EVALUATING TOBACCO CONTROL ACTIVITIES

EXPERIENCES AND GUIDING PRINCIPLES

C. CHOLLAT-TRAQUET

WORLD HEALTH ORGANIZATION

GENEVA
The World Health Organization is a specialized agency of the United Nations with primary responsibility for international health matters and public health. Through this organization, which was created in 1948, the health professions of some 190 countries exchange their knowledge and experience with the aim of making possible the attainment by all citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life.

By means of direct technical cooperation with its Member States, and by stimulating such cooperation among them, WHO promotes the development of comprehensive health services, the prevention and control of diseases, the improvement of environmental conditions, the development of human resources for health, the coordination and development of biomedical and health services research, and the planning and implementation of health programmes.

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Progress towards better health throughout the world also demands international cooperation in such matters as establishing international standards for biological substances, pesticides and pharmaceuticals; formulating environmental health criteria; recommending international nonproprietary names for drugs; administering the International Health Regulations; revising the International Statistical Classification of Diseases and Related Health Problems and collecting and disseminating health statistical information.

Reflecting the concerns and priorities of the Organization and its Member States, WHO publications provide authoritative information and guidance aimed at promoting and protecting health and preventing and controlling disease.
Evaluating tobacco control activities
Experiences and guiding principles

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Preface

In a global context of budget restrictions and deflationary policies, public expenditure is more carefully scrutinized than ever. Public and private funds for health promotion, health protection and disease prevention are becoming increasingly scarce and their utilization is closely watched; this is reflected in the search for added efficiency and value for money. Simultaneously, global demands for, and public expectation of, health action are placing added burdens on public and private health systems and on health-oriented nongovernmental organizations.

Against this sombre background, tobacco control programmes have had to establish their niche within political and health systems. Probably more than for other major health problems, the lack of resources for preventing the use of tobacco is striking, especially when compared with the financial turnover of the tobacco industry and related advertising. Indeed, the gross revenue from the international tobacco operations of the largest company is equal to the gross domestic product of Bangladesh, a country of 115 million inhabitants, and represents a hundred times the total health budget of Ecuador. The lack of resources is striking also because tobacco control programmes are different from other health programmes in that they do not work to protect human beings against natural forces such as disease or catastrophe but rather against the ravages of a dangerous drug purveyed by other human beings. Tobacco control activities have to be re-evaluated regularly for effectiveness since the adaptive capacities of the tobacco industry constantly threaten their effectiveness.

Tobacco control efforts in a growing number of countries have to contend with forces such as the rise in tobacco production by an average of 2% each year and the legal and social acceptability of tobacco use which leads to public indifference regarding the need to curb tobacco consumption. To explain this lack of public interest, some have given the excuse of the apparent novelty of the problem since, prior to the publication of the first epidemiological studies on smoking and health at the beginning of the 1950s, smoking and other forms of tobacco use had not been identified as a major cause of death and disease. Yet the massive financial support that can be mustered in a few months to campaign against other diseases shows that the social acceptance of the use of tobacco, the dependence it engenders and the economic power of the multi-
national tobacco companies are major contributing factors to the difficulty in properly funding tobacco control activities.

Against this background, the need for the careful selection of tobacco control activities and the evaluation of their relevance, efficiency, effectiveness and impact has been recognized. Resolution WHA43.16 adopted by the Forty-third World Health Assembly in May 1990 required the Director-General of WHO to monitor and report biennially to the Health Assembly on the progress and effectiveness of Member States’ tobacco control programmes.

As one step in the implementation of resolution WHA43.16, this publication provides general principles and tools for the evaluation of public health programmes aimed at controlling tobacco use. For the first time, an attempt is made to bring together in a single publication guidelines for evaluation of all the major tobacco control measures that have been adopted by countries. Some of the elements of the book, such as the suggested indicators, are generally applicable and can be integrated into the design of tobacco control programmes or activities at an early stage. Other aspects will need to be adapted to local circumstances.

The book is intended to help policy-makers, public health specialists and others in the public and private sectors of developed and developing countries to develop tobacco control programmes and activities. It is thus meant for use in a variety of national and regional situations, whatever the socioeconomic, political or cultural background. The fact that many examples are taken from industrialized countries reflects the amount of research done in this area. Nevertheless, many of these examples could be adapted to suit a variety of situations and countries. Such models will facilitate the development of expertise in countries where human resources for health programme evaluation are still scarce and where, consequently, evaluative efforts have so far been limited.
Acknowledgements

The topic of this book is expansive and has been approached from a variety of angles and points of view. In writing the text, I have drawn on the invaluable contributions of several individuals who generously shared their expertise and wealth of experience. I extend my sincere thanks to the following people who provided components of specific chapters and commented on the drafts: Paolo Boffetta, International Agency for Research on Cancer, Lyon, France; Hermann Brenner, Germany; Anne Charlton, United Kingdom; Pal Kraft, Norway; Murray Laugesen, New Zealand; Wayne Millar, Canada; Tom Novotny, USA; Don Nurbeam, United Kingdom; Robyn Richmond, Australia; and Annie Sasco, International Agency for Research on Cancer, Lyon, France.

Particular thanks go to colleagues in WHO — Neil Collishaw, Alan Lopez and Jack Jones — who provided support and technical advice.

In addition, I am grateful for the contributions of several external reviewers who are well known in the field of tobacco control or evaluation: Joshua Cohen, Israel; Gerard Duru, France; Lorraine Greaves, Canada; Judith Mackay, Hong Kong; Marc Manley, USA; Robert Mecklenburg, USA; Ruth Roemer, USA; Richard Windsor, USA; and Derek Yach, South Africa.

Special thanks also go to the following for their comments: Mira Aghi, India; Simon Chapman, Australia; David Collins, Australia; Ron Davis, USA; Larry Green, Canada; Luk Joossens, Belgium; Yumiko Kobayashi, Japan; Helen Lapsley, Australia; and Eric Solberg, USA.

It is often difficult to cross the final hurdle. In this regard, I am grateful to Dr Dulce P. Estrella-Gust of the Philippines and to Neil Collishaw of WHO who provided technical support in the last stages by ensuring that the comments of external reviewers were reflected in the text.
Introduction

This book has four parts. The methodological information and recommendations in Parts 1, 2 and 3 include examples selected for the variety of evaluation approaches and techniques they offer. For those using the book for reference, it is possible to concentrate on the guidance given for the evaluation of specific types of tobacco control activities. Nevertheless, such readers are recommended to consult the definitions given in Part 1 since they provide general background information for the use of the monograph.

Part 1 deals with the general principles of evaluation of tobacco control programmes. The first chapter summarizes the essential "tobacco-or-health" issues and the reasons for adoption of certain policies. Chapters 2 and 3 outline the main principles of evaluation and consider methodological concepts and practical constraints. In addition, Chapter 2 provides general indications on the design and timing of evaluation, and the procedures to be used, while Chapter 3 deals with the complex issues of measuring outcome and making use of the results.

The evaluation of measures addressing the protection of general populations is dealt with in Part 2, which examines first the impact of tobacco on national economies and the validity of the use of economic measures such as price policy, taxation, and distribution controls. Age restrictions and measures to limit places where tobacco can be used are then analysed. Importance is given to the evaluation of bans on advertising and sponsorship and restrictions on tar and nicotine content. Finally, essential elements are given for the evaluation of the use of health warnings.

Health promotion and education programmes are described in Part 3, in particular evaluation of the effectiveness of the use of mass media, the role of tobacco prevention programmes in schools and within the community, action by health personnel and the role of smoking cessation programmes.

Within Parts 2 and 3, as far as possible, each type of tobacco control activity has been presented in a standard way:

- After a short definition of what the activity may encompass, examples are provided of evaluations conducted in different national settings. Examples have been selected for their interest and because they demonstrate different evaluation methods and approaches with varying degrees of sophistication. Brief comments are then offered on the examples.
The next section of each chapter focuses on the methods to be applied in an evaluation, the type of information needed and the process for evaluating the relevance, adequacy, efficiency, effectiveness, progress and impact of each activity. Emphasis is placed on simple approaches that can be applied in most countries. Whenever possible, indications are given on how to extend the evaluations and on where to find complementary methodological information.

Finally, indicators are established for the evaluations. These may be used not only for the evaluation of activities but also as a checklist by people developing tobacco control programmes at national level.

Part 4 discusses how control measures could be strengthened by appropriate legislative provisions together with advocacy for tobacco control — such as contact with politicians, political promotion and lobbying — that has brought about changes in policies in a number of countries. The role of political leaders and their advisers in the development of national tobacco control policies and programmes and the steps that lead to the adoption of legislation do not easily lend themselves to evaluation. However, as these are often linked to legislative action, some criteria and information on this subject have been included in Chapter 18. Chapter 19 assesses the value of tobacco litigation in furthering the tobacco control movement.

The art of evaluation is to be able to give the right judgement — not a verdict — on the basis of careful assessment and critical appraisal of given situations. It should lead to useful conclusions and proposals for future action. In this context, the guidance given in this publication should also be regarded as providing support for asking the right questions in order to make an enlightened judgement. For more detailed information on application of techniques, reference should be made to the lists of suggested reading at the end of each chapter.
Part 1

General principles for evaluation of tobacco control programmes

Evaluation is a systematic way of learning from experience, using the lessons learned to improve current activities and to promote better planning and allocation of resources by the careful selection of choices for further action. Evaluation is the key to better use of the scarce resources available for tobacco control.

Part 1 provides the general background to the issues of "tobacco or health" and related control programmes and gives an overview of principles and methods that can be used for their evaluation. There is considerable potential in all countries for formulating simple evaluations based on sound design, adequate theoretical and empirical data, and objective measurement of outcome. To encourage evaluation and to make the publication useful to the widest group of persons involved in tobacco control, a number of concepts have been summarized or rapidly reviewed.

Evaluation of tobacco control programmes requires input from a large number of disciplines such as behavioural and political sciences, sociology, economics, epidemiology, statistics and medicine. Furthermore, as for any policy evaluation, it requires a global vision of political, social, economic and human issues. As a number of situations may call for original approaches and methods, it is important to develop evaluations without preconceived ideas.

Theory is one thing but its application generally calls for a number of adaptations. By giving specific examples of tobacco control programmes and activities it is hoped to encourage varied approaches to evaluation in all countries and all types of programme. It is also hoped that the general description of tobacco control measures and some of the indicators developed as essential tools in the evaluation process will find application as planning tools.
Chapter 1

Tobacco or health: background information

Tobacco use, diseases and deaths

Though precise data on tobacco consumption and behaviour are available to governments only for a certain number of countries (mostly industrialized ones), reasonable estimates can now be given for most countries.

In industrialized countries, between 20% and 40% of women smoke, particularly young women, among whom smoking is on the increase; 30–40% of men smoke, and this figure is generally on the decrease. In developing countries, between 2% and 10% of women and between 40% and 60% of men use tobacco. However, there are exceptions to this general pattern and WHO has found it helpful to propose a classification of countries according to their stage in the development of the tobacco epidemic. This classification will also be fundamental in the selection of means for controlling the epidemic. The four stages are described in Box 1.

In the 1990s, a world total of 3 million people will die each year from tobacco-induced diseases. About 2 million of them will be in industrialized countries and about 1 million in developing countries (Fig. 1). In industrialized countries as a whole, the annual number of smoking-attributable deaths has risen from about 700,000 in 1965 to around 1.5 million today for men, and from about 100,000 to 500,000 for women.

In populations where cigarette smoking has been common for several decades, about 90–95% of lung cancer, 80–85% of chronic bronchitis and emphysema, and 20–25% of deaths from heart disease and stroke are attributable to tobacco. These percentage risks are lower in populations with less exposure. For the developed world as a whole, about 40–45% of all cancer deaths among men are caused by smoking. Among women the proportion is just under 10% but is rising rapidly. Each year, smoking is estimated to cause about 630,000 deaths from cardiovascular disease in developed countries. Of these deaths, around 450,000 are premature, occurring before 70 years of age. Numerous other health hazards, including other respiratory diseases, peptic ulcers, and complications of pregnancy, are also attributable to smoking. The adverse effects of smoking in pregnancy include low birth weight, increased incidence of spontaneous abortion, prematurity, stillbirth and sudden infant

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Box 1. The four stages of the tobacco epidemic

Stage 1
This is the very beginning of the smoking epidemic in a population. Prevalence among males is comparatively low (<15%) while among females, largely because of sociocultural factors that discourage smoking among women, it rarely exceeds 10% and may well be less than 5%. Per capita consumption is also relatively low—generally less than 500 cigarettes per adult per year. Death and disease due to smoking are not yet evident.

Stage 2
During this stage of the epidemic, which may span 20-30 years, prevalence of smoking among men continues to rise rapidly, reaching a peak of between 50% and 80%. The proportion of ex-smokers is relatively low. Smoking prevalence among women typically lags behind that of males by 10-20 years, but is increasing rapidly. Smoking prevalence is probably similar among different socioeconomic groups but may be slightly higher among the better off. Consumption of cigarettes per adult varies between about 1000 and 3000 per year, the majority of which are still consumed by males (among whom annual consumption would probably be in the range of 2000-4000 cigarettes).

Stage 3
Prevalence of smoking among males begins to decline, falling to around 40% by the end of this stage, which may last for several decades. Prevalence tends to be lower among middle-aged and older men, many of whom have become ex-smokers. More importantly, the end of stage 3 is characterized by an initial decline in smoking among females. Since knowledge about the health hazards of tobacco is generally widespread by this time, the peak prevalence for women is likely to be at a considerably lower level than that for males. Experience from Canada, the United Kingdom, the United States of America, and other countries where smoking has been common among women for some time suggests that the maximum prevalence for women is around 35-45%. There is also likely to be a marked age gradient in prevalence among women, with something like 40-50% of all young women being regular smokers but with relatively few (<10%) smokers among women above 55-60 years of age.

Another characteristic of this period is the rapid increase in smoking-related mortality, which rises from about 10% of all deaths in males to around 25-30% within three decades. In middle age (35-69 years), the proportionate mortality of males due to tobacco is even higher (about 1 in 3 deaths). The tobacco-related death rate among women is still comparatively low (around 5% of all deaths) but rising.

Stage 4
Smoking prevalence for both sexes continues to decline more or less in parallel, but only slowly. Some 20-40 years after reaching its peak, prevalence among females might have declined only 10-15 percentage points and would typically be around 30%. Prevalence among males might be expected to be slightly higher, perhaps 33-35%. Meanwhile, male mortality from smoking would be expected to peak early in this period, possibly at around 30-35% of all deaths, as high as 50% of deaths in middle age. Within a decade or so, this proportionate mortality would fall below 30% and continue to decline progressively.

Conversely, female deaths due to smoking will rise rapidly in this phase as the full health effects of women’s previous smoking patterns become evident.
death syndrome. Low birth weight is one of the strongest predictors of infant mortality.

