By 1990, of the 11 million smokers remaining, an estimated 71% had tried to stop smoking for a week or more, and 54% wished to give up (National Opinion Polls (NOP) survey for the Department of Health, unpublished). If Australian applications¹² of smoking behaviour change theory¹³ apply in England, up to 10%, or 110 000, smokers are actively contemplating stopping at any given moment, and over 40% may reach this stage over the course of a year. The commonest reasons cited for trying to give up are: illness (87% of current or ex-smokers), expense (51%), and family pressure (43%); relatively few (16%) cite restrictions on smoking at work, etc.¹⁴

The substantial decline in prevalence during 1960–80 was due mainly to health publicity, as will be shown later. However, since 1980 fiscal policy – that is, tax increases on cigarettes – has been the dominant influence on smoking behaviour. If real disposable income is held

constant, for every 1.0% increase in price, cigarette consumption per head falls, on average, by 0.5% (fig 1).¹⁵

The effects of tax increases on prevalence are less obvious, although price rises in 1974–7 and 1980–2 both coincided with a 4.0 percentage point decline in prevalence, mainly in men (figs 1 and 2), a finding supported by data from the United States,¹⁷ where similar effects may also occur among teenagers.¹⁸ Fiscal policy is therefore an important intervention for the reduction of smoking-related disease; but as with any tax increase, favourable public opinion is required for its implementation. Support for increased taxation of cigarettes in Britain rose from 36% in 1981 to 53% in 1987 (NOP surveys for the Department of Health, unpublished). A further reduction in consumption could be achieved by a complete ban on all forms of cigarette advertising (discussed later).

Smoking among teenagers in England

The first survey of teenage smoking (ages 11–15) in England and Wales in 1966 found that 34% of fourth year boys (aged 14–15) were regular smokers – that is, smoking one or more cigarettes per week regularly. The pilot study found hardly any reported smoking among teenage girls.¹⁹ The comparable figures for England alone in 1982 suggest that between 1966 and 1982 boys' smoking declined while girls' increased.²⁰

Since 1982 the prevalence of regular smoking among 15–16 year olds has fluctuated around 25% in both sexes.²⁰ As a result, about 150 000 smoking 16 year olds join the 11 million adult smokers in England every year; a further 78 000 (about 13% of the cohort) take up smoking before the age of 24.⁸

Recent research shows that girls are now more at risk than boys and that parental and sibling influence is another major risk factor.²¹ Twenty-six percent of teenagers (aged 9–15) are regular smokers if both parents smoke, compared with 6% if neither parent smokes.²²

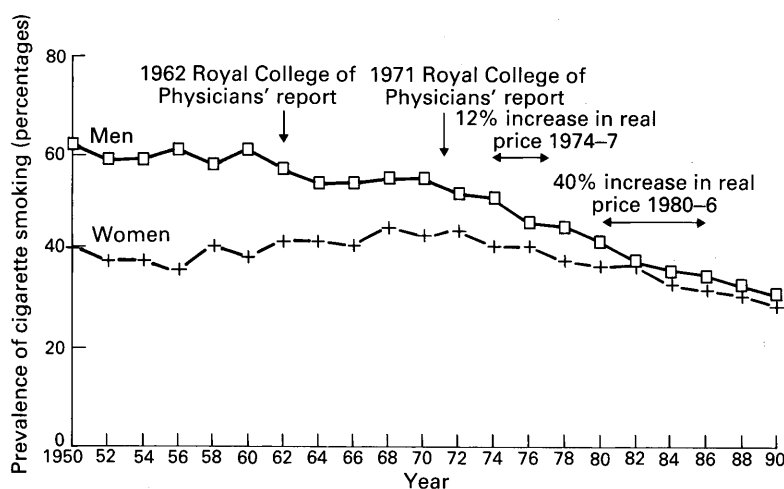


Figure 2 Prevalence of cigarette smoking in adults aged 16 and over in Great Britain, 1950–90. For 1950–70 the source is the Tobacco Advisory Council and for 1972–90 the source is the Office of Population Censuses and Surveys

Prospects for achieving the national target

The British government's target for England is to reduce the prevalence of adult cigarette smoking by a third, from 30% in 1990 to 20% by the year 2000.⁴ Similar targets have been suggested for other parts of the United Kingdom.²³ Its achievement requires an annual average decline of 1.0 percentage points over the decade; this is significantly faster than the average annual decline of 0.7 points for Great Britain since 1960, which projects to 23% by the year 2000 (table 1).

A 1.0 percentage point annual fall implies a net yearly national decline of about 380 000 in the adult smoking population, as a result of reduced teenage recruitment to smoking, smokers giving up, or smokers dying prematurely. However, precise calculations are difficult because the rate of decline has fluctuated considerably even since 1980, while marginal

Table 1 Prevalence of cigarette smoking in Great Britain

	1960	1972	1974	1976	1978	1980	1982	1984	1986	1988	1990	2000*
% of regular cigarette smokers aged ≥ 16	51	46	46	42	40	39	35	34	33	32	30	23*

* Projected on the basis of uninterrupted continuation of present trends.

Source: Office of Population Censuses and Surveys⁸ (but Tobacco Advisory Council⁹ for 1960).

increases in cigarette consumption occurred as recently as 1988–9 (fig 1). In addition, achievement of the target should be regarded as no more than the absolute minimum, in view of the magnitude of the smoking epidemic.²⁴

Available options

The main options available to local and regional health departments, whether through advocacy, direct service provision, or support for other sectors, include²⁵:

- Prevention of teenage smoking by school based programmes and other means
- Promotion of restrictions on smoking in the workplace and elsewhere
- Provision of opportunistic advice to smokers by GPs, the primary health care team generally, and other health professionals
- Provision of interpersonal advice in other ways – for example, via cessation clinics
- Paid mass media advertising to promote cessation
- Creation of unpaid publicity in the media, including media advocacy intended to influence government policy.

Other major options include fiscal policy and restrictions on advertising, which are not under the direct control of local health departments. However, options within their control can be appraised in terms of the extent to which each is likely to influence public opinion and therefore public policy, such as the level of cigarette tax.

Other available options include provision of self help publications, videos, kits, etc.^{26,27} Since these are usually disseminated on a large scale only in support of the main interventions listed above, they are not considered separately.

In order to compare the relative value of the main components of a comprehensive strategy, it is necessary to isolate and describe the effects of each. Although all interventions probably interact with each other synergistically, certain leading interventions are crucial for success. Leading interventions are defined as actions which will make a significant contribution to the attainment of the national target, even in the absence of other initiatives. Supporting interventions magnify the effects of leading interventions, but cannot make a significant independent contribution in their absence.

Option appraisal: criteria for assessment

The prime outcome measure will be the extent to which each option can contribute to the

national target through direct effects on the prevalence of adult smoking and also through indirect effects, such as influence on public opinion, and therefore government policy. Other criteria will include:

- Acceptability to the parties involved
- Costs and cost effectiveness
- Impact, judged by effectiveness, ease of replicability, and number of smokers influenced (see below).²⁸

The complete appraisal is summarised in table 2; for brevity, some comments in the table – for example, acceptability and cost effectiveness of smoking prevention – are not repeated in the main body of the text.

In view of the difficulty of calculating the costs of interventions (especially opportunity costs), the information given under this heading is confined to occasional comparisons between a limited number of the options described, or to general statements. However, particular emphasis is given to impact, especially in terms of ease of replication and number of smokers influenced. Consequently, highly sophisticated interventions, if unlikely to be widely replicated, have been excluded.

Prevention of teenage smoking

DIRECT EFFECTS ON SMOKING BEHAVIOUR

The use of school health education programmes that conform to certain criteria²⁹ with children aged 11–13 can delay recruitment to smoking for up to five years,³⁰ resulting in a 5–10 percentage point reduction in prevalence at age 16, compared with controls.³¹ Lessons given in primary schools may also affect parental smoking behaviour.^{32,33} However, the influence of school programmes does not last into adulthood,^{34,35} and few studies of this kind report success in persuading large numbers of teenagers to stop once smoking behaviour is established. Cessation programmes for teenagers³⁶ exhibit the same drawbacks as their adult counterparts, discussed later.

The effects of school programmes can be enhanced by the addition of paid mass advertising³⁷ and by restrictions on smoking by teachers.³⁸ Vigorous direct action to reduce illegal sales to minors, involving regular inspection of all outlets, has been linked with a 50 % fall in teenage experimental and regular smoking.^{39,40} Smokebusters Clubs for younger teenagers⁴¹ are an interesting innovation which may affect teenage prevalence,⁴² though firm evidence is not yet available.

CONCLUSIONS

The two main advantages of prevention pro-

Table 2 Appraisal of components of a comprehensive programme for implementation by local health departments and allied organisations

Intervention	Direct effects on smoking	Acceptability	Potential influence on public opinion	Relative costs and cost effectiveness compared with other options for local health departments, etc	Potential for reaching large proportion of target audience within a short time span	Category of intervention (see text)
<i>Interventions under the direct control of local health departments, etc</i>						
School programmes	Can delay teenage recruitment and help some parents to stop	Popular with all sections of opinion	Low	Comparatively low costs; effectiveness limited	High for teenagers, lower for parents	Supporting
Vigorous action to restrict sales to minors	Can reduce teenage experimental and regular smoking. Long term effects unknown	Generally popular, except with tobacco retailers	High if well publicised	Relatively cost effective in the short term. Requires major effort by enforcement agencies	High	Supporting
Promotion of restrictions in the workplace	Uncertain: probable effect on consumption and possible long term effect on prevalence	Increasingly acceptable	Low	Comparatively low costs; cost effectiveness uncertain	High and increasing	Supporting
Opportunistic advice from GPs	Up to 5% of adults so advised may quit	Popular with all sections of opinion	Low	Comparatively low costs (chiefly opportunity cost in terms of GP time); highly cost effective	Potentially high if applied systematically by all GPs on all possible occasions	Leading
Interpersonal advice (eg clinics, etc, but excluding GP based clinics)	Can reduce prevalence among those who enrol by 10–25%	Less popular with smokers compared with other options	Very low	Costs relatively low, but cost effectiveness poor	Low	Supporting
Paid advertising to promote cessation	May help up to 5% of all adults reached to stop	Variable – depends on approach used	High	Expensive, but highly cost effective	Very high	Leading
Creation of unpaid publicity	Some smokers may stop permanently, eg, up to 0.3% of adult smokers on No Smoking Day. Also major indirect effects via influence on public opinion, and thus on fiscal policy, advertising restrictions, etc	Popular with most (though not all) sections of opinion	High	Comparatively low costs; highly cost effective	Very high	Leading
<i>Interventions susceptible to indirect influence by local health departments, etc</i>						
Fiscal policy: increases in real price of cigarettes	Produces rapid significant fall in consumption; some influence also on prevalence	Supported by non-smokers	High	(Not applicable)	Very high	
Severe restrictions on advertising and sponsorship	Reduces consumption and has a small effect on teenage recruitment	Supported by the public: opposed by tobacco and media interests	High	(Not applicable)	Very high	