In developing countries, per capita cigarette consumption has risen on average by more than 70% during the past 25 years. If current trends continue, there will be some 7 million deaths a year from tobacco in developing countries within the next two or three decades. In China alone, on current trends, some 2–3 million deaths a year from smoking are projected for the decade 2020–2030, of which about 1 million will be from lung cancer.

While tobacco use has brought more or less the same health consequences in developing countries as in developed ones, cigarette consumption in developing countries has historically been lower and hence the mortality due to smoking is likely to be proportionately lower. In developing countries as a whole, communicable diseases are still the main cause of death, but cardiovascular disease had already become the second leading cause of death by 1985. In addition, where people have long used tobacco in traditional ways, such as tobacco chewing and bidi smoking, oral cancer is a major problem. This is particularly so in south-east Asia. Furthermore, when associated with smoking, several conditions increase the risks of certain tobacco-related diseases, as in the case of bladder cancer for smokers suffering from schistosomiasis and lung cancer for miners who smoke and experience occupational exposure to asbestos or radon.

**Tobacco control policy and programmes**

Soon after the publication of the first results of studies linking tobacco use to specific diseases, particularly lung cancer, a number of public health measures were advocated. During the 1960s, 1970s and 1980s, most countries took
policy measures and developed programmes with a view to decreasing tobacco use in their populations.

As early as 1970, the World Health Assembly "conscious of the serious effects of smoking in promoting the development of pulmonary and cardiac disease, including bronchopulmonary cancer, chronic bronchitis, emphysema and ischaemic heart disease" requested the Director-General of WHO to call the attention of all Member States to the issue and to a number of control measures to be taken (Resolution WHA23.32). Since then tobacco control has been on the agenda of the Assembly almost every year.

In 1978, a WHO Expert Committee on Smoking Control justified a number of concomitant actions aimed at reducing tobacco use. In its conclusions, the Expert Committee underlined that "No single smoking control measure can be expected of itself to solve the smoking problem. The measures recommended must always be seen as part of an overall strategy, of which legislation forms only a single, though essential, component". Resolution WHA39.14 (1986) emphasized that only an array of measures could properly combat behaviour which, although addictive, is legal and sustained by enormous advertising and promotion efforts. The resolution underlined these essential elements of tobacco control and urged Member States that had not yet done so to implement control strategies containing, at a minimum, the following nine elements:

(1) measures to ensure that non-smokers receive effective protection, to which they are entitled, from involuntary exposure to tobacco smoke, in enclosed public places, restaurants, transport, and places of work and entertainment;
(2) measures to promote abstention from the use of tobacco so as to protect children and young people from becoming addicted;
(3) measures to ensure that a good example is set in all health-related premises and by all health personnel;
(4) measures leading to the progressive elimination of those socio-economic, behavioural, and other incentives which maintain and promote the use of tobacco;
(5) prominent health warnings, which might include the statement that tobacco is addictive, on cigarette packets, and containers of all types of tobacco products;
(6) the establishment of programmes of education and public information on tobacco and health issues, including smoking cessation programmes, with active involvement of the health professions and the media;
(7) monitoring of trends in smoking and other forms of tobacco use, tobacco-related diseases, and effectiveness of national smoking control action;
(8) the promotion of viable economic alternatives to tobacco production, trade and taxation;
EVALUATING TOBACCO CONTROL ACTIVITIES

(9) the establishment of a national focal point to stimulate, support, and coordinate all the above activities.

More than 30 years after the first tobacco control measures and nine years after resolution WHA39.14, results of the effectiveness of these programmes can be seen in many countries. Trends in the United Kingdom provide an interesting example. Records of tobacco use in the United Kingdom date back to 1870 and it is reasonable to assume that smoking was predominantly a male habit at that time. The First World War boosted the consumption of cigarettes and other tobacco goods in the United Kingdom to around 4500 grams per head. During the Second World War, smoking became more popular among women and continued to increase in the population at large. By 1950, smoking prevalence was 77% for men and 38% for women. The total consumption of tobacco per capita, by weight, reached its highest around 1960, by which time almost 90% was in the form of cigarettes.

During the past 30 years substantial efforts by people in many walks of life have been put into reducing the levels of smoking in the United Kingdom and considerable success has been achieved. However, there is a delay between the cause (smoking) and the effect (the smoking-related disease) and the high levels of disease and mortality that have occurred were the result of many decades of very heavy smoking. In the same way, a delay was to be expected between a decrease in smoking and the appearance of evidence of a downturn in the levels of smoking-related disease. Nevertheless, the efforts of 30 years have recently begun to show in a reduction in the incidence of smoking-related disease and mortality.

High levels of smoking prevailed for more than a century in the United Kingdom. In the 1950s and 1960s it became evident that the country had a high level of lung cancer and tobacco-related deaths (Fig. 2). Lung cancer in men reached a plateau between 1975 and 1979 and the rate then began to decline. These observations are in accord with the changes in smoking habits and the expected time-lag between cause and effect: the highest annual per capita cigarette consumption for adult males was 4030 in 1960 and the prevalence of smoking in males has been falling since that date. Smoking-attributable mortality peaked some 15 years later and has been declining progressively since then. For women, no similar disease plateau is yet apparent, in keeping with the fact that the female per capita cigarette consumption continued to rise until 1974 when it reached 2630. However, trends in diseases not only differ for sexes but also for social classes, with rates of tobacco use (and consequent deaths from lung cancer and cardiovascular disease) diverging by social class. These are crucial factors for programme design.

Successes such as this are usually due to a combination of tobacco control measures using a public health approach, legislation, specific health promotion activities, and economic measures. The first approach addresses the protection of the health of the population from the dangers of tobacco use, and the promotion of a healthy society in which abstinence from tobacco use is the
social norm. The second involves activities aimed at achieving a national policy through comprehensive tobacco control that addresses all issues (taxation, advertising, health education) at national level, such as the Loi Evin in France. The third focuses tobacco control activities on certain groups, such as children or women, as in the current California programme on preventing adolescents from starting to smoke. The fourth involves the use of taxation and other fiscal inducements to discourage tobacco consumption. Other strategies might include encouraging alternatives to tobacco growing and manufacture.

Diversity of the social partners

The extent of the health and economic impact of tobacco consumption has convinced most governments to take the lead in tobacco control. Only public action has the scope and authority to reverse the growing prevalence of tobacco use. At the same time, this action has to be promoted and supported by individuals, groups, nongovernmental organizations (NGOs) and international organizations.

International action can also act as a catalyst to inspire countries that may find it more difficult to take action. WHO’s experience in development of tobacco control policy has shown that it is sometimes easier for a country to tackle politically and economically controversial issues through collective deci-
sions rather than through individual actions. The role of international experts, either independent of or in association with WHO and the International Agency for Research on Cancer (IARC), is indispensable in validating scientific, epidemiological and policy information. Other international organizations such as UNICEF and the World Bank have recently joined WHO in supporting transnational and national strategies.

The international tobacco control movement has been characterized by the active involvement of NGOs. These have proved to be essential instigators in dealing with specific diseases such as lung cancer and cardiovascular disease, or with specific entities such as hospital federations, medical societies or newly created bodies that concentrate on tobacco use as a risk factor. These NGOs promote tobacco control by a variety of measures: rapid and systematic transmission of specific information, using media such as newsletters and television; encouraging and supporting action by their members; setting general policies for individual professions; and publishing guidance on how to put tobacco control theory into practice. More recently, coalitions have been formed by some of these organizations to exert pressure at government level for the adoption of tobacco control legislation and for putting the "tobacco or health" issue on the agenda of political and scientific bodies.

Experience has shown the importance of leadership in successful tobacco control policies and programmes at global, national and community levels. Identifying all those who have played a role (including those taking responsibility for the coordination of national tobacco control programmes and of the activities of different authorities, national and international organizations, and NGOs) and mixing appropriately their input and output, giving them their correct value in the ultimate result, are essential elements of tobacco control programme development.

**Background reading**


*WHO Programme on Tobacco or Health: implementation of Resolutions WHA42.19 and WHA43.16: interim report by the Director-General.* Geneva, World Health Organ-

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1 In particular the International Union against Cancer (UICC), the International Union against Tuberculosis and Lung Disease (IUATLD) and the International Society and Federation of Cardiology (ISFC).
zation, 1991 (unpublished document A44/9; available on request from Tobacco or Health, World Health Organization, 1211 Geneva 27, Switzerland).

World Health Assembly resolutions:
WHA45.20 (13 May 1992). Multisectoral collaboration on WHO’s programme on tobacco or health.
WHA43.16 (17 May 1990). Tobacco or health.
WHA42.19 (17 May 1989). Tobacco or health.
WHA41.25 (13 May 1988). Action programme on tobacco or health.
WHA33.35 (23 May 1980). WHO’s programme on smoking and health.
WHA29.55 (19 May 1976). Smoking and health
Chapter 2

Design and management of tobacco control programme evaluation

Managerial process and evaluation

Health programme evaluation is part of a broader managerial process for health programmes. This process consists of an interlinked sequence that includes policy formulation, programme formulation and budgeting, programme delivery through various services and institutions, evaluation, and reprogramming as necessary, with information support throughout.

In recent years extensive evaluation methodologies have been developed and complemented by an array of scientific modes of assessment. These have been well reported. Issues related to evaluation design are broad and complex. This book makes no attempt to deal with evaluation design in its entirety; on the contrary, its purpose is to simplify the approach to evaluation and make it available to managers of tobacco control programmes at all levels to help them to make rational decisions. The general complexity of evaluation is compounded by the fact that tobacco control activities have social, behavioural,

1 For example, those involved in evaluation may be confronted with a number of concepts, such as the notions of summative and formative evaluation. Questions about whether or not a programme has met its objectives or has had the intended effects are appropriately asked at the end of a programme and form the basis of what is often called summative evaluation (or outcome). Summative evaluation is very much concerned with the question of success. It can be applied at different levels. Have the approaches used been adequate? What does the outcome mean? Has the programme been successful in the short term (e.g. in changing behaviour or implementing policy) and in the long term (e.g. in improving health status or reducing morbidity and mortality).

An investigation into the implementation of a programme or the process involved in programme development is referred to as formative evaluation. Formative evaluation is an "early evaluation" concerned with details of the implementation of programmes or initiatives. It can examine alternative approaches and compare them in terms such as how acceptable they are to participants, how easy they are to implement (and at what cost) and whether they are likely to be sustained, with a view to maximizing the success of the interventions.

Another concept is that of evaluation ex-ante and ex-post. Ex-ante evaluation underlines the role that evaluation can play, before any programme activity is undertaken, in the selection of programme priorities and of methods for programme implementation. For our purposes, ex-post evaluation, that is evaluation carried out after the programme, can be assimilated with summative evaluation.

These concepts are entirely compatible with the evaluation process and the methods described in the rest of this publication.
political and economic aspects and that it is often difficult to determine if the outcome of a programme is entirely due to specific health actions that have been undertaken or to a variety of positive or negative factors independent of health programmes. The evaluators are thus confronted with a variety of situations. Some evaluations can be rigorously designed to increase the objectivity of the information gathered from evaluation; in other cases, it may be almost impossible to use controlled experiments to rule out extraneous intervention.

**Micro-evaluation, macro-evaluation and meta-evaluation**

There are differences between evaluating the effectiveness of a tobacco control activity at the micro level (such as the effect of introducing a tobacco-free workplace) and evaluating the effectiveness of a policy at the macro level (such as a national ban on advertising of tobacco products). It is important to underline that, particularly in the field of tobacco control, macro-evaluation should not in any circumstances be a sum of micro-evaluations. Pilot projects or test projects, specific forms of micro-level activities, are often more resource- and “energy”-intensive both from the side of delivery and from that of the consumer, thus creating an artificial climate and result. These projects have often become less effective when expanded to a larger scale.

Meta-evaluations (analysis and evaluation of several evaluations) may be well suited to the field of tobacco control, either as critical reviews or analyses of previous evaluations or as comparisons of previous evaluations. They can improve methods or reduce costs of evaluation and may help to assess the long-term usefulness of certain types of evaluation.

In developing the present guidelines, care has been taken to simplify the concepts as much as possible and to bring evaluation within the reach and understanding of all those concerned with tobacco control. The aim is to ensure that concern about methods does not prevent the evaluation. Evaluation must address the correct issue, ask the right questions, and apply common sense. The present chapter presents general explanations of the most common elements of evaluation of tobacco control programmes, together with a rapid overview of the process.

**Evaluation and information**

The use of information permeates evaluation just as it does the other components of the management process. It is therefore necessary to ensure adequate information support throughout evaluation in order to avoid delays stemming from lack of information. The best way to ensure information support is to specify information requirements at the planning stage of the tobacco control programme. It is also essential to make a good “baseline assessment” of the situation at the beginning of any activity.
Evaluation includes the overall strategy for deciding what information is to be collected, how, from whom, and when. There are different methods for collecting information, but all decisions about information should be determined by three major factors: the question to be answered, the situation constraints, and the costs of collecting the information. Gathering information for evaluation should be neither daunting nor over-expensive, particularly as governments, the tobacco industry, and import and export departments all keep statistics that can be utilized for evaluation. Generally speaking, information gathering is least costly when the information emanates from the operation of programmes or services. It is easiest to use existing data and avoid, if possible, the creation of a new database. Sample surveys may also provide essential information at a reasonable cost.

Depending on the nature of the topic, part of the information necessary for evaluation may be available from existing documents, such as government and United Nations reports on the political, economic and social situation; recent development plans, financial reports, major statements by political leaders and legal documents; periodic reports of the ministries of health, trade and industry; epidemiological information (from official national health statistical services) and research findings. Equally useful are “tobacco or health” country profiles (see also Chapter 4); demographic information, particularly vital statistics; data on the resources used and activities carried out within the context of the programme being evaluated; the tobacco control programme’s formulation documents and plans of action for implementing programmes or establishing institutions and services. Documents emanating from the tobacco industry may also provide background information but should be used with caution.

Other common ways of gathering information within a managerial context, which can be used alone or in conjunction with other methods, are:

- Direct observation (such as counting minutes of tobacco advertising on television).
- Monitoring of different types of records or programme-generated documents.
- Randomized controlled studies to compare the effects of different approaches or strategies.
- “Before and after” studies (quasi-experimental designs) to control for factors other than the programme intervention that may influence changes in the programme area. These designs should meet three criteria: there must be a treated and untreated group; there must be pre-treatment and post-treatment measures; and there must be an explicit model that projects the difference over time between the treated and untreated groups.
- Information gathered after the fact. If the evaluation has not been foreseen (and planned) as part of the tobacco control programme or activity, it is sometimes necessary to resort to this approach which,
however, presents a number of methodological dangers. It may give rise
to problems in terms of both conscious and unconscious over-reporting
of awareness of tobacco control campaigns or behavioural changes
such as quitting or reducing smoking. For example, respondents may
provide opinions on issues that they cannot possibly know about in an
effort to save face. Hence such data often give an inflated picture of
the net effect of a campaign and are, more generally, of questionable
validity.

Examples of these approaches are given in Parts 2 and 3.

When specific approaches have to be devised, imagination and common
sense should be used. Counting the number of minutes of indirect advertising
during the broadcasting of sports events can be one way of demonstrating a
breach of an anti-advertising law. In New Zealand, a simple monitoring proce­
dure has been used to evaluate the immediate effect of a mass media campaign
against tobacco. For a number of weeks and on a weekly basis, the number of
cigarettes sold in 60 supermarkets scattered throughout New Zealand in areas
of varied socioeconomic status was monitored. Because the beginning and end
of a mass media campaign can be determined precisely, immediate changes in
cigarette sales coinciding with the onset of the campaign can be attributed to
the campaign (if other control measures known to influence cigarette consump­
tion are not introduced simultaneously). Simple questionnaires are also good
sources of information, but special methods, such as interviews may be needed
if a large part of the population being studied is illiterate. However, there is a
need for caution in presenting short-term results collected immediately after an
intervention. It is the long-term results that are important as many interven­
tions result in initially moderate to high smoking cessation rates, that drop
sharply within the first three months. Thus there is a need to conduct follow­
up reviews at longer intervals — 12 months at least.

Evaluation has to be based not only on valid information but on
information that is sensitive to the problems being dealt with. It is thus often
necessary to cross-check the information. A good example of this is measuring
tobacco consumed only by the number of cigarettes sold. This, in fact, can
introduce many biases for the weight of tobacco in cigarettes may change, as
may the tar and nicotine content. Thus a proper analysis of tobacco use in a
society will take into account prevalence (by sex, age, race, ethnic origin,
socioeconomic situation, education and so on), the average number of ciga­
rettes smoked per person, tobacco sales (corrected whenever possible to in­
clude the estimated number of cigarettes smuggled into the country and sold
illicitly) and the weight of tobacco in cigarettes as well as the amount of tar,
nicotine and other additives. Without cross-checking or use of multiple lines of
evidence to confirm self-reported data, there is a potential problem of under­
reporting.

While the use of published data may be "safer" for the evaluation, in many
cases unpublished data will be used to avoid delaying the evaluation. Further-
more, considering the specificity of tobacco control programmes, there will often be a need for specific research or for a survey that must be properly planned and implemented. The cost of collecting these data has to be carefully considered in relation to the expected benefit of the survey. It is thus necessary to distinguish information that would be "nice to have" from information that is essential to the evaluation.

It may also be necessary to interpret the information contained in a management database to suit the target group for which the data are intended. For example, for community action programmes, it may be sufficient — and more cost-effective — to have only minimal local data. Recipients must be able to understand the data that is gathered. Finally, data may not always be perfect, but as long as the biases are more or less consistent over time they may still be useful for indicating trends.

**The evaluation process**

At the beginning of the evaluation process it has to be assumed that the nature of the tobacco problem has been properly identified, that the programme proposes a potentially appropriate way of solving the problem and that suitable plans have been made for its implementation. The evaluation process will show if this is the case or if one of these prerequisites has not been covered and changes need to be made.

With variations for each tobacco control programme and activity, the process of evaluation will consist of the following main elements, which can be used flexibly and adapted to different circumstances:

- Specify the subject for evaluation.
- Ensure information support.
- Verify relevance.
- Assess adequacy.
- Review progress.
- Assess efficiency.
- Assess effectiveness.
- Assess impact.
- Draw conclusions and formulate proposals for future action.1

**The subject for evaluation**

The numerous interactions influencing the impact of the different elements of tobacco control policies will make it difficult to determine the impact of any single measure. Yet to get the right mix of activities in response to different political, economic, social and cultural situations, it will be nec-

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1 This element is discussed in Chapter 3.
PART 1. GENERAL PRINCIPLES FOR EVALUATION

necessary to reply to the question “How useful is this measure for controlling tobacco use here and now?” The specification of the subject of evaluation is thus essential and is achieved by answering questions such as the following:

- Should the subject for evaluation be a policy, a programme, a local service delivering a number of programmes (e.g. a school health education component) or an institution such as a smoking cessation clinic? Make sure that the subject is worth evaluating in terms of its size or potential importance. Is it necessary or justifiable, for instance, to evaluate minor activities outside the main programme, service or institution?
- Will the evaluation be made at all appropriate structural levels so as to ensure that the results of the evaluation are implemented?
- What is the purpose of the evaluation? Is it to justify the annual budget allocation or a new development plan, or is it for some ad hoc purpose? (See also p. 19)
- What are the constraints that could limit the possibility of carrying out the evaluation or restrict its scope? Are these constraints important enough to impair the evaluation efforts?
- When we have answers to the questions we intend to address, can we do anything about the situation? If so, what?

Information support¹

The importance of information has been described above. The need for information should be identified for each component of the evaluation process. For example, to evaluate the adequacy of programme or project formulation, it will be necessary to have a list of objectives and target groups; a description of the approaches being used to attain the objectives and meet the targets; a summary of the resources involved, including personnel, and budgeting and financial information; and a schedule of activities, including milestones or checkpoints and their due dates. Information requirements should be deduced from the criteria to be used or the questions to be asked.

The selection of an optimum amount of information is a critical step in the evaluation process. Information should first be reviewed for its relevance in that process. Care should be taken in collating only useful information. Irrelevant, too much or too little data could be costly to the evaluation process.

¹ See also p. 11.
EVALUATING TOBACCO CONTROL ACTIVITIES

Relevance

Relevance relates firstly to the rationale for adopting tobacco control policies and programmes, in terms of their response to health, social and economic issues in the country or community concerned, and secondly to developing programmes, activities, services or institutions that respond to needs and priorities in the "tobacco or health" field. For example, the adoption of a pricing policy is relevant for a programme that seeks to curb smoking in young people. Existing programmes should be tested periodically for their continuing relevance.

Adequacy

Adequacy implies that sufficient attention has been paid to the development of the programme — the setting of objectives, targets and indicators, methods used, etc. — in relation to the requirements. For example, written warnings on tobacco packaging would not be a good approach in a largely illiterate population.

Progress

Progress is concerned with the comparison of actual with scheduled activities, the identification of reasons for achievements or shortcomings, and the indication of remedies for any shortcomings. The purpose of a progress review is to facilitate the monitoring and operational control of activities and the readjustment of the programme whenever necessary. A progress review also keeps track of milestones achieved, personnel matters, supplies and equipment, and money spent in relation to budgets allocated.

Efficiency

Efficiency is an expression of the relationship between the results obtained from the tobacco control programme or activity and the efforts expended in terms of human, financial and other resources. The assessment of efficiency is aimed at improving implementation and adds to the progress review by comparing essential managerial elements obtained through monitoring with the progress apparent in programme implementation. Assessment of efficiency also involves keeping a check on such aspects as the appropriateness of existing plans of operations, work schedules, methods applied, personnel used, and the adequacy and use of financial resources. This is done with a view to improving these aspects, if necessary, at the least cost.1

1 Elements of progress and efficiency are sometimes grouped under the heading “Process evaluation”. This is an approach for following up resources used and examining if planned approaches and methods are applied adequately and if milestones are achieved. In some quarters emphasis has recently been put on process evaluation (which is also closely linked to financial monitoring and quality control), but we nevertheless recommend following the sequence indicated here.
**Effectiveness**

Effectiveness is an expression of progress towards the desired effect of a programme, service, institution or support activity in reducing the tobacco problem, as defined in the original goals. Effectiveness measures the degree of attainment of the predetermined objectives and targets. Where feasible, it should be quantified. Where this is not feasible, a qualitative analysis of the relevance and usefulness of what has been achieved has to be performed, however subjective such an analysis may be. The evaluation of effectiveness should also assess the satisfaction or dissatisfaction expressed by the community regarding the effects of the programme, service or institution. Measuring the effectiveness of a programme should also include a review of the equity of its distribution. For example, if the programme is intended to cover a total population, one should ask if its benefits have been properly distributed to everyone. Has care been taken to target all members of the community, including the poor, women and minority groups?

**Impact**

Impact is an expression of the overall effect of a programme, service or institution on the health and related socioeconomic development of the population concerned. Impact is thus the effectiveness of the interventions of a programme multiplied by the number of people the programme has reached. In the case of tobacco control programmes, the final impact (disease reduction and increased life expectancy) can be measured only after a relatively long period of time. However, it is unrealistic to attempt to manage tobacco control programmes and activities on only the expectation of, say, a reduction in lung cancer prevalence, and often such programmes are evaluated on the basis of their intermediate results, such as improved knowledge or reduction in the prevalence of tobacco use in a given population.

Assessment of impact may also include unanticipated effects such as an increase in smuggling as a result of high prices for tobacco products.

**Comparing costs and outcomes of tobacco control programmes**

Economic choices are made on the basis of cost and the expected benefits from that cost. Choices will generally be made that optimize the benefits in relation to the cost. Economic analyses will allow the different options to be compared, either in terms of the quality of the outcome for a given cost or in terms of the costs for a desired outcome. As the analysis includes long-term behavioural changes associated with specific programmes, appropriate use of discounting should be made.
Calculating costs and benefits

In some countries, community programmes have been developed at little cost. For example, a project in Sri Lanka has shown that basic economic analysis of the tobacco burden and essential tobacco control and cessation programmes can be effected on a voluntary basis by villagers without any monetary recompense for their labour. In other cases, actions initiated by voluntary groups such as the Lions Clubs or the scout movement have also achieved results at very little cost. When calculating the cost of a programme, due attention should be given to all costs involved, direct and indirect, including labour, supplies, training, infrastructure, time for people to attend, etc.

It is unfortunate that tobacco control activities are often seen as rather costly; when compared with the financial and human costs of tobacco-related diseases and deaths, these costs are more than reasonable. Enormous differences in the costs of programmes exist not only between developing and developed countries but also among developed countries themselves. These differences may reflect, among other things, the novelty of programmes and the quality and creativity of the persons launching and carrying out the activities.

Calculating the benefits of a programme is more tricky. Benefits can be expressed in terms of years of life saved or, even better, years of life saved combined with the quality of those years. Benefit may also be the reduction in health care costs or the avoidance of losses of productivity due to poor health. In certain programmes, some economic benefits can be estimated directly, such as savings in cleaning of ashtrays and carpets, and reduced losses due to fires. The benefits to the individual will be greatly influenced by the health care insurance system and the system of reimbursement of health care costs to people by the state or by private companies.

In a few cases, the confusion of social and health insurance with pension funds may lead to a perverse analysis of the system, concluding that public finances will be better if people die earlier. Thus, it is generally recommended that utmost prudence is used when trying to analyse the economic benefits of tobacco control programmes.

Cost–benefit and cost–effectiveness

The purpose of calculating the cost of the programme is, first of all, to see how feasible it is for public (and private) finances and how it compares with other public and social expenditures. Increasingly, because of countries' needs to use resources as economically and effectively as possible, evaluation includes a cost–benefit analysis.

Cost–benefit is the relationship between the cost of an activity and the benefits that accrue from it, expressed in monetary terms. Cost–benefit is rarely easy to assess for health programmes since the benefit, though often
obvious, is difficult to express in monetary terms. Moreover, the benefits of a programme may extend beyond the achievement of the desired effect. Thus a programme designed to reduce the incidence and prevalence of smoking may also increase well-being or raise productivity.

Cost-effectiveness is the relationship between cost and effectiveness. Analysis of cost-effectiveness aims to measure the relative costs of alternative ways of achieving an objective.

Another term in use is cost-efficiency, which is concerned with whether a programme’s resources are being used as well as possible, e.g. in terms of the level of services provided in relation to the cost.

More recently, another analysis has appeared in the field of evaluation. This is cost-utility, a form of economic evaluation in which the costs are expressed in monetary terms but some of the consequences are expressed in units of utility, e.g. quality-adjusted life-years, or healthy days of life.

**Policy and financial evaluation**

To ensure that funds allocated to a tobacco control programme have been properly used, it is necessary not only to audit them normally but also to relate expenditure to policy decisions made when the programme was elaborated. The purpose of such policy and financial evaluation is to review the use by staff of the programme’s resources in light of the policy and programme background, with a view to improving the programme. The evaluation should trace how and by whom decisions to use resources were made, to what extent the activities implemented with the resources were in line with the original policies and what the activities have achieved.

**Management of evaluation**

Evaluation and its information component are least costly when undertaken as part of a management process. With regard to cost, a distinction has to be made between the setting up of an evaluation system in a given field such as tobacco control (whereby a database is established, data collection methods are set up and criteria, standards and other methodological tools are developed) and the more routine follow-up of activities and results, which should be done at minimal cost. The evaluation of experimental or pilot projects may deserve more time and funds to ensure maximum effectiveness before they are replicated.

It is thus difficult to make a recommendation on the amount of resources (financial or otherwise) to be spent on evaluation at the initial stage, even in relation to the total cost of a programme. Later on, it is probably most effective to ensure that means of evaluation are built into the programme activities (particularly with regard to information gathering) and that regular reports are made to allow the development and implementation phase to be assessed.
Thorough analysis at pre-established intervals will allow effectiveness and impact to be assessed. If relevance and adequacy have been properly estimated at the planning stage, regular analysis will also allow decision-makers to reorient activities when necessary.

Closely linked to the issue of cost is the problem of timing and frequency of evaluations. Some aspects of evaluation will require regular monitoring, e.g. prevalence of tobacco use. Short-term projects may be evaluated rapidly (see Chapter 13), while a longer-term perspective is needed to take stock of the effectiveness and impact of programmes.

Crucial to the management of evaluation is the selection of the evaluators and the evaluation team. The fashion recently has been the "audit" style of evaluation, whereby outside groups of experts evaluate programmes independently to ensure objectivity. Yet the principle of conducting evaluation as an integral part of programmes and activities implies that the individuals and groups responsible for the development and implementation of the programmes should also be responsible for their evaluation. Groups of experts can then be included in the evaluation process, as necessary, to discuss with those involved the results of the programmes or activities and to offer a different angle or approach.

Generally speaking, responsibility for evaluation should rest at local level with those in charge of programme development and implementation. In community programmes it will be essential to involve representatives of the community in the analysis of the appropriateness of the service that the community has received.

At the regional level or for the evaluation of an institution, responsibility will lie with the regional authorities or with the director of the institution. At the central level, evaluation may be the responsibility of the programme leader, the director-general of health services or perhaps the Minister of Health. In the case of a national programme it will also be useful to involve other ministries such as those for agriculture, finance and trade.

An important reason for involving all concerned is to ensure that the recommendations from the evaluation are practical and constructive and will be applicable at a later stage. Another reason is to ensure that there is no self-defensive reaction on the part of the programme implementors against the evaluation. Furthermore, as some of the evaluation issues may be sensitive or controversial in nature, it is essential to maintain dialogue between all the people concerned. The evaluation activity and its findings should be made known to all those involved in the programme process, to reinforce the view of evaluation as constructive and not destructive (see also p. 27).