grammes are the delay in recruitment and the effect on parents, which may be limited to fathers of primary school boys in England.³³ The delay in recruitment may lead to significant long term health gains because people who start smoking early are more likely to become smokers, to smoke more heavily,⁴³ and to have more difficulty stopping as well as being at greater risk of developing a smoking-related disease.⁴⁴

However, because of the lack of evidence for a permanent effect, prevention programmes can have only a limited impact on the national target, and there are fundamental reasons for believing that they do not hold the key to success by the year 2000. For example, even if school programmes did achieve a permanent 5 percentage point drop in prevalence at age 16, this would only reduce the number of adult smokers by about 30 000 annually – a small fraction of the annual reduction of 380 000 required to meet the target.

In addition, the decline in adult prevalence in Britain has been mainly due to older smokers giving up,^{8,10} and not to any decline in the

number of teenagers taking up smoking²⁰; in the United States also heavy smokers aged 45 or over are more successful at stopping than are those aged 17–44.⁴⁵ Furthermore, as smoking among British 16–19 year olds has declined in parallel with smoking among older men and women, “a plausible case can be made that the most effective way to target smoking in the young is to promote cessation among adult smokers” (MJ Jarvis and MAH Russell, unpublished observation, 1991). Not surprisingly, the Royal College of Physicians has concluded that children’s smoking cannot be reduced below its present level except as part of a comprehensive strategy aimed at all age groups.⁴⁶

The royal college’s conclusion is supported by evidence of the limited capacity of schools to change behaviours that are already prevalent in a culture.^{47,48} As Sir Richard Doll has observed:

... the [tobacco] industry knew that as long as young adults ... provided role models for children, it didn’t matter how much you tried to educate children not to smoke, because they would not take any notice.⁴⁹

For these reasons, and despite the claims so often made for it,⁵⁰ prevention must be classified as a supporting intervention with a subsidiary, though useful, role in the overall strategy. Its contribution can be enhanced by the generation of publicity for the overall campaign from projects such as Smokebusters Clubs, etc.

Promotion of restrictions on smoking in the workplace and elsewhere

DIRECT EFFECTS ON SMOKING BEHAVIOUR

The introduction of restrictions on smoking at work undoubtedly leads to lower cigarette consumption during the working day,^{51,52} so reducing the health hazards of environmental tobacco smoke. In some studies, this resulted in a net fall in consumption,^{51,53,54} but not in others because of compensatory smoking after work.^{52,55}

Similarly, whereas some have reported declines in prevalence,^{54,56} others have found no effect^{51,52} or have attributed it to staff turnover⁵⁷; and comparatively few British ex-smokers cite workplace restrictions as a reason for giving up.¹⁴

In some cases the major effect seems to have occurred in the period between the announcement of a forthcoming ban and its implementation,^{52,56} especially if the announcement was accompanied by a comprehensive cessation support programme.⁵⁴ In the United States recent evidence suggests an association between the introduction of stringent controls on smoking in public places and workplaces and reduced smoking, especially among teenagers.⁵⁸ The effect on adults may be almost entirely due to the restrictions on smoking in public (shops, restaurants, public transport) rather than the restrictions in private workplaces.⁵⁹ The effect on teenagers may be linked with the finding that 10% of adult regular smokers in an Australian study report taking up smoking under the influence of colleagues at work.⁶⁰

ACCEPTABILITY

Workplace restrictions are now becoming more acceptable,⁵⁵ probably because of increasing public awareness of the health risks of passive smoking. Seventy nine per cent of personnel directors from the 500 major British companies surveyed in 1990 reported the establishment of no smoking areas, while 22% reported the implementation of complete bans.⁶¹

CONCLUSIONS

Although the evidence for a favourable short term effect on prevalence remains equivocal, restrictions on smoking at work may reinforce the effects of other interventions⁶² and help to establish non-smoking as the social norm in the long term – although the converse might also be true.⁶³ However, restrictions in the workplace have followed, rather than led, declines in the smoking habit.⁵⁹

Hence, this option must be classified as a

supporting intervention. Nevertheless, there is every reason for the NHS in England (Europe's largest civil employer, with 800 000 staff) to enforce implementation of smoking policies in its own workplaces, as an example to other employers. The workplace also provides a setting for the provision of intensive interpersonal advice, which is discussed later.