The approaches to evaluation described in this book are self-contained and have been kept simple to allow them to be used by all concerned with tobacco control, whatever their training and whatever the setting of the programme. However, brief mention is made of various more sophisticated scientific approaches that may be used in evaluation if local circumstances permit.
Future improvements in information technology systems may permit continuous monitoring and evaluation in all circumstances. Techniques from other scientific disciplines may be relevant to evaluation of tobacco control measures:

- **Epidemiology**: prospective studies and surveillance systems; careful definition of the population at risk; accurate recording of age and cause of death (globally only 30-35% of deaths are certified by a physician, which presents an important obstacle to scientific evaluation); reliable follow-up of the survival of smokers and non-smokers.
- **Economics**: concepts of productivity; the effects of redistribution of income (as in many social programmes).
- **Medicine**: health effects of active and passive tobacco consumption; diagnosis of tobacco-related morbidity and mortality.
- **Psychology** (study of individual behaviour) plus **sociology** and **anthropology** (studies of the behaviour, norms and values of social groups, as well as social marketing). These three disciplines provide understanding of why some people change behaviour in response to a programme while others do not.
- **Statistics**: random sampling; extension of social survey design methodology; regression analysis; adjusting of data; correlation analysis; trend analysis.
- **Mathematics**: information technology linking different data sets and various other analytical methods.
- **Chemistry**: measurement of the condensation of nicotine vapour; measurement of smoke particles to assess the impact of an indoor measure for tobacco control.
- **Biochemistry**: measurement of carbon monoxide, thiocyanate or cotinine in saliva or urine; this may be costly and sometimes difficult to effect, but can be useful to confirm self-reported abstinence rates in a sample of a population.

**Background reading**


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1 The applicability and acceptability of evaluation techniques developed within these sciences may vary widely according to local circumstances. There are many excellent books on how to evaluate programmes both for process and outcome using a variety of methods; a number of these are listed at the end of this chapter. Evaluators may also find it useful to consult their local university for help in applying these evaluation techniques.


Constraints in the definition of the outcome

While the objectives of control programmes and related interventions can usually be clearly identified, the measurement of the outcome is more complex. Tobacco control policies and programmes often contain several of the essential elements listed in World Health Assembly Resolution WHA39.14. The simultaneous implementation of these elements makes it difficult to assess qualitatively or quantitatively the individual contribution of any one element to the desired outcome. Yet the need to continue tobacco control programmes, to finance them as economically as possible and to transfer some techniques to other countries makes evaluation indispensable.

The final outcome of comprehensive tobacco control policies is not, in fact, the sum of the results of the individual activities. Paradoxically, while diverse activities may not appear effective at first sight, the cumulative effect of these activities may be positive, not only in terms of increased knowledge but also in behavioural changes such as reduced consumption of tobacco. While each action may be insufficient in itself, the combination of messages, recommendations and obligations resulting from various activities and programmes may trigger positive overall effects. These effects may even be felt after differing periods of time. This fact contributes to the complexity of the evaluation of tobacco control programmes and makes it difficult to identify the contribution of specific components to overall knowledge or behavioural change. This situation is compounded by the fact that comprehensive tobacco control programmes often comprise both primary prevention activities (such as taxation and restrictions on advertising) and secondary prevention (such as smoking cessation programmes).

Which outcome should be measured?

Evaluation of tobacco control programmes may address a variety of outcomes:
EVALUATING TOBACCO CONTROL ACTIVITIES

• Political outcome measured by a number of programme and policy measures taken at local, regional and national levels.

• Cognitive outcomes related to:
  — public opinion and awareness;
  — changes in knowledge and attitudes about tobacco consumption.

• Behavioural outcomes concerned with:
  — decrease in smoking prevalence;
  — decrease in consumption;
  — increase in self-protective behaviour;
  — increase in personal involvement in tobacco control.

• Economic outcomes, reductions in the cost of medical care, improved productivity and less damage to property, as well as impact on public finances.

• Health outcomes (for smokers and non-smokers) in terms of:
  — improvement in quality of life;
  — decrease in tobacco-attributable morbidity;
  — decrease in tobacco-attributable mortality.

Here it should be underlined that negative findings are as important as positive ones. If an intervention does not reach its objectives, it is important to recognize this fact and identify why it failed so that it can be modified or the funds can be allocated to another activity.

The ultimate outcome demonstrating the success of tobacco control programmes is a reduction in tobacco-attributable deaths and diseases. However, two difficulties that often arise are the time-lag before a change is seen in attributable mortality and morbidity and the problem of disentangling the effects of each of the many components. As tobacco-related diseases may take more than 20 years to appear, tobacco control programmes may take years to validate completely and, even then, it may not be possible to ascertain the specific measures in the tobacco control policy that caused the change.

Intermediate outcomes may thus be necessary to evaluate individual components of programmes. These intermediate outcomes will be measured in terms of knowledge or changes in tobacco use. For example, in the case of a tobacco control programme in the workplace, the final effect may be a reduction in diseases caused by active or passive smoking among workers. Yet a number of intermediate or indirect effects may show the worth of the tobacco control programme in terms of cessation rates, increased attempts at quitting, an increased proportion of smokers who intend to quit, decreased absenteeism, perceived reduction in exposure to second-hand smoke, increased morale, reduced smoking-related problems at work (e.g. fires, litigation), and a transfer of knowledge to people in the particular work environment.

1 The decrease in risks for non-smokers — i.e. potential passive smokers — is a positive side-effect of many tobacco control programmes that is generally not quantified.
Strategies and variations in outcome

The personal choice that leads to tobacco consumption and nicotine dependence is based on a variety of factors. It involves *inter alia* personality characteristics, social influences, economic status and psychological conditions. These factors are not static; tobacco use is one of the rare health issues in which the adverse health conditions are created by human beings who are capable of adjusting their strategies in order to continue to assure a market for their product. The role of the tobacco industry in trying to maintain tobacco consumption will have to be taken into account when evaluating tobacco control strategies and recommending future action. A change of strategy by governments and tobacco control activists will soon trigger a new marketing strategy, product creation and possibly even litigation by the tobacco industry. Furthermore, it will often be necessary to evaluate tobacco control activities against an unstable socioeconomic background where various factors, such as unemployment and recreational activities, will be influential. The lifestyle attitudes inherent in tobacco use add to this complexity, as personal and social behavioural findings are not transferable from culture to culture and often not from one social group to another. Also, nicotine is an addictive substance. Knowledge, incentive and motivation are often not sufficient when fighting the psychological and physiological factors involved in tobacco dependence.

Variation of results with time

When Boileau wrote "Vingt fois sur le métier remettez votre ouvrage", he was not addressing tobacco control specialists. They are, however, a group for which such advice is most appropriate!

Caught between social approval, dependence on nicotine, and promotion of new tobacco products, most smokers quit and relapse a number of times. The results of any control measure may be drastically different if evaluated after a few weeks, a few months or a few years.

In tobacco control, perhaps more than in any other lifestyle programme, there is significant erosion of the effect of a measure over time. Many studies have typically found that tobacco control efforts have a major impact in populations with an initially high prevalence of smoking, in contrast to relatively modest or no effects in populations already well exposed to the tobacco control message. This may reflect a saturation of the potential for smoking reduction in populations. For example, a worksite non-smoking policy in an industrialized country may at one time have led to a reduction in the number of smokers by approximately 20% while a few years later the same policy might have difficulty reaching a reduction of 4–5%. As time goes by the more
decided potential quitters are likely already to have stopped using tobacco. As society appears to be quickly sated with tobacco control messages and strategies, there is a strong need for novel approaches. The effectiveness of tobacco control measures will thus also vary over time and it is impossible to transfer the results of previous evaluations to present conditions without prior analysis and retesting.

Measurement of outcome

Advantage of standardization

There is significant value in employing standard protocols, indicators, sets of questions and sometimes chemical measurements to evaluate the outcome of tobacco control programmes. The first advantage of standardization is that it allows programmes to be replicated and their relative cost-efficiency estimated. Similarly, standard conceptual frameworks will promote comparability across studies.

Complete standardization is not always possible, however, and intervention methods may face unexpected obstacles, particularly in developing countries. For example, telephone and mail surveys are commonly used to assess the effects of media campaigns and community interventions. Although it is possible to replace these by personal interview surveys in developing countries, reliable sampling may prove difficult. Thus, evaluation of programmes in these circumstances will require ingenuity. For this reason, different methods appropriate for various levels and situations are described in Parts 2 and 3. In addition, emphasis is put on defining indicators valid for developed and developing countries to overcome a number of limitations in different country settings.

Information and measurement in tobacco control

The use of information for evaluation has been described in Chapter 2. Evaluation often involves comparing results or expected results with a baseline situation. Thus proper and specific information on the situation at the beginning of the implementation of a programme is of the utmost importance. Pre-established indicators followed up in the course of the programme may facilitate evaluation and also provide a way to monitor the success of the programme during its implementation. Success could be indicated by, for example, an increase in the number of reports in the mass media or an increase in number of tobacco-free public places, workplaces or restaurants.

Sources of information may be of limited reliability and cross-references should be made whenever possible to other sources in order to check accuracy.

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1 This section should be read in conjunction with the description of information support in Chapter 2 (p. 15).
For example, in interviews there is often under-reporting of tobacco use by women and children, especially in countries where social or religious taboos prohibit smoking by children. Observations such as surveys at sales points may help complement the interviews.

WHO can assist Member States to validate some of this information (mortality and morbidity data, risk factors, and so on) as well as establishing norms and methods for the gathering of data.

**Reliability and validity of the results**

Reliability is a measure of consistency, i.e. the possibility, in principle at least, that the same action will produce the same results on different occasions. Validity has two aspects — internal validity and external validity. Internal validity reflects the extent to which a test or method measures what it is intended to measure, or how certain it is that what is claimed as a cause has actually produced the observed results. External validity is the extent to which the results of research can be generalized to other groups of people or settings. It is obvious that information from different sources will differ in reliability and validity.

**Current situation and trends**

The variation of results in the short term and the need to look at the long-term impact underline the importance of trend analysis when measuring the effectiveness of tobacco control programmes. Trend analysis can apply to mortality, morbidity and prevalence of tobacco use as well as to issues relating to opinion or knowledge.

In most countries past trends based on historical data are clear enough to permit interpretation. However, care should be taken to allow for possible influences of changes in definition of terms, and in coverage or completeness of data.

An analysis of the current situation can extend to data covering a few months or a year. Because data on behaviour and belief are important in tobacco control, evaluators are often better able to interpret current data than past trends.

Projections of future trends are only as good as the underlying assumptions, which are generally based on past trends. They should be used prudently and it is recommended to consider a number of possible variants in the evaluation.

**Use of results**

Evaluation may be unpopular. Those who have implemented an activity may see evaluation as a criticism, while policy-makers may feel that its high cost is compounded by the facts that the results are seldom put to use and are rarely accompanied by practical suggestions for action.
The dissemination of the results of evaluation is crucial. Dissemination should be planned from the design stage and the people or channels to be involved should be identified early. The importance of the presentation of the results cannot be overemphasized. Evaluators should tailor their reports to the audience they are addressing — politicians, scientists or the press. The expected use of evaluation results should also influence the way in which these results are disseminated. The report should be made known to all those concerned with the programme. If well used, the report will strengthen team spirit, and if circulated to people working in similar circumstances may facilitate networking.

The most evident purpose of evaluation is to prove the worth of, or improve, the programme or activity. It may then lead to the decision to allocate resources for continuing the activity and, if necessary, for improving its management. It is equally important to discontinue ineffective interventions. Thus evaluation reports should contain both positive and negative results. Although evaluation of effectiveness may be only one of the factors that influence resource allocation, it generally encourages rational decision-making. Chapter 12 and Chapter 19 provide examples of evaluation recommendations that have led to immediate political action and subsequent legislative improvements.

It is useful to publish results, not only for specialists or politicians but also to inform and motivate the general public. For this, the proper media support has to be enlisted and the information targeted to the readership. All too often the results of clinical trials have been published in a scientific journal and then forgotten, without ever being put into practice. Evaluation results can also be used to educate the health promoters and, possibly, to initiate dialogue on tobacco control issues. Practitioners tend to ignore conclusions about programmes if they are couched in erudite terms, contain complex statistics and appear only in specialized journals. Thus programmes may continue to be used long after their ineffectiveness has been demonstrated and useful new techniques may remain unused.

It is useful for technical, political and information purposes to prepare evaluation reports on national and regional tobacco control programmes at regular intervals (say once or twice a year).

Such evaluation reports can:

- inform the public as to whether the problem is getting worse, getting better, or not changing;
- make public information on the costs of caring for patients suffering from tobacco-related diseases;
- inform the public of a variety of health and socioeconomic consequences of tobacco use, as analysed during the evaluation;
- tell the public whether tobacco control measures are working as intended;
- keep the need for tobacco control measures in the public mind;
PART 1. GENERAL PRINCIPLES FOR EVALUATION

— alert the public to how much money is being spent on persuading smokers to smoke;
— let industry managers know that their promotion of tobacco is under public scrutiny;
— generate financial support and provide an argument for further control measures.

Background reading

Reid D et al. Choosing the most effective health promotion options for reducing a nation’s smoking prevalence. Tobacco control, 1992, 1:185–197.
The evaluation and monitoring of public action on tobacco. Copenhagen, WHO Regional Office for Europe, 1988 (Smoke-free Europe, 3).
WHO Programme on Tobacco or Health: implementation of Resolutions WHA42.19 and WHA43.16: interim report by the Director-General. Geneva, World Health Organization, 1991 (unpublished document A44/9; available on request from Tobacco or Health, World Health Organization, 1211 Geneva 27, Switzerland).
Part 2

Health protection: economic measures and restrictions

The risks associated with certain behaviour, lifestyles and exposures call for public intervention. A first step in efforts to tackle public health problems should be to inform the population concerned and promote voluntary changes in lifestyle, often at individual level. Unfortunately, in the area of tobacco control, the public receives mixed messages as a result of advertising of tobacco products, the increasing evidence of the direct and indirect dangers of tobacco use, and the common use of tobacco. This fact has led governments and other public authorities to intervene with a variety of economic and legislative measures to protect the health of their populations.

Protection implies guarding against potential dangers and threats to health. In tobacco control, protection has involved, for instance, taking measures to safeguard people against the hazards of particular places and situations. The level of protection imposed by government is a matter for philosophical, psychological and political debate. It could be set at any point along the line between an environment of utmost safety and an environment unacceptably hazardous to health, with the final point depending on the amount of control that society will accept for the sake of safeguarding health. In many cases, policies recognize that there is no safe level of exposure for certain hazardous substances. The subtlety of protection against tobacco lies in the fact that, since the product is not only a legal drug but is also ingrained in society, overprotection would soon be regarded as an unacceptable pressure from the state.

It is in this context that the policies and actions that ensure health protection have to be implemented and enforced, and their effects evaluated. Evaluation is an essential tool in ensuring that the policies and actions are strong enough to be effective without restricting essential freedoms.
Chapter 4

Evaluating the impact of tobacco on national economies

Tobacco is an economic commodity that pervades different sectors of national economies. It is probably the only legal economic commodity that, if used as intended, kills one-third of its users and is the cause of much suffering and related financial expenditure. Thus, in considering the economic influence of tobacco in any country, a number of issues have to be analysed.