If US findings⁵⁹ apply elsewhere, restrictions on smoking in public places may be regarded as a leading intervention, at least in relation to consumption.

Provision of opportunistic advice from GPs and other health professionals

DIRECT EFFECTS ON SMOKING BEHAVIOUR

After receiving opportunistic advice from a GP during routine consultations, six out of 10 British smokers may try to stop¹⁰ and up to 5% of all those so advised may succeed.⁶⁴ In the United States physicians' advice doubles the rate of attempts to stop smoking.¹¹ A meta-analysis of 39 international controlled trials of various GP based interventions concluded that 5.8% of smokers (net), on average, were still not smoking 12 months later. No method gave better results than "firm, consistent and repeated help and advice to stop smoking."⁶⁵

ACCEPTABILITY

This option is widely popular: the British public rate advice from a GP as the most trustworthy source available.⁶⁶ The provision of advice on health promotion is now a contractual obligation for GPs under the British government's health policy.⁶⁷

COSTS AND COST EFFECTIVENESS

The cost of opportunistic advice from a GP to a smoker in Britain has been calculated at £270 per year of life saved, compared with £2000 for treatments such as a coronary artery bypass graft or £8000 for a heart transplant – both per year of life saved in 1990.⁶⁸

IMPACT

There is however, ample scope for increased activity; in 1983, only 22% of British smokers reported having ever received advice from a GP to stop smoking; a further 11% had been urged to cut down.¹⁰ These figures were virtually unchanged in 1990, at 26% and 7% respectively (NOP for Department of Health, unpublished). By contrast, the percentage of smokers who reported receiving advice to stop from physicians generally in the United States increased sharply from 26.4% in 1976 to 50.9% in 1987.⁶⁹ It is not clear why US doctors should have become so much more active than their British counterparts.

Nevertheless, effective implementation of the new GP contract may lead to increased activity in the United Kingdom also. The potential impact is considerable as 70% of English adults, and therefore about 8 million smokers, see their doctor every year.⁷⁰ Up to

5% of these, or 400 000 smokers, might give up each year if advised to stop at every consultation – though this is a highly optimistic upper limit, dependent on universal adoption of a systematic approach.

CONCLUSIONS

Advice from a GP is clearly one of the leading interventions on which ultimate success depends – although currently well below its full potential. Its impact could be increased by provision of additional training and other forms of support,⁷¹ together with possible further changes in the remuneration pattern of GPs and active coverage of the issue in the media.⁷²

ADVICE FROM OTHER HEALTH PROFESSIONALS

Many other health professionals, especially dentists^{73,74} and pharmacists⁷⁵ together with anaesthetists, nurses,⁷⁶ health visitors, midwives, etc, can help adult smokers to give up. The extent of their contribution will depend on the number of smokers whom they advise annually, as well as on the effectiveness of their intervention. Pharmacists may be a particularly valuable source of advice to socio-economically disadvantaged groups, according to US studies.⁷⁷

Provision of intensive interpersonal advice

Interpersonal advice for smokers may also be given through various forms of labour-intensive/therapist modes – often described as “smokers’ clinics.”^{77,78} In addition, the 1990 GP contract in England has encouraged provision of health checks and clinics; further development of this approach will depend on evidence of effectiveness, as available.

DIRECT EFFECTS ON BEHAVIOUR

One year success rates for clinics generally are in the range of 10–25%.^{79,80}

ACCEPTABILITY

The provision of support in this form can be a useful part of a cessation campaign, as it suggests that “help is at hand.” However, smokers generally prefer to be helped in other ways – for example, through opportunistic advice from health professionals.⁸¹ Furthermore, the inverse care law often applies: GP based clinics in the United Kingdom are less likely to attract low income groups with higher smoking rates.⁸²

COSTS AND COST EFFECTIVENESS

Because of the intensity of the support required, smokers’ clinics can be four times more expensive, per success, than a specially produced television programme⁸³ and are also less cost effective than smokers’ contests and self help quit kits,⁷⁹ according to studies in North America.

IMPACT

Although more intensive methods can be highly effective, their impact is limited by their demands on professionals’ time and by difficulties of recruitment,^{82,84} especially compared with mass media based methods. For example, a single week of stop smoking articles in a US local newspaper had the same impact as 380 clinics, each producing 25 quitters.⁸⁵ Not surprisingly, only about 4% of successful US ex-smokers between 1976 and 1986 used clinic type methods, while a further 2.5% used psychologists or hypnotists.¹¹

Much of the same applies to advice given on the telephone; in the United States it has been estimated that even a well advertised advice line may reach only 1–2% of the population,⁸⁴ although advice lines may help to amplify the effects of other initiatives.⁸⁶

CONCLUSIONS

While smokers’ clinics have been criticised for diverting scarce resources from more valuable interventions,⁸⁷ they may have a limited supporting role, especially among heavy smokers.¹¹ In addition, they may be particularly useful as a means of conveying a positive tone during a mass campaign,⁷² or as part of a comprehensive cessation support programme when a new workplace policy is being introduced.⁵⁴

Paid mass media advertising

DIRECT EFFECTS ON SMOKING BEHAVIOUR

Although paid mass media advertising has featured in many (though not all) examples of successful local and national campaigns – for example, in California⁸⁸ – the extent and nature of its contribution remain controversial. For example, a major review of several controlled trials concluded that up to 5% of smokers may become long term quitters after exposure to “media only” campaigns.⁸⁹ However, others have criticised the same studies either for lack of rigour or for absence of any discernible effect.⁹⁰

Nevertheless, there is general agreement that the addition of intensive interpersonal advice for high risk groups can considerably increase the effectiveness of mass campaigns – but substantial resources may be required for this purpose.⁹¹ Conversely, a prominent media campaign will itself stimulate increased GP,⁷² teacher,⁹² and community based⁹³ activity generally.