The impact of tobacco on national economies

Not only is tobacco an important economic commodity but, for a number of countries, it is an important source of income and foreign currency. For many governments tobacco sales offer an easy way to raise taxes and the industry serves as a source of employment. Such economic importance may make its control a difficult political issue. On the other hand, in many countries, tobacco is the cause of tremendous costs resulting from illness, related absenteeism and loss of productivity.

Tobacco is a lucrative short-term cash crop, and tobacco prices tend to be relatively stable compared with other agricultural products. However, this profitability is at least partly due to price support and other policy measures in the great majority of producer countries. These measures include production and supply management programmes, provision of seed, fertilizer and other inputs, as well as “soft” loans to tobacco farmers, guaranteed prices, premiums to buyers of domestic leaf, and export subsidies. These incentives are often provided by tobacco manufacturers, less frequently by governments, and sometimes by both.

The processing of tobacco and the manufacture of tobacco products also provide employment, as do related industries such as those providing agricultural equipment, transportation and engineering related to tobacco processing. Many people are employed in the tobacco wholesale and retail trade but it is difficult to estimate the number solely employed in the sale of tobacco products. While tobacco may be a source of employment not only in the primary agricultural sector but also in the secondary (industrial) and tertiary (services)

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1 The support of Mr Neil Collishaw, Tobacco or Health, WHO, Geneva, Switzerland, in drafting of this chapter is gratefully acknowledged.
PART 2. HEALTH PROTECTION: ECONOMIC MEASURES AND RESTRICTIONS

sectors, it does not affect all countries in the same way. For instance, the main producers of manufactured cigarettes are not the main producers of tobacco. Tobacco is also a source of reduced productivity through various factors such as absenteeism, fires and disruption of work.

- In reviewing the effect of tobacco production on countries’ economies, there are comparative issues to take into consideration. For example, China, Brazil, India and the USA are the main producers of tobacco leaf but the economic significance of tobacco to each is quite different. In 1987, China exported relatively little tobacco whereas the USA was the leader with 15% of tobacco exports worldwide, followed by Brazil with 13%. By 1992, however, Chinese exports had grown sixfold and China had become the world’s sixth leading tobacco leaf exporter after the USA, Brazil, Zimbabwe, Italy and Greece.

- It is also of interest to consider the effect of tobacco on the trade balance in each country. Thus in Malawi tobacco is the backbone of the economy, with tobacco export earnings in 1990 accounting for almost 70% of total income from exports; in Zimbabwe it accounted for 20%; but in Brazil exports of leaf tobacco have never exceeded 2–3% of the total value of all exports. Other developing countries spend more on importing tobacco than they earn in exporting it. A large number of developing countries (including some of the least developed countries) have a large deficit in their balance of trade for tobacco products. These countries include Angola, Bangladesh, Benin, Burkina Faso, Ethiopia, Papua New Guinea and Somalia.

The benefit a country derives from tobacco production or use in terms of foreign exchange is difficult to assess. However, foreign exchange earnings are important to all governments and are critical to economic development efforts in many developing countries. Tobacco affects foreign exchange through imports and exports of leaf or manufactured products and of machinery and supplies used in processing.

In some cases, special trade agreements or concessionary sales may alter the effects of tobacco or foreign exchange earnings. Recent political and economic realignments in the world have had a number of consequences for world tobacco trade. As recently as the mid-1980s, major transnational tobacco companies were important in only about one-third of the world’s tobacco markets. Now, they operate almost everywhere in the world, including China (through joint venture agreements), some other countries of Asia and, more recently, some countries of eastern Europe where state monopolies had previously imposed import restrictions to protect their markets from foreign influence.

Tobacco taxes are an important source of government revenue as well as an important health policy tool for discouraging tobacco consumption. Provided that smuggling is reasonably well controlled, that all tobacco products are taxed at similar rates, that taxes increase faster than inflation and that they
are effectively collected on all tobacco products, tobacco taxes have proved important in achieving both health and fiscal objectives. When tobacco taxes are rising, government revenues will continue to increase for many years, even as tobacco consumption declines.

It would appear from the above that a good case can be made to show that tobacco has a significant economic impact on some countries by providing income for farmers and other workers. However, if tobacco production and manufacturing were reduced, or if they had never been introduced, most, if not all, of the income would be generated in other ways. People who are involved in growing tobacco and manufacturing and distributing tobacco products would grow, manufacture and distribute alternative crops and other products. Assessments of crop diversification schemes in individual countries have shown their feasibility in various regions of Brazil, Canada and France.

Tobacco production and use also involve a number of costs. In particular, in both the short and long term, society bears the costs of premature deaths, added morbidity and medical care.

- In 1985, in the United States of America, the total direct health care costs associated with smoking were estimated at over US$12 thousand million or about 5% of all direct health care costs in that year. In the United Kingdom, each year smoking-attributable diseases cost the National Health Service more than £400 million, and are responsible for over 50 million working days lost. In Australia, the total health care costs of smoking in 1988 were estimated at 760 million Australian dollars, while “savings” (in comparison with non-smokers’ additional years of costs) from premature deaths were 150 million Australian dollars, resulting in net costs of 610 million Australian dollars. In Japan, a study that linked the records of a health survey with medical insurance records estimated that in 1987 the medical costs for children living in households where there was a smoker were 30% higher than for those in non-smoking households (US$260 as against US$200 per child). In developing countries where an epidemiological transition from communicable diseases to lifestyle illnesses is in progress, tobacco-related diseases are increasing. In Brazil, the cost of public information and personal smoking cessation services is estimated at 0.2–2.0% of per capita gross national product (GNP) for each year of life gained, while treatment for lung cancer costs 200% of per capita GNP per year of life gained.

Although there are few data on the economic burden of smoking for most developing countries, it should be remembered that these countries have to bear the costs not only of communicable diseases but also of noncommunicable tobacco-related diseases. Some comparisons will need to be made on an international scale as the costs and benefits of tobacco production and consumption do not necessarily occur in the same countries.
There are also environmental costs of tobacco production:

- **Soil degradation.** In relation to other crops, tobacco is very demanding of nutrients. It depletes soil nutrients faster than other crops, which is an important consideration in developing countries — particularly those where soils are characterized by their low nutrient content. To maintain soil fertility, this extraction of nutrients must be balanced by suitable inputs of costly and, in many cases, imported fertilizers. Where tobacco is cultivated on land with minimal rotation, there is a tendency for the soil to become exhausted and for crop pests to become endemic. The alternative to replenishment is to exhaust soil fertility and then clear new land for cultivation. In the past this shifting cultivation has been responsible for deforestation and, to some extent, still is today.

- **Use of pesticides.** Although tobacco grows like a weed, the production of good-quality leaf is notoriously beset by problems requiring the use of herbicides, nematocides, fungicides, insecticides and other chemicals. The use of complex chemical compounds carries the possibility of crop contamination with inherent danger to those who smoke or chew the leaf, contamination of land and water-supply with danger to local communities, and occupational hazards for farmers and their families.

- **Use of wood.** There is increasing concern over deforestation and associated environmental problems such as soil erosion, siltation, flooding and drought as well as over the depletion and extinction of wildlife. Countries where fuelwood is an important input to tobacco production include Bangladesh, Brazil, Kenya, Malawi, Malaysia, Pakistan and the United Republic of Tanzania. However, tobacco production is responsible for depleting forests in a number of ways other than the use of wood for curing purposes. Firstly, trees are felled to provide land for tobacco cultivation. Secondly, wood is used in the construction of barns for flue-cured and air-cured tobaccos, as well as for ancillary equipment used in the curing process. Thirdly, wood-based materials are used for packaging tobacco and in cigarette manufacture.

While tobacco brings added revenue to governments through taxes, it is also a source of expenditure to governments through subsidies. For example, of all the crops supported by the common agricultural policy of the European Communities, tobacco has seen the highest increase in expenditure.

In earlier decades there have been cost–benefit analyses, in the form of balance-sheet studies, that attempted to determine if tobacco was beneficial or detrimental to the economy of a country. However, this approach raises several moral issues. The health effects of tobacco consumption make it almost impossible to evaluate the cost to society without making estimates for certain types of social and health consequences. Unfortunately these estimates are difficult to make. In addition, the very principle of a cost–benefit analysis of a product that is dangerous involves a question of ethics that cannot be solved.
Thus, tobacco cannot be considered as a normal economic commodity, the production of which has only to follow the laws of supply and demand and which might be an acceptable product if the cost of disease, suffering and death it caused did not exceed the production and marketing costs. It is easy to see the danger of such reasoning.

This chapter shows how the general economic background in which tobacco control measures have to be taken can be evaluated. It will serve to identify the factors related to tobacco use and to measure the various economic parameters of tobacco production and consumption and their effects. Their influence on the economy of a country can then be evaluated, with a view to developing the most economically appropriate tools for tobacco control. It will fuel the economic arguments that are involved in the adoption of legislation and regulations and it will show the need for substitute crops and employment. Policy-makers need these economic arguments, including those related to health and human costs, before embarking on any tobacco control measure.

Examples

Three examples have been selected to show: (1) crop substitution in a developing country, (2) crop substitution in a developed country, and (3) the calculation of the cost of smoking in a country.

Crop substitution in Bangladesh

One outstanding example of a crop substitution programme integrated into a broader community tobacco control strategy occurred in Bangladesh, one of the world’s poorest countries. The project successfully accomplished its objectives and was financed entirely by locally-generated funds. The project began as an initiative of the Bangladesh Cancer Society. Particularly noteworthy were the Society’s efforts to raise funds locally and to conduct local demonstration projects.

The Bangladesh Cancer Society operated a modest demonstration project in a rural community of 15,000 people in Kushtia District. In an initial phase, tobacco use in the community was surveyed and about three-quarters of adults were found to be tobacco users, with smoking of bidis or hand-rolled cigarettes being most common among men and chewing most common among women. Tobacco growing was also widespread in this agricultural community. The intervention consisted of convincing religious leaders, teachers, health care workers and other opinion leaders in the community of the importance for good health of discouraging tobacco use throughout the community. Agricultural extension workers were enlisted to offer information and advice to local tobacco farmers.

on how to switch from tobacco production to the production of food crops such as bananas, okra and maize.

Three years later, in 1992, preliminary evaluation results indicated that the prevalence of tobacco use had fallen dramatically from baseline levels. Assessment showed crop substitution to be very successful. Okra production, in particular, was yielding farmers four times more money than they had earned growing tobacco. Furthermore, okra, a nutritious food crop, was being sold locally by the farmers, thereby enhancing both the nutritional status of the community and the control the farmers had over the sale of their products. Previously, tobacco had been sold to traders for further processing, resulting in loss of control by the farmers over the marketing of their product. The success of okra production created new agricultural jobs to assist in the planting, maintenance and harvesting of the crop. In a case of success breeding further success, only people who did not smoke or chew tobacco were eligible for employment in okra production.

_Crop diversification in Canada_¹

As part of Canada's comprehensive tobacco control policies, a Tobacco Diversification Plan was launched by the Canadian Department of Agriculture in 1987. The aim was to provide incentives to Canadian tobacco farmers to cease tobacco production. The plan was developed in response to decreased demand for tobacco.

The Plan had two components: the Tobacco Transition Adjustment Initiative (69.5 million Canadian dollars), and the Alternative Enterprise Initiative (15 million Canadian dollars). The latter provided financial assistance for specific alternatives to tobacco farming, such as the establishment of a tomato growing and processing enterprise by a group of former tobacco farmers, while the former programme made cash payments to qualifying tobacco farmers who agreed to stop growing tobacco.

Overall, the programme was highly successful. The number of farms producing flue-cured tobacco in Canada decreased from 2916 in 1981 to 1326 in 1992, a 55% decline in 11 years.

A careful evaluation of the programme conducted for the Canadian Department of Agriculture found the Tobacco Transition Adjustment Initiative to have been the more successful of the two components. Several methods of evaluation were used, including structured interviews conducted after implementation of the programme, with programme beneficiaries as well as with tobacco farmers who chose not to take advantage of the programme. In addition, administrative and financial data from the programme were analysed and trends in general economic indicators of the tobacco-growing region were examined. It is important to note that programme participation required the submission of a consid-

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irable amount of information by the applicants. This information, in turn, facilitated the completion of the programme evaluation.

The cash payments permitted most of the retiring tobacco farmers to adapt quickly to other forms of economic activity and to choose the activity they would pursue. Not all of them continued in agriculture; many moved to employment in the manufacturing and service sectors.

The Alternative Enterprise Initiative was less successful. Not all the available funds were utilized and not all the businesses established by former tobacco farmers were financially successful.

Nevertheless, offering financial incentives to tobacco farmers to retire from the business was found to be a valuable component of Canada’s comprehensive tobacco control policy. The policy was particularly effective because the Canadian tobacco market was clearly in decline and could no longer support nearly 3000 farmers.

The economic costs of smoking in the United States of America

Smoking-attributable fractions (SAF) for direct medical care and indirect morbidity were derived from the 1987 National Medical Expenditures Survey (NMES). This survey collected data on demographics, medical care, health, access to care and risk behaviour among 35,000 United States residents. Cost data were collected on reported services. Estimated marginal costs attributable to smoking were based on multistage econometric models and were weighted to represent the population aged 19 years and over. The final models were controlled for ethnic group, poverty, marital status, education, medical insurance status, region, seat-belt use, body mass index and chronic medical conditions. Estimates of indirect morbidity were based on excess lost workdays for smokers. Indirect mortality costs were based on the years of life lost and income foregone by people killed by smoking.

Some 400,000 deaths in the United States in 1989 were attributable to cigarette use. The SAF for ambulatory care, prescription drugs, hospital care, and home care in 1987 among persons aged 19 years and over was 7.1%.

The study showed that cigarette smoking accounts for a substantial fraction of all medical care costs in the United States. If this fraction is applied to 1993 health care costs, the total cost attributable to smoking is US$ 50 thousand million.

Comments

Crop substitution studies indicate that, in both developed and developing countries, there are crops that can match or exceed the level of return from tobacco. However, some crops that give high returns, such as fruits and vegetables, have limited potential because of market constraints and unstable

Farmers may be reluctant to produce alternative crops unless they have a guaranteed market for them. Given these factors and those mentioned on p. 32-36, it is clear that specific evaluations will be required for individual countries or even provinces. It is necessary to adopt a country-by-country approach when considering the economic impact of tobacco production and consumption on the economy, the environment and health. Furthermore, different trading policies may influence the interest in and benefits to be derived from tobacco production. All successful instances of crop substitution have involved complex packages of public policy measures at the national and international levels developed on the basis of local knowledge.

**Guidelines for evaluation**

*Expected outcome of the activity*

Evaluation is expected to give a complete analysis of the influence and impact (positive and negative) of tobacco on the national economy along the lines proposed below.