However, fresh evidence from two major campaigns has strengthened the case for the use of paid advertising. Detailed re-analysis of the Sydney–Melbourne Quit for Life campaigns (which included paid advertising, unpaid publicity, and quit lines) from 1983 to 1986⁷² suggests that at least 5% of smokers (over 50 000) gave up in Sydney during the first six months of the project.^{94,95} Significant long term declines in prevalence followed across all social classes.⁹⁶ A major decline in the prevalence of smoking among Australian adults⁹⁷ and children⁹⁸ coincided with the

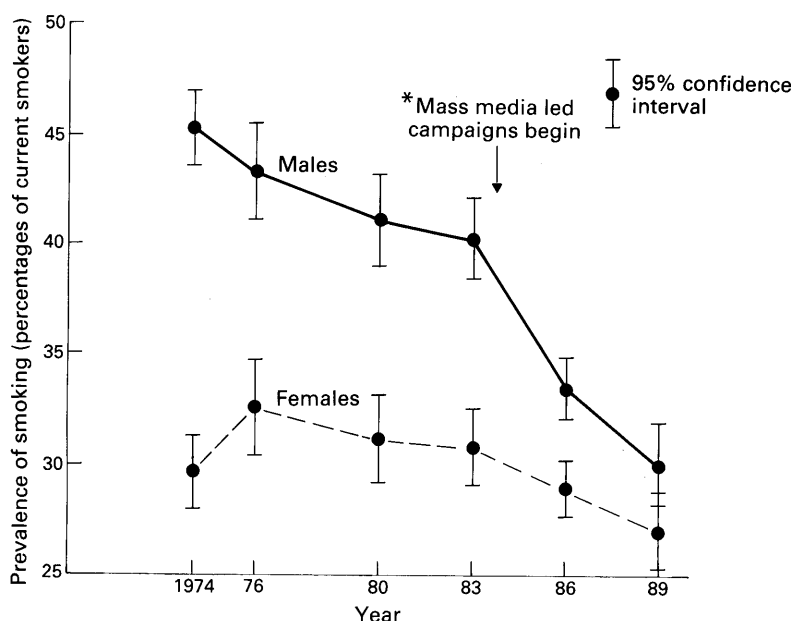


Figure 3 Prevalence of cigarette smoking in adults aged 16 or over in Australia, 1974-89. Source: Hill et al⁹⁷ with caption (*) added by us. Copyright Medical Journal of Australia. Reprinted with permission

introduction of this and similar mass media led campaigns in several Australian cities⁹⁹ (fig 3).

Further evidence has emerged from an examination of the effects of the fairness doctrine, or "TV counter-advertising" campaign on US television, from 1967 to 1970. During this period, television stations were required to screen one anti-smoking advertisement for every three cigarette advertisements, in deference to fairness provisions established by the US Federal Communications Commission. It has long been known that significant declines in both consumption of cigarettes per head¹⁰⁰ and smoking prevalence (fig 4) occurred at this time.

Recent analysis has now shown that this campaign also led to a major increase in cessation rates among US adults, irrespective of sex or race.²⁵ When the counter-advertising ceased in 1970, following a ban on cigarette

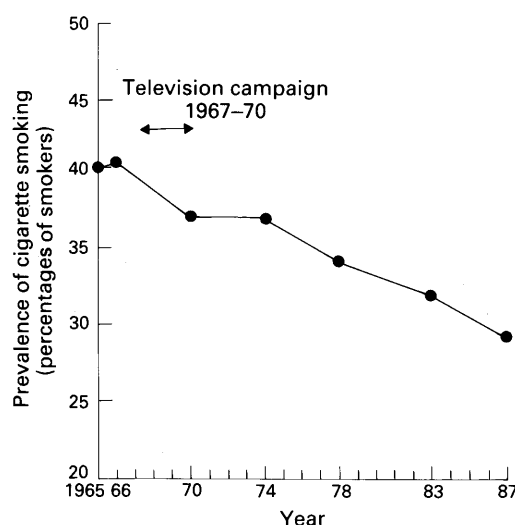


Figure 4 Prevalence of cigarette smoking in adults aged 20 and over in the United States. Source: United States national health interview surveys⁴⁴

advertising on television, cessation rates rapidly fell to normal levels and consumption began rising once again.

COSTS AND COST EFFECTIVENESS

In England alone a full weight national campaign (including television) might cost up to £10 million annually – that is, £17 per success if 5% of smokers (or 600 000) stop as a result. The equivalent figure for the Sydney campaign, at 1983 prices, was about £6.⁹⁴

IMPACT

Mass media advertising, preferably using television, is the only option which can be guaranteed to reach 90% of England's smokers within a few months. If 5% of smokers quit, prevalence would immediately fall by 1.5 percentage points.