*Where and how to find the necessary information*

The economic data on tobacco in a given country will usually be well documented in national accounts, government reports and reports from departments of agriculture, employment, industry and trade. The number of people employed in the agriculture or retail sectors may be difficult to estimate as it is often poorly documented and may not be regularly updated.

Mortality and morbidity data will be a prime source of information on health costs. Insurance companies may also have useful information and a number of estimates will have to be made regarding absenteeism, cost of manpower and other factors.

The length, details and apparent difficulty of some of the concepts examined below should not discourage attempts to produce an economic description of the “tobacco or health” situation in individual countries. Some parameters may not be applicable in every country. Also, if data are not readily available for each item mentioned, acceptable estimates may be relatively easy to make.

*Methods for evaluating the “tobacco or health” situation*

To evaluate the situation in individual countries, the process outlined in Chapter 2 should generally be followed and the most appropriate methods selected from Chapters 2 and 3. The following is presented as a checklist to assist evaluators.

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1 General information for evaluation and its sources are described in Chapters 2 and 3.
Evaluating the impact of tobacco on agriculture, trade and industry

• Agricultural sector:
  — nature and extent of tobacco growing,
  — trends in revenue, production, sales and employment,\(^1\)
  — agriculture’s share of consumer expenditure on tobacco,
  — direct and indirect subsidies,
  — possibilities of alternative forms of economic activity for tobacco producers,
  — government role in encouraging (subsidies) or discouraging the growing of tobacco.

• Manufacturing:
  — nature, amount, varieties and proportions of tobacco products manufactured,
  — trends in revenue, production, sales and employment,
  — direct and indirect subsidies,
  — manufacturers’ share of consumer expenditure on tobacco,
  — possibilities of alternative forms of economic activity for tobacco manufacturing workers,
  — diversification of tobacco manufacturers,
  — government role.

• Wholesale and retail trade:
  — type and system of distribution of tobacco products,
  — trends in revenue, sales volumes and employment,\(^1\)
  — wholesalers’ and retailers’ share of consumer expenditure on tobacco,
  — possibilities of alternative forms of economic activity for tobacco distribution workers,
  — government role.

• Marketing of tobacco products (national):
  — nature and extent of promotional, advertising and sponsorship activities,

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\(^1\) In the current world economic situation, employment is an important factor and should be considered when determining the importance of tobacco for the economy of any country. However, employment generated by the tobacco sector cannot always be taken as a benefit since in certain cases this employment could be generated by other commodities or by other economic activities. The situation will vary according not only to the country but also to the type of employment. For instance, in a country where the agricultural sector is already depressed, it may be more difficult to find alternative employment for those previously employed in the agricultural sector. On the other hand, it is very common for retail sellers of tobacco products to sell other goods and it may be easier in that case to replace tobacco products by other products or to diversify. In considering the number of people working for the tobacco sector, it would be useful to indicate the average revenue or range of revenue in each category.
— trends in revenue, sales volumes and employment related to tobacco advertising; 1
— advertising firms’ share of consumer expenditure on tobacco.

• International trade:
— nature and extent of imports and exports of tobacco leaf and manufactured tobacco products,
— trends in revenue, sales volumes and employment related to tobacco importing and exporting; 1
— contribution of international tobacco trade to balance of payments surplus or deficit and hard currency supply,
— smuggling,
— government role and revenues accrued by this sector.

• Tobacco taxation:
— nature and extent of tobacco taxation, including national and subnational tobacco taxes,
— trends in tobacco taxation and the effect of tobacco taxes on nominal, real and effective tobacco prices,
— equity, incidence and distribution of tobacco tax burden,
— limitations of tobacco taxation (substitution, smuggling),
— use of tobacco-generated income, earmarked tobacco taxes and use of earmarked tax revenue or increased budgets for tobacco control,
— parallel increases in tobacco control revenue and expenditure,
— use of tobacco taxes to influence price and consumption of tobacco products,
— import and export taxes.

Estimating the costs of health and non-health effects of tobacco use

A large number of estimates of the costs of the health effects of smoking have been made in several industrialized countries. These estimates require a wide variety of data and the results can be quite sensitive to the data available, the methods used and the assumptions made.

Three principal caveats apply to this kind of study. Firstly, the serious health effects of smoking start to become evident only after smoking has been widespread in the population for a number of years, and then only in populations where most people survive into their fifties. This is when smoking-related disease and death become very prevalent. Costs are unlikely to be burdensome until these health consequences become prevalent. Only a minority of the world’s populations, mainly in industrialized countries, are in this category. Thus, for most of the world, where smoking has become widespread only in the past 20 years or so among younger people, estimates of

1 See footnote on previous page.
the current cost of smoking would underestimate the possible future cost of smoking.

Secondly, there is so much heterogeneity among countries in the various components of the economic costs of smoking — medical care costs, non-medical costs, the cost of premature mortality, costs to families, transfer payments and so on — that no single method of estimation can be universally applied. Lastly, in most developing countries and some industrialized countries, available data are inadequate to carry out such cost estimations.

These limitations are sufficiently severe that it is unlikely that a full estimate of the costs of the health effects of tobacco use could be carried out in most of the countries for which such estimates have not yet been prepared. Currently such an estimate would be possible only in some, but not all, industrialized countries. Nevertheless, estimation of at least some of the health costs of smoking may be possible in other countries, and estimations that are not possible now may become possible in the future. For these reasons, there may be wide interest in looking at the various components of the costs of the health effects of tobacco use presented below.

- Annual or lifetime costs? Prevalence-based approaches to the measurement of health costs (annual cost to the society or the smoker) or incidence-based approaches (lifetime costs). The advantages and disadvantages of each approach need to be considered and the one that is most appropriate to the intended purposes selected.

- Direct costs. Medical care costs include:
  - physicians' services,
  - services of nurses, physiotherapists, dentists, pharmacists and other health professionals,
  - hospitalization,
  - pharmaceuticals, including smoking-cessation aids,
  - therapy, including smoking-cessation therapy,
  - medical devices, including smoking-cessation devices,
  - long-term medical care in nursing homes or at home.

- Non-medical costs include:
  - transportation to health care facilities,
  - home care of the chronically ill,
  - fire damage to property and forests caused by smoking,
  - extra costs of personal and property insurance due to widespread tobacco use,
  - costs of operating smoking control programmes including costs to governments and NGOs.

- Indirect costs:
  - morbidity costs, including the loss of earnings and the loss of benefit of unpaid work due to smoking-related illnesses,
— mortality costs, including the loss of future earnings and the loss of benefit of future unpaid work due to premature mortality from smoking-related illnesses,
— non-medical costs, including extra costs related to maintenance of fire-fighting capacity, cleaning and maintenance of indoor environments, and reduced productivity in the workplace because of the loss of trained and experienced workers suffering from smoking-related illness.

• External costs. Effects on non-smokers of involuntary exposure to tobacco smoke include:
  — increased risks of disease and death among adults, children, infants and fetuses,
  — annoyance and irritation,
  — litigation and disruption of work.

• Costs that are difficult to quantify. Pain, suffering, grief, and social and emotional upset may be caused among:
  — smokers suffering from tobacco-related illnesses that are not rapidly fatal,
  — smokers suffering from tobacco-related illnesses that are rapidly fatal,
  — friends and relatives of sick, dying and dead smokers.

• Transfer payments:
  — influence of the health insurance system (Who pays the cost? Who gets the benefits?),
  — taxes, including taxes paid by smokers when they purchase tobacco products and taxes smokers do not pay by reason of premature illness and death,
  — pension benefits, including the extra value of pensions paid to the survivors of prematurely dead smokers and the reduced value of pensions not paid directly to prematurely dead smokers,
  — disability benefits and other payments made to smokers who have smoking-related illnesses or to their surviving relatives.

Cost–benefit analysis at a macroeconomic level has already been mentioned (p. 35). Cost–benefit analysis of micro elements, such as comparative analysis of different types of taxation measures or price increases, is described in Chapter 5.

**Indicators to support the evaluation**

In evaluating the impact of tobacco production and consumption on the economies of individual countries, a number of indicators may help.
EVALUATING TOBACCO CONTROL ACTIVITIES

Economic ratio

Comparison of the contributions of tobacco to certain key sectors of the economy and the total value of these sectors may provide important indicators of the ease or difficulty of implementing tobacco control policies. Examples can be found by asking the following questions:

- How many people are employed in growing, transporting and marketing tobacco? How does this number compare with the total national workforce? What is the rate of unemployment in the country?
- What is the percentage of tobacco exports (manufactured or leaf) in relation to total national exports?
- What is the ratio of imported to exported tobacco products?
- What is government income emanating from all types of tobacco taxation?
- What is the cost of tobacco-related illnesses and deaths? What proportion of the total population do these affect? What share of health care expenses can be attributed to tobacco use?

Influence on demand for tobacco products

- What are the nominal, real and effective prices of tobacco products? Again, examples of indicators can be found by asking questions such as the following: How do these prices compare with standards of living and monetary income?
- Is average income increasing rapidly? Is this also the case for women and young people? Are the prices of tobacco products also increasing?
- Are there economic incentives for the non-use of tobacco products (such as reduced insurance premiums)?

Background reading


Tobacco or Health: status in the Americas: a report of the Pan American Health Organization.


Chapter 5

The use of economic control measures: subsidies, taxes and individual economic incentives

For the sake of clarity, the evaluation of different economic measures has been divided into three main categories — taxation and pricing, tobacco subsidies and price support, and individual economic incentives.

Taxation and pricing

What is the rationale for taxation and pricing as tobacco control measures?

The arguments for increasing cigarette excise taxes are notable on several fronts. First, most econometric studies show a convincing initial decrease in consumption as tax rates increase. Second, taxes on tobacco products (widely and inappropriately known as "sin" taxes) are often used to fund health promotion programmes or health care services. Third, in developing countries such taxes are often more easily and more efficiently collected from distributors and wholesalers than taxes on income, imports or business transactions. Fourth, such taxes are viewed as "user fees" that partially offset the costs to society of the health effects of smoking.

The rationale for raising cigarette excise taxes is the concept of negative price elasticity of demand. Simply put, as the price of cigarettes increases, the population’s consumption (or demand) decreases. Mathematically, the elasticity is calculated by dividing the percentage change in demand by the percentage change in price. Empirical evidence from two decades of research suggests that a 10% increase in the price of cigarettes can reduce the consumption of cigarettes by 5–8%.

Tobacco taxes have been assailed as regressive — that is, they place a more significant tax burden, as a percentage of income, on those in lower socioeconomic brackets. In some countries such as Canada and the USA,

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1 The contribution of Thomas E. Novomy, Assistant Dean for Public Health Practice, Berkeley School of Public Health, University of California, to the drafting of this chapter is gratefully acknowledged.

2 Tobacco taxes should not be called "sin" taxes. This terminology designates the victim of tobacco use as a "sinner", whereas it is the tobacco industry that should be blamed for the widespread use of cigarettes.
people with the least income and the least education are most likely to smoke and it is therefore these same people who might benefit from anti-tobacco education and tobacco control campaigns.

In a number of countries cigarette taxes are part of a comprehensive approach to tobacco control, in which taxation is linked to restrictions on advertising, decreased accessibility to tobacco products by young people, phasing out of tobacco growing, improved warnings on tobacco products, and protection of non-smokers from exposure to tobacco smoke. In Australia, tobacco taxes are used to replace sponsorship of sporting events formerly provided by tobacco companies. This is a good example of an instance where a programme of integrated tobacco control activities can help prevent anti-tax sentiment from undermining the purpose of the tax. Another consideration for countries wishing to increase the cost of cigarettes is to eliminate tax deductions for advertising and promotion of tobacco products. Legislation to eliminate this deduction was proposed in the USA in 1992 but failed to be adopted (by a smaller margin than expected) in the face of intense lobbying from the tobacco industry. This proposed legislation would also have provided for the increased government revenues generated by this action to be applied to tobacco control programmes at state level.

Tax increases are good fiscal policy in that they can deliver revenue to governments efficiently and with a minimum of administration. Because of the dependence smoking produces and the widespread social and economic support for smoking behaviour, taxes are still a reliable source of income. Tax on tobacco is difficult to evade because it is levied at the level of the manufacturer, importer or distributor. However, in many developing countries, tobacco manufacturing is a cottage industry (as is the case with bidi, pan and other products in India) and may thus evade tax. While manufactured and imported cigarettes are more readily taxed, they are less likely to be consumed by those with low incomes. It is thus probable that in such countries tax increases would be less effective as health policy. Problems in the evaluation of tax and price changes are caused by the lack of an infrastructure to collect the requisite data. However, a study in Papua New Guinea estimated that the effects of increasing taxes would be higher than in the USA — that is, the elasticity1 would be greater. Taxation can also help decrease the balance of trade deficit in countries that do not export tobacco.

Taxes may be established through various mechanisms, according to government structure. Legislatively, tax increases may be difficult to introduce because they may be viewed as economic deterrents. In addition, the adversaries of such actions are usually well funded and well organized, whereas health activists generally have only modest funding and organizational resources. In several parts of the USA, citizen-organized referenda have resulted

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EVALUATING TOBACCO CONTROL ACTIVITIES

in tax measures being put to the vote. These endeavours are costly and require aggressive, carefully planned political strategies. Many states have met with stiff, well-funded resistance from the tobacco industry.

Examples of evaluation

Most evaluations of the effects of tax on tobacco consumption use the concept of negative price elasticity of demand (see p. 46). Approaches to assessment will vary according to the development status of the country.

Developing countries

A study on the effects of excise taxation on cigarette and non-cigarette tobacco was carried out in Papua New Guinea using data from the period 1973-1986. With a population of 4 million and a per capita GNP of US$ 700, Papua New Guinea is one of the world's poorest countries. The only known prevalence data on tobacco use came from a small survey done in 1981 which found a smoking prevalence of 85% among men living in coastal areas and 80% among highland women in Goroka. In a 1975-76 survey, purchase of tobacco products accounted for 5.2% of average household expenditure. The first attempt to introduce smoking control policies and programmes was the Tobacco Products (Health Control) Act of 1987, which is still largely unenforced.

The authors of the study were unable to elicit information on the contributions of wholesale and retail mark-ups to retail price. However, data on the volume of cigarette and non-cigarette tobacco consumed and the excise revenue obtained from these were available for the period from 1973 to 1986. Regression analysis was applied to tobacco excise, cigarette excise and income.

Results showed that 10% increases in cigarette and non-cigarette tobacco excise were associated with an approximately 7.1% fall in demand for cigarettes and a 5% fall in demand for tobacco. As tax elasticities would normally be significantly smaller than price elasticities, these findings imply that consumption of cigarettes and tobacco in Papua New Guinea are much more responsive to prices than is the case in developed countries. Excise is therefore an important and practical instrument for the control of consumption. The study also supports tobacco taxation as health policy in that it does not depend on costly media interventions, linguistic abilities or the diversion of funds from other health priorities.

The authors suggested that, if demand characteristics in Papua New Guinea were typical of developing countries, their findings might have enormous implications for smoking control in the developing world.