CONCLUSIONS

Despite its expense, paid advertising is an important option for health departments wishing to reach large numbers of smokers quickly. It has formed the most conspicuous part of mass media led campaigns which coincided with major declines in prevalence both in the United States and Australia, and were particularly linked to the reduction of prevalence among less educated groups.⁹⁹ Paid advertising is therefore a leading intervention, with a probable direct effect on smokers and the capacity both to enhance the value of community based interventions and "to drive all other aspects of a total communications program."¹⁰¹

However, since in England the cost of a nationwide campaign would average £700 000 annually per NHS region, it may be preferable for local health departments to concentrate scarce funds on the provision of local advertising – for example, advice on cessation techniques and information on local sources of help – in support of nationally organised campaigns.

Unpaid publicity in the media

This option includes all forms of publicity that do not require payment for space, although substantial investment of financial and human resources is usually necessary. Examples include news stories of the latest scientific findings, stories urging government action or attacking the tobacco industry, human interest stories about cancer victims, stop smoking advice, etc.

Activities of this kind are generally undertaken for two distinct purposes:

- To encourage and advise smokers who wish to give up
- To raise public concern about the issue of smoking and health generally, thereby contributing to policy changes – for example, advertising bans or increased cigarette taxes. This is often described as "media advocacy."

DIRECT EFFECTS ON SMOKERS' BEHAVIOUR

"Health shock" publicity can reduce cigarette consumption permanently by at least 5%.¹⁰² In addition, unpaid media publicity was the main cause for the 30% decline in prevalence among British males between 1960 and 1980. For example, substantial falls in male prevalence (fig 2) followed the publication of the 1962 and 1971 Royal College of Physicians' reports; concurrent declines in US male prevalence have also been attributed chiefly to the influence of the mass media,¹⁰³ especially the early Surgeon General's reports.

Possible alternative explanations for the British decline include increases in real price, which had an effect in 1974-7 (fig 2), although by 1980 cigarettes were again less expensive in real terms than in 1960.¹⁰⁴ Furthermore, by 1980 only one in five smokers had ever been advised to stop by their doctor¹⁰ and formal written smoking policies existed in only 6% of the United Kingdom's largest companies.¹⁰⁵ A major international review of school programmes up to 1976 concluded that "most methods had (so far) shown little success."¹⁰⁶

In more recent times, media events such as the annual No Smoking Day may help up to 0.5% of all adult smokers in Britain to give up for at least three months,¹⁰⁷ yielding an estimated 50 000 permanent quitters (0.3%) after one year. By contrast, fewer than 1000 smokers give up permanently on any single day in Britain.⁸ The similar Great American Smoke-out and New Year's Day are also known to stimulate long term stopping.¹⁰⁸

Cessation advice programmes on television can achieve 5% continuous cessation rates at one year; higher rates can be attained with the aid of printed materials and related community interventions.^{89,109} The most important televised series in Britain in 1982 achieved a 1-2 percentage points lower prevalence rate among viewers at 12 month follow up compared with non-viewers.¹¹⁰

As mentioned earlier, a week long series in a local newspaper in the United States had an impact equivalent to that of 380 clinics, causing an estimated 4% of readers to quit for at least one week.⁸⁵ Since frequency of attempts is a good predictor of ultimate success,¹⁰ initiatives of this kind all contribute to falling prevalence in the long term.

Smokers' Quit and Win competitions, if well publicised, can add a positive tone to an often negative subject, but large scale recruitment is difficult to achieve. For example, the Health Education Authority's first national Quit and Win competition achieved a 21% self reported success rate at 12 month follow up – but only 12000 smokers entered, despite efforts to gain national publicity (Health Education Authority, unpublished data, 1991). However, a more comprehensive strategy may lead to better results (P Tillgren *et al*, unpublished manuscript, 1992).

INDIRECT EFFECTS ON PUBLIC OPINION

The most important reason for creating publicity in the media lies in its influence on public

opinion and so, ultimately, on government policy – for example, increased tax on cigarettes and bans on promotion.¹¹¹ Health departments can actively support favourable government policies by publicising the health risks of smoking and the links to cigarette promotion and tax at every opportunity, as well as making their views known to politicians locally and nationally. The potential effects of a ban on cigarette advertising and sponsorship include reductions in consumption¹¹² and improved coverage in women's magazines.¹¹³ Some reduction in teenage recruitment is also likely, though the effect is small compared with other influences.²¹

COSTS AND COST EFFECTIVENESS

As an example, No Smoking Day in the United Kingdom costs the national organising committee about £500 000 annually, equivalent to £10 per success. However, this does not include the estimated investment by participating health authorities.

IMPACT

Publicity can reach very large numbers of smokers quickly. For example, over 90% of British smokers are aware of No Smoking Day each year.¹⁰⁷

CONCLUSIONS

The creation of publicity in the media is fundamental to the success of the entire campaign, because of its powerful dual effects on smoking behaviour and public opinion, at relatively modest cost. Every effort should therefore be made to generate unpaid publicity.²⁵

This may necessitate the reallocation of resources and the strengthening of communications, marketing, and media skills within health departments generally⁵ and should also be reflected in appropriate contracts with the providers of services. For example, hospitals could be required not only to implement but also to publicise the introduction of a new workplace policy.