PART 2. HEALTH PROTECTION: ECONOMIC MEASURES AND RESTRICTIONS

Developed countries

In California, USA, part of the tax on tobacco was used to fund medical care for indigent populations. Of the total additional tax (US$ 0.25 per pack of cigarettes), 45% was assigned to pay for unfunded medical care, 5% to tobacco-related research, and 25% to tobacco control activities, the remaining 25% was not allocated and could be used for any of the programmes. This tax provided millions of dollars for support of health programmes in California. A study later suggested that not only did tax and price effects cause changes in cigarette consumption but that other programmes, specifically media campaigns, funded by the tobacco tax also caused changes in consumption. The validity of this finding awaits confirmation.

Recent studies in California have demonstrated what might seem common sense: the effects of tobacco taxation on cigarette consumption diminish with time. A model describing changes in cigarette consumption in a time-series intervention initially ignored the effects of interventions other than tax, but the investigators suggested that the decline in tax effects was due both to the eroding effects of inflation and to smokers’ adaptation to higher prices. Because smoking is a behaviour that produces dependence, changes in behaviour are quite inelastic. For those with less adaptable incomes (young people or poor people), higher taxes will lead to a decrease in cigarette consumption. The investigators further suggested that to maintain declining consumption an ad valorem tax is needed which increases as the price of cigarettes goes up. This type of tax could, as a minimum, be indexed to inflation. At best it could be increased to offset price cuts by tobacco companies and to discourage switching to less expensive forms of cigarettes (generic brands and roll-your-own tobacco). In Michigan, USA, an ad valorem tax was added to cigarettes at 48% of wholesale price. Thus, as the price levied by the tobacco manufacturer increases, taxes will increase. New Zealand now indexes tobacco taxes to inflation, with prices adjusted every six months. No data on the effect of these taxes are yet available.

Guidelines for evaluation

What outcomes of the programme will need to be checked?

To determine whether fewer persons would begin to smoke in response to an increase in cigarette taxes, four items of information are needed:

1 In developed countries most studies report price elasticity of approximately -0.40 for adults and approximately -1.4 for teenagers. In Canada, where tobacco tax policy is clearly linked to health policy, preliminary elasticity estimates range from -0.6 for adults to -1.4 for teenagers beginning to smoke and -1.6 for numbers of cigarettes smoked by teenagers. Consumption of tobacco in Canada has fallen faster than in the USA (3.52 to 2.48 kg per adult, as against 3.21 to 2.48 kg per adult from 1980 to 1989).

EVALUATING TOBACCO CONTROL ACTIVITIES

— the change in the real (inflation-adjusted) price of cigarettes;
— the responsiveness of smoking participation to higher prices (the negative price elasticity of demand);
— smoking prevalence among the target group;
— the size of the target group population.

These four items can give an estimate of the change in the number of people beginning to smoke in a population. The results are usually presented as the number of teenage smokers not beginning to smoke as the result of a given increase in cigarette prices.

Where to find the information

Careful reporting of excise tax and consumption is necessary. The availability of these data varies around the world, with most data reported by the United States Department of Agriculture, industry analysts, consultants to the tobacco industry and often by national government agencies as well.

Of the four items of information listed above, the first, third and fourth are relatively easy to obtain. The second — price elasticity — will need to be calculated on the basis of cigarette prices and not just taxes. Elasticity models incorporate both economic and non-economic determinants, such as family characteristics, demographics, economic resources and prices of other commodities.¹

Little change in consumption is likely if increments in the cigarette excise tax are small. Substantial increases will, however, lead to changes in consumption. It appears that tobacco taxes lose their negative effect on demand over time, and thus these taxes need to increase to offset both the acquired tolerance to higher prices among smokers and the effects of inflation. Studies of tax effects must look at both long-term and short-term effects. These will be moderated by hoarding, inflation, wholesale price changes, marketing of lower-cost brands and changes in per capita GNP.

In addition, economists have developed complex models that incorporate several important variables into what is known as a “demand function,” describing changes in tobacco consumption over time. These equations are usually set up by regressing the quantity of the commodity demanded against the price of the commodity, the price of its close substitutes and disposable income. Other variables that influence demand may be included, such as seasonal variation, smuggling, population income, regulation and tobacco dependence. This sophisticated approach reinforces the notion that dependence behaviour sustains consumption in the long term and that taxes decrease consumption in the short term.

¹ Multiple regression analyses are used to isolate the separate effects of these components; more sophisticated models also incorporate some measure of the dependence-producing potential of cigarettes.
Evaluation methods

The most important element in evaluating the effects of cigarette excise taxes on consumption is adequate data on taxable tobacco sales, which in general reflect per capita consumption. Significant disparities between taxable sales and actual consumption result from widespread illegal manufacture and smuggling. These conditions exist in emerging economies and in areas where access to imported cigarettes is restricted through protectionist tariffs. The effects of an increase in cigarette excise taxes may be masked if tobacco sales are not monitored. Countries with lax control over collection of cigarette taxes and importation unnecessarily lose revenue, which could be used to offset the costs of illness induced by tobacco as well as to support the functions of government in general.

Another important consideration in evaluating the effects of cigarette excise tax is the wholesale price of cigarettes and the relative contribution of the tax to the overall price. In the USA, tobacco has become more affordable to the average consumer since 1964. Cigarette taxes have not kept pace with inflation, and the percentage of the retail price accounted for by taxes has actually decreased from 50% in 1964 to 25% in 1992. Two other factors cloud analyses of tax effects. First, manufacturers have often accompanied tax increases with wholesale price increases, thus in effect camouflaging price increases with tax increases. Second, increased marketing and sales of low-cost generic and discount brand cigarettes is evident in the USA, with packages containing 10 or 15 cigarettes promoted as lower-cost alternatives to regular 20-unit and 25-unit packs.

Indicators to support the evaluation

The following questions provide indicators to support evaluation of taxation and pricing as measures for tobacco control.

Preparing for the tax increase

- What is the trend in per capita consumption of cigarettes? Obtain data from importers, manufacturers, tobacco industry analysts and international agencies such as WHO.
- What is the prevalence of smoking by socioeconomic status in the population? A broad estimate of differences in prevalence is sufficient to predict the effects of a tax increase.
- What is the average price per pack of various brands of cigarette? What percentage of the household expenditure is spent on tobacco?
- What is the expected negative price elasticity of demand for various subgroups of the population (in particular adults versus adolescents)?
- What is the current level of illegal tobacco sales and what impact are increases in price expected to have on this?
EVALUATING TOBACCO CONTROL ACTIVITIES

• What percentage of the average cigarette pack price is accounted for by tax?

Implementation

• Are the data on sales and consumption accurate, are they reported in a timely fashion, and do they take into consideration estimates of smuggling and illegal sales?
• Are other behavioural survey data available to substantiate changes in per capita consumption?
• What measures for enforcement might need to accompany tax applications?
• Is a portion of the tax earmarked for tobacco control activities?
• What methods can be used to separate analyses of the effects of taxation from those of a concomitant tobacco control programme?

Tobacco subsidies and price supports

What is the rationale for removal or maintenance of subsidies to tobacco growing?

Tobacco leaf is grown in at least 120 countries, and the majority of the world’s tobacco crop is produced in developing countries. In many of these countries, governments provide subsidies and price support for farmers who grow tobacco. In many others, multinational and national tobacco companies help farmers to increase production, guarantee purchase of their crops, and provide more general support to struggling economies in the form of agricultural technology (see also Chapter 4). In developing nations, tobacco generally yields a higher net income to small farmers than food crops. Prices may be negotiated before planting so that price fluctuations do not affect the farmer. In this way, financing and loans for farmers may be more readily guaranteed. Subsidies may distort the agricultural market by encouraging a shift of resources from other crops, leading to a need to import food.

In developed countries this type of programme may be similar to price support or supply restriction programmes for other crops and dairy products. In Australia, tobacco growing was subsidized at 3000 Australian dollars per hectare in 1981. The subsidy declined in the 1980s, and a recommendation was made in 1989 to phase out state funding for the tobacco subsidy programme by 1993. Although a trend towards vigorous tobacco subsidies has surfaced in the European Community, equally vigorous condemnation of the practice has appeared in medical literature.

In the USA, the Federal Tobacco Program is quite complex. It is founded on the rural, agrarian traditions, especially those of the southern United States,
and it basically assures tobacco farmers a buyer at a guaranteed minimum price in exchange for an agreement to limit production through land allotments and quotas developed by the US Department of Agriculture.\footnote{Warner KE. The tobacco subsidy: does it matter? Journal of the National Cancer Institute, 1988, 80:81–83.} Agricultural price supports breed dependence and encourage rural constituencies who may impede policy interventions against tobacco use by their support for small farmers. In 1990, subsidies in the European Union amounted to £7.4 billion among the eight tobacco-growing countries of the region, whereas tobacco control programmes received only £5 million in funding.

**Effectiveness of programmes to eliminate subsidies: some examples**

The effects of eliminating subsidies are rarely evaluated but, because of WHO recommendations and the work of local activists, some improvements in these programmes may be expected.

**Developing countries**

Because some developing countries are dependent on foreign exchange generated by export of tobacco products, two conditions are necessary before crop substitution or removal of either governmental or nongovernmental subsidies can be effected. These conditions are an agricultural situation that permits the growing of alternative crops and markets to absorb these alternative crops. Research on alternative crops has been supported by WHO. In Brazil it has been found that sweet potatoes and manioc are more profitable than tobacco. Hybrid crops grown in India can also be more profitable than tobacco. Yet tobacco has an advantage because subsidies are still provided by many governments and because advanced marketing, guarantees and distribution systems are supported by tobacco manufacturers. Conscious decisions, such as that of Thailand, to decrease the area devoted to tobacco growing may also affect the ability of tobacco farmers to stay in business.

**Developed countries**

In the USA, public indignation about the tobacco subsidy succeeded in changing the structure of the law to support a concept of no net cost to the taxpayer. At first, each of the two million or so tobacco farmers received the equivalent of US$5000 in tax support for growing tobacco. Legislation removing the net cost from the taxpayer was not the key to shifting this burden. Rather the burden was shifted as a result of the changing world market for tobacco from the United States, which led to increased exports, and to the paying back of loans guaranteed by the United States Government to support
prices. Removal of subsidies would make tobacco less profitable as a crop, decreasing the number of small farms. This decrease would, in turn, diminish the influence of politicians who speak out on behalf of farmers in states where tobacco is grown.

Elimination of the United States tobacco support programme could very conservatively result in an increase in tobacco production and a decrease in tobacco price. Most of this cheaper tobacco would be exported and would be highly competitive with tobacco produced abroad. Tobacco produced in other countries would then be less profitable, and the economies of these smaller tobacco producers would be damaged. The subsidizing of United States tobacco has a significant effect on the tobacco markets of many other countries. Removal of the subsidies might encourage tobacco consumption elsewhere since United States tobacco is in high demand worldwide.

Comments

Price support and subsidies encourage tolerance of an economic system that offers short-term benefits to small farmers, especially in developing countries, while in effect creating false markets for a product that will inevitably decline in use, in which prices are maintained. Price support and subsidies undermine official support for tobacco control programmes and impede policy changes through the political process. Thus, as tobacco control programmes mature, the tobacco subsidy and price support programmes of both developed and developing nations must be addressed. Subsidies are much less important than other economic or policy interventions, such as increasing tobacco taxes.

Guidelines for evaluation

What outcomes of the programme will need to be checked?

While a number of crop substitution studies have shown the feasibility and cost of replacing tobacco by other crops, little information is available on the outcome of programmes to eliminate subsidies and price supports. It is likely that farmers growing tobacco will turn to other profitable crops if prices decline and the substantial assistance, in terms of guaranteed prices, technological assistance and other nongovernmental support programmes, is reduced. When tobacco consumption declines to levels that will not support farmers' profits, subsidies will not matter. Unfortunately, world markets for manufactured cigarettes are expanding, particularly in developing countries. Thus it is likely that price supports and subsidies will cloud the tobacco control arena for some time. Careful economic studies of their effects are warranted, in particular to show that price supports and subsidies foster dependence among farmers and not free trade, impede the passage of legislative policies against tobacco.
use, and ultimately contribute to economic deficits associated with tobacco-related disease.

The data elements necessary for evaluation of changes in price support programmes are as follows:

- data on total government funds used to support tobacco prices;
- data on nongovernmental contributions to farmers growing tobacco, from purchasers, multinational manufactures and national tobacco companies;
- geographical distribution of tobacco price supports;
- per hectare prices and profits for tobacco crops;
- estimated number of hectares dedicated to tobacco growing;
- estimated total arable land dedicated to tobacco growing;
- total expenditures dedicated to tobacco control programmes (for comparison).

Where to find the information for the evaluation

Data on tobacco growing are usually obtained from government agricultural agencies. In the USA, the Department of Agriculture (USDA) Foreign Agricultural Service publishes a series (World tobacco situation) that reports country-by-country data on tobacco cultivation, export, import and production. Data are collected by “overseas emissaries” of the USDA, attached to United States embassies abroad. However, these data are usually compiled from national sources and problems with the data have been observed (including apparent lack of validity and non-comparability).

Data from tobacco industry sources can be used to monitor the effects of public health programmes against tobacco and to determine the level of national support to the tobacco industry through subsidies and price supports. However, most information on a particular country must be obtained from in-country sources and verified, if possible, through centrally available data sources.

What kind of studies to conduct

Questions to be answered in evaluating the effect of price support and subsidy programmes include:

- What is the mechanism for funding the support programme?

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1 The 1992 Report of the Surgeon-General (Smoking and health in the Americas) and the companion PAHO document (Smoking or health: status in the Americas) contain data collected by several other tobacco industry and consulting sources, including The Economist Intelligence Unit, The Maxwell Consumer Report, ERC Statistics International of London, and the journal Tobacco international.
EVALUATING TOBACCO CONTROL ACTIVITIES

- What is the burden of these programmes on the taxpayer or general public?
- What effect will the elimination of these support programmes have on the welfare of tobacco farmers?
- What other agricultural technology benefits are provided by the tobacco industry to tobacco farmers or other farmers?
- What effect will the elimination of support programmes have on the price and availability of tobacco products locally?
- How can official government price support programmes be linked to a coherent health policy with regard to tobacco use?

For these data elements to be obtained, collaboration is needed between health officials and agricultural officials. This collaboration may not be easy but it is necessary to bring a sense of consistency to official decision-making. If such collaboration is established, a major shift in understanding of motivation, rationales and needs may result.

**Indicators to support the evaluation**

For evaluating the effects of programmes to remove subsidies or provide alternative crop options to tobacco farmers, the following indicators can provide information:

- What is the amount of direct government subsidy per farmer per given weight of leaf tobacco produced?
- What is the amount of indirect subsidies per farmer, in terms of fertilizer, technical assistance and equipment, provided by tobacco manufacturers?
- What trends are noted in prices paid to farmers for leaf tobacco (essential for plotting trends and estimating elasticity of price)?
- What is the per hectare profitability of tobacco compared with food crops when both are unsubsidized? Here, local growing conditions and markets must be analysed. Local markets for food will support farmers more reliably than international markets which may fluctuate unpredictably.
- What is the amount of government subsidy borne by taxpayers — per farmer, per taxpayer, per pack of cigarettes sold?
- What per unit drop in price is expected from the elimination of all subsidies?