Discussion

In this field, as in health promotion generally, scientifically rigorous findings are rarely available and are often difficult to apply to large scale interventions in real life. The recommendations which follow are therefore offered as a contribution to discussion, qualified by reservations concerning their applicability in the long term, their relevance to cigarette consumption, and their application to other countries, especially developing countries.

Firstly, although the recommendations focus on the short term goal of reducing smoking prevalence by the year 2000, the potential contribution of options such as school programmes or workplace restrictions to longer term sustainable changes in social norms should not be overlooked. Interventions

in these areas may not pay off substantially until well into the twenty first century. All of the interventions relating to prevalence also contribute to reductions in consumption – for example, the British government's target for a 40% reduction in consumption by the year 2000, relative to 1990, in England.⁴ However, fiscal policy has a much larger influence on consumption than any of the other interventions (fig 1).

The applicability of the recommendations to other countries will depend on the prevailing state of policy development locally. For example, there is much greater scope for increased cigarette taxation in the United States compared with the United Kingdom, where real prices are considerably higher.

However, the United Kingdom lags behind the United States in relation to restrictions on smoking at work and in public places, and behind many countries – for example, France, Norway, and Canada – in banning advertising.

In countries where tobacco is grown and the press are subject to government control, media advocacy may not be an option. If so, local health departments may find that the most powerful options available are the conduct and publicising of scientifically rigorous surveys on the effects of smoking-related disease, together with action to help doctors to give up, in view of their role as exemplars.¹¹⁴

Successful campaigns begin with media publicity, supported by doctors' advice; thereafter, "policy follows prevalence" (K Warner, unpublished observation, 1992). Only when prevalence is falling will governments and employers gain the confidence to implement pro-health policies.

Recommendations for action

To achieve the national target, the number of adult smokers in England must shrink, on average, by about 1900 in each of the 200 district health authorities each year. This will occur chiefly through older adults giving up on their own¹¹⁵ – often after many attempts, principally because of the cost of cigarettes and fears for their health. Their intentions can be reinforced by price increases, health publicity in the media, and opportunistic advice from health professionals and, to a lesser extent, by newly introduced workplace restrictions, the influence of their children at primary school, or, in a few cases, by attendance at cessation clinics.

In pursuit of national and local targets, it is therefore suggested that local health departments may wish to allocate resources for the implementation of a comprehensive policy, based on these leading interventions (table 2):

- Creation of unpaid publicity in the media both to influence public opinion and to provide advice on cessation
- Purchase of mass media advertising, especially during the first quarter of the year to take advantage of New Year's Day, No Smoking Day (in the United Kingdom), and lower seasonal advertising costs

- Support for the provision of opportunistic advice by health professionals, especially GPs and the primary health care team.

The effects of the above can be magnified by these supporting interventions:

- Promotion of restrictions on smoking at work and in public places, together with encouragement for employers to provide cessation advice
- Support for school and other forms of youth education, with special attention to potential effects on parents
- Other activities – for example, provision of smokers' advice clinics, quit lines, etc.

In addition, the programme should be based on a comprehensive monitoring and evaluation strategy, including measures of intentions and attempts to quit as both are predictive of ultimate success,¹⁰ together with reported sources of information and advice to smokers – for example, from GPs, the media, etc. As time passes, monitoring may indicate a changing order of priority – for example, both advice from GPs and nicotine replacement¹¹⁶ may become relatively more important.

Much will be learnt from the 1989–94 National Cancer Institute Community Intervention Trial for Smoking Cessation (COMMIT), involving 200 000 smokers in the United States,¹¹⁷ and from the 1991–98 National Cancer Institute/American Cancer Society American Stop Smoking Intervention Study (ASSIST), which will reach 18 million smokers.²⁵

Every effort should be made to generate unpaid publicity from each initiative, and all of the above interventions should be implemented simultaneously as far as possible to achieve the maximum possible synergy. The most rapid recent declines in prevalence internationally have occurred wherever vigorous public campaigning has been combined with increased restrictions on advertising, real price increases, and mass media cessation campaigns.^{88, 118, 119} In the United States the national decline in smoking has been led by publicity in the media; this, in turn, created the political will to raise prices – though these have had a smaller effect than publicity alone.¹⁰⁰ Similarly, the rapid decline in Australian prevalence since 1983 has been credited chiefly to the success of mass media led campaigns with all social classes¹²⁰ and with both sexes.¹²¹

Success cannot be guaranteed; if preventive activity, especially media advocacy, fell to a low level and cigarettes became relatively more affordable, consumption might increase while prevalence ceased to decline – all of which has occurred in Finland since 1980.¹²²

The former Chief Medical Officer for England, Sir George Godber, said of the smoking epidemic in 1983: "Future generations would be aghast that we did so little." If we are to avoid the censure both of Sir George and our grandchildren, the single most important task is to win the battle for public opinion. Without popular support, there will

be neither effective fiscal policy nor mandatory advertising controls; neither will there be adequate funding for health promotion. Previous epidemics in history were overcome by provision of clean water supplies or mass immunisation campaigns; but, as the Royal College of Physicians and the US Surgeon General have shown, the best way to fight lung cancer is with a press conference.

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Appendix

The population in the United Kingdom is distributed as follows:

England	48 million (83 %)
Scotland	5 million (9 %)
Wales	3 million (5 %)
Northern Ireland	1.5 million (3 %)

As 97 % of the population lives in Great Britain, data for Great Britain are equivalent to data for the United Kingdom for most purposes. Data on prevalence among adults in England are not available; the government target for England is therefore based on data for Great Britain.

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Translations of abstract

Choisir les mesures de santé publique les plus efficaces pour réduire le tabagisme, au niveau national

Donald Reid *et al*

Résumé

Dans de nombreux pays, le gouvernement a fixé des objectifs visant à réduire la consommation de tabac d'ici l'an 2.000. Ce travail évalue les mesures à la disposition des services de santé à l'échelon régional et local afin d'atteindre ces objectifs et se penche, pour prédire un exemple concret, sur le cas de l'Angleterre.

Atteindre les objectifs de réduction du tabagisme fixés pour l'an 2.000 exigera l'application rapide de mesures efficaces influençant à la fois la politique de santé publique, par exemple par les taxes sur les cigarettes et le comportement d'un grand nombre de fumeurs. Sur ce dernier point on pense notamment à la communication de masse et au rôle de conseiller du médecin de famille.

La valeur des autres mesures possibles est moins certaine dans le court terme. Ainsi, ni les restrictions du tabagisme sur les lieux de travail, ni les programmes dans les établissements scolaires n'ont eu des effets permanents sur la consommation, bien qu'ils contribuent tous les deux à promouvoir dans le long terme des changements favorables de l'environnement social. Dans la cadre d'une stratégie globale, on devrait donner la priorité à la diffusion d'annonces gratuites dans les media, à de la publicité payante pour promouvoir la cessation, et à une mobilisation des médecins de famille pour qu'ils conseillent à leurs patients fumeurs d'arrêter.

Les effets de ces interventions peuvent être renforcés par des opérations de soutien sur les lieux de travail, dans les établissements scolaires et ailleurs. L'ensemble de cette stratégie devrait être guidé par un programme d'évaluation et les diverses composantes devraient être mises en oeuvre simultanément, autant que possible. L'utilisation efficace des mass media est cruciale pour assurer le succès de toute la campagne.

Elección de las opciones de fomento de la salud más eficaces para reducir la prevalencia de tabaquismo de una nación

Donald J Reid *et al*

Resumen

En varios países se han fijado metas gubernamentales de reducción de la prevalencia nacional de tabaquismo para el año 2000. En este artículo se evalúan las opciones que los departamentos de salud regionales y locales tienen para lograrlas, y se aplican los resultados a Inglaterra a manera de ejemplo. Lograr las metas nacionales para el año 2000 requerirá la ejecución rápida de intervenciones eficaces en función de los costos con una gran repercusión tanto en la política pública – por ejemplo, la tributación del cigarrillo – como en el comportamiento de gran número de fumadores. Las intervenciones en esta categoría incluyen los mensajes por los medios de comunicación y el asesoramiento oportuno del médico familiar. Sin embargo, la utilidad de otras opciones está menos clara a corto plazo. Por ejemplo, ni las restricciones en el lugar de trabajo ni los programas escolares han demostrado ejercer efectos permanentes sobre la prevalencia, si bien ambos ayudan a promover los cambios favorables a más largo plazo en el ambiente social. Dentro de una estrategia integral, debe asignarse prioridad a la creación de publicidad no pagada en los medios de comunicación, los anuncios pagados para promover el abandono del hábito y el asesoramiento de los fumadores por el médico familiar. Los efectos de estas intervenciones principales pueden multiplicarse mediante actividades de apoyo en los lugares de trabajo las escuelas y otros sitios. Toda la estrategia debe guiada por un programa integral de monitoreo; y sus componentes se pondrán en práctica simultáneamente en la medida de lo posible. El uso eficaz de los medios de comunicación de masas es crucial para el éxito de la campaña.

为降低国民的吸烟率，选择最有效的教育活动

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在一些国家中，政府制定了2000年降低吸烟率的目标。本文旨在评估提供给卫生部门的各种选择，然后将英国做为例子来说明之。

为了实现2000年的目标，我们需要尽快实施有较高经济效益的干预措施。这些措施不但对公共政策产生影响（如烟草税收），还要对大量吸烟者的行为产生影响。干预措施应包括大众传播和家庭医生的适时劝告这两部分。

但是，其他一些选择的价值在短期内则很难确定。例如，尽管工作场所限制吸烟政策和学校项目有助于促进社会环境长期的和有益的改变，但它们对降低吸烟率都没有长期效果。

在总的战略上，应优先取得大众传播媒介免费支持，并在戒烟宣传上做一些投入，以及促进家庭医生向吸烟者提供劝告。这些干预措施的效果可以通过在工厂、学校等场所的辅助活动得到加强。整个战略需要有一个综合的监测系统，而且各种活动尽可能同时进行，有效地运用大众传播是整个活动成功的关键。