**Individual economic incentives**

**What is the rationale for individual economic incentives against tobacco use?**

One of the principal reasons for the proliferation of economic incentives against smoking is that smoking is costly to the individual, to the employer and
to society in general. Numerous studies on the economic costs of smoking to society have been carried out in developed countries. These studies include not only the direct medical care costs associated with tobacco-related diseases, but also the indirect costs of disability, morbidity, lost workdays and premature death due to these illnesses. The costs are substantial, particularly in countries where medical care is expensive, as in the USA, and justification for aggressive tobacco control programming often cites the “per pack” health costs of smoking incurred by smokers. ¹

Two principles emerge in response to such cost shifting, whereby the differential health, premature mortality and disability costs generated by smoking are borne by smokers, and to economic incentives to non-smoking, whereby “benefits” are provided for non-smokers and smokers who wish to quit. In Canada, the USA, and several European countries, differential mortality rates for smokers and non-smokers have led to actuarial studies demonstrating a fiscal basis for different risk ratings for life assurance. All life assurance companies in the USA offer discounts to non-smokers and, where actuarial data are available in Europe, discounts by life assurers may range from 10% to 70%. Thus the differential cost of life assurance is borne by smokers.

In addition, in a few countries such as the USA, a growing percentage of insurance companies offer non-smoker discounts for health and property insurance. This concept is difficult to justify for many policy-makers because it appears to defeat the purpose of insurance, which is based on distributing risk throughout the population and thereby lowering the costs of insurance for all. In addition, if employers pay differential rates of health insurance or commercial property insurance for a non-smoking workforce, this may lead to differential hiring, firing and promotion policies. Nevertheless, smoking is associated with higher health care costs, greater likelihood of damage to property from fire, and increased rates of accidents.

It is clear that stopping smoking can save money not only for smokers but also for their employers through reduced absenteeism, reduced loss of worktime in smoking breaks, and reduced costs for cleaning and air purification. More and more employers view health promotion programmes as of long-term benefit to the entire population, independent of the financial saving for their own particular business. Such programmes add to the compensation package for prospective employees but the fundamental point is that health promotion serves to change social norms to support healthier lifestyles, with subsequent improvement in the health of society as a whole.

¹ For example, the most recent estimate of smoking-attributable economic costs in the USA performed by the US Office of Technology Assessment, was US$ 20,775 thousand million for direct costs, US$ 6,885 thousand million in morbidity costs, and US$ 40,298 thousand million in indirect mortality costs. This is equal to US$ 2.59 per pack of cigarettes sold in the USA in 1990. Given that federal, state and local government sources fund approximately 43% of direct smoking-attributable health costs (US$ 8.9 thousand million), 24 cents for each package of cigarettes sold is paid by taxpayers for smoking-attributable medical care.
Effectiveness of individual economic incentives: some examples

**Differential health insurance**

There are no data to suggest that a small differential in health insurance rates alone will cause a smoker to quit. Currently, few health insurance companies offer discounts based on smoking. Group policy discounts based on the rate of smoking in a given workforce are used in part as a marketing tool to win clients. For example, in Contra Costa County, California, if a company is shown to have 90% non-smokers in its workforce, a 15% discount on the group health insurance premium is offered. Some insurance companies, in an attempt to support healthy lifestyles, also offer benefits that include smoking cessation programmes (in King County, Washington, this benefit is US$ 500 maximum per person, with a 25% copayment by the insured).

**Smoking cessation at work**

An economic incentive to quit might also be the provision of smoking cessation services (such as classes or nicotine substitution therapy) to employees. These are usually instituted concurrently with policies limiting smoking in the workplace. Variable results of such economic incentives have been reported. In the USA, worksites with policies for clean indoor air are more likely to have smoking cessation programmes for their employees. The economic benefits of individual programmes of this kind can be measured using a variety of modelling procedures.

A computer simulation model of the economic impact of employee smoking on an employer was developed using hospital nurses at Johns Hopkins University in the USA. Net economic impact on the employer was measured using a model that included data on number of staff, percentage of smokers, annual employee turnover rate, number of smokers interested in quitting, cost of a cessation programme, expected success of the programme, spontaneous quit rates without a programme, and employer-borne costs of employee smoking. The cumulative benefits of a cessation programme went from US$ 4000 to US$ 51,000 over eight years. If a restrictive hiring policy favouring non-smokers was added to the programme, the cumulative net economic impact could increase from US$ 355,000 to US$ 634,000. Marginal benefits of a smoking cessation programme obviously depend on the population of workers. If the proportion of smokers is decreased through a change in smoking rates among incoming workers, then there will be increased benefits to the employer. This study indicated that individual smoking cessation programmes for workers are, at worst, a break-even intervention. Differential hiring of smokers and non-smokers provided the most important economic benefit to the employer — a finding that may eventually translate into a very specific individual economic incentive to future employees.

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Guidelines for evaluation

What outcomes of the programme will need to be checked?

The evaluation will need to check firstly the differential health care costs for smokers and non-smokers and, secondly, the increase in attempts at cessation, and the success rates in response to economic incentives and disincentives.

Data on differential health care costs may help establish a mechanism by which smokers pay their own health care costs. Data broken down according to demographic variables, health insurance, risk factors and other key parameters will help quantify the true effect of differential utilization and morbidity for smokers while accounting for confounding variables. In countries where data on health care utilization are not collected as part of a national health care financing programme, such data may be difficult to obtain. Estimates of the rates of utilization of health care by smokers compared with non-smokers are important in planning health policy and tobacco control programmes. Such data are very visible to policy-makers and to the general public.

Ultimately, the purpose of individual economic incentives is to increase the number of attempts by smokers to quit, and the number of successes. These results may be difficult to pick out from national survey data because the programmes are often part of a comprehensive approach to tobacco control. Their existence indicates a general concern on the part of insurers, the health care financing system and health providers to support a non-smoking norm. Economic disincentives may shift health and insurance costs from non-smokers to smokers, but this may reinforce a sense of polarization between the two groups. It may be more effective to publicize the programmes in the context of supporting a non-smoking norm, benefiting not only smokers but society as a whole.

How to evaluate

Two types of study are needed to assess the effectiveness of economic incentives in the context of a broad and comprehensive approach to tobacco control. The first need is for a sensitive measure of cessation activity and success. This may be achieved by using a “quitting continuum” (see Table 1) in questions on smoking behaviour in population-based surveys. Such a continuum would be able to identify shifts in the population towards making an increased number of attempts to stop smoking and towards increased periods of time without smoking.

Periodic surveys using this continuum are far more precise than simply ascertaining the proportions of the population who are current smokers or former smokers, or who have never smoked. The surveys provide an indication of the population shift along a continuum. Worksite-based programmes (see Chapter 9) can evaluate individuals in much the same manner.
**EVALUATING TOBACCO CONTROL ACTIVITIES**

**Table 1.** History of quitting smoking in the United States, 1986: an example of the quitting continuum

<table>
<thead>
<tr>
<th>Category</th>
<th>% of smokers in last year</th>
<th>Estimated number (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Long-term quitters (abstinence for 3-12 months)</td>
<td>6.4</td>
<td>3.58</td>
</tr>
<tr>
<td>(2) Short-term quitters (abstinence for &lt;3 months)</td>
<td>9.8</td>
<td>5.46</td>
</tr>
<tr>
<td>(3) Current smokers (quit attempt lasted ≥7 days before relapse)</td>
<td>12.2</td>
<td>6.79</td>
</tr>
<tr>
<td>(4) Current smokers (quit attempt lasted 1-6 days)</td>
<td>6.4</td>
<td>3.59</td>
</tr>
<tr>
<td>(5) Current smokers (no attempt in last 12 months)</td>
<td>65.2</td>
<td>36.42</td>
</tr>
<tr>
<td>(6) Proportion with major quit attempt</td>
<td>28.3</td>
<td>15.81</td>
</tr>
<tr>
<td>[ \frac{(1) + (2) + (3)}{(1) + (2) + (3) + (4) + (5)} ]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7) Proportion who succeeded for at least 3 months</td>
<td>22.5</td>
<td>3.56</td>
</tr>
<tr>
<td>[ \frac{1}{(1) + (2) + (3)} ]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>55.83</td>
</tr>
</tbody>
</table>


The second need is for public opinion surveys. These surveys should be conducted yearly to ascertain shifts in social norms. Additional surveys can be carried out as needed in preparation for policy initiatives. Questions on opinions, beliefs and attitudes towards various tobacco control policies help inform decision-makers about the environment in which tobacco control is being implemented and indicate directions that are likely to be successful in the policy arena.

Questions for public opinion surveys on economic incentives and disincentives might include the following:

- Are you aware of the costs of smoking to society and to individuals?
- In your opinion, should insurance rates (health, life, injury) be higher for smokers than for non-smokers?
- Should employers pay for smoking cessation classes at the worksite?
- Should cigarette excise taxes be used to pay for medical care?

Such surveys indicate not only what public opinion is on a particular issue, but also whether the health care community has succeeded in framing the issue effectively and educating the public about the value of the intervention.

In comparing and analysing the results of these two types of evaluative study and in putting them within the context of other tobacco control measures taken at the same time, it may be possible to estimate the influence of individual economic measures on the rate of quitting smoking.
Indicators to support the evaluation

Evaluation of individual economic incentives will be supported by the following indicators:

- Number of quitting attempts, and movement along the "quitting continuum" for current smokers in the general population.
- Comparison of quitting activity among smokers subject to individual economic incentives compared with those not subject to such incentives.
- Short-term (one month), medium-term (six months) and long-term (five years) success rates among participants in smoking cessation programmes provided by employers or public health agencies.
- Economic costs of health care, absenteeism and premature death among smokers compared with non-smokers. These costs could be obtained from insurance records if data on smoking are collected as part of the physical examination required for insurance. Longitudinal studies of health care utilization, disability, work loss and medications taken should include smoking status in order to compare smokers with non-smokers. The data should then be adjusted for access to care, other risk factors such as alcohol use, and demographic factors in order to obtain the true marginal cost of morbidity due to smoking. Such data sets do not currently exist.

Background reading


EVALUATING TOBACCO CONTROL ACTIVITIES


In countries where there are no strong social pressures against smoking, legislation to reduce tar, nicotine and carbon monoxide levels in both domestic and imported cigarettes may be useful. Publicity given to the measure may also be an effective way of drawing public attention to the major public health problem involved. Like water chlorination and pasteurization of milk, legislation authorizing the government to set maximum levels of tar, nicotine and carbon monoxide yields is a visible public health measure to try to improve the environment of the community without requiring change in behaviour or individual action. As this chapter demonstrates, however, such a measure may not be sufficient to have a definite health impact on tobacco users.

Setting upper limits for harmful substances

There are more than 43 known human or animal carcinogens in tobacco smoke. In addition, the carcinogens and other chemicals in tobacco smoke increase the risk of other diseases, such as cardiovascular and respiratory diseases. Manufacturers have developed techniques that enable them to adjust the yields of tar, nicotine, carbon monoxide and other substances as required, and in many countries the average tar and nicotine yields have been significantly reduced.

Three types of legislation have been enacted to control harmful substances in tobacco: legislation to control the composition of tobacco; legislation authorizing the government to inspect and approve tobacco products; and legislation authorizing the government to set maximum tar and nicotine levels. In addition, voluntary agreements have been made with the tobacco industry on tar and nicotine levels, both in countries without legislation to control use and in those with comprehensive legislation.

Legislation granting general powers to control the composition of tobacco products may be made under a consumer products statute, under a law to regulate toxic substances or under legislation concerned specifically with the control of tobacco.

Setting upper limits for harmful substances in commercial tobacco products is important and, as recognized by the WHO Expert Committee on Smoking Control in 1979, developing countries may find the use of such
legislation more efficient than other means in lowering yields.\footnote{Controlling the smoking epidemic. Report of the WHO Expert Committee on Smoking Control. Geneva, World Health Organization, 1979 (WHO Technical Report Series, No. 636).} But, in the words of Sir George Godber at the Fourth World Conference on Smoking and Health, “There is no hope of finding a safe cigarette . . . If reduction of tar and nicotine levels gives some slight gain, it is trivial compared with the benefits from cessation of smoking”.

A number of studies have shown that low-yield cigarettes do not offer protection because smokers tend to compensate for the reduced dose of nicotine by smoking more. At the same time, it is contended that low-tar, low-nicotine cigarettes encourage young people and women to start smoking and may influence smokers to continue in the belief that the product offers some protection. This chapter gives some indications of how to proceed with an evaluation of the effects of setting limits on certain substances.

Evaluating the effects of setting upper limits for harmful substances

\textit{Low-tar/low-nicotine cigarettes and cancer (meta-evaluation)}

The International Agency for Research on Cancer has published a series of monographs on the evaluation of the carcinogenic risk of chemicals to humans. One volume of that series is devoted to tobacco smoking and includes information relative to tar levels of cigarettes. The data are limited mainly by the lack of studies that have quantified tar levels and the association with cancer risk. Quite often, data have been analysed separately for filter and non-filter cigarettes, as well as by type of tobacco (dark, blond or mixed) but only rarely has the precise tar content of cigarettes been taken into account. The monograph concluded that the risk of lung cancer associated with the types of cigarettes commonly smoked before the mid-1950s was greater than that associated with modified cigarettes with “low tar” levels, which are now available in some countries. The health benefits from stopping smoking, however, greatly exceed those to be expected from changes in cigarette composition.

\textit{Lung cancer}\footnote{Analysis by Dr A. Sasco, Unit of Analytical Epidemiology, International Agency for Research on Cancer, Lyon, France.}

Selected studies published between 1985 and 1992 are summarized below.

- A prospective epidemiological study of 16,270 regular cigarette smokers and 42,113 persons who had never used tobacco showed that the risk of cardiovascular diseases was higher in smokers of higher yield cigarettes than in smokers of lower yield cigarettes, but the difference was very small after adjusting for other risk factors.
• A population-based case-control study conducted among white males in New Jersey, USA, estimated risk of lung cancer as a function of cigarette tar content, evaluated as a time-weighted average tar level of cigarettes smoked. Although unadjusted estimates of risk were significantly low for smokers of the lowest-tar cigarettes compared with the highest tar levels, adjustment by age, quantity smoked and years of smoking rendered the reduction in risk insignificant. In addition, the authors noted that persons who smoked low-tar cigarettes compensated by increasing the number of cigarettes smoked per day.

• At about the same time, results of a case-control study conducted among men in the west of Scotland were published. The only group for which there was a statistically significant reduction in risk of lung cancer associated with low tar level was those who smoked fewer than 15 cigarettes a day. By contrast, a case-control study conducted in Canada and the USA found a relative risk of 3 for medium tar level and 4 for high tar level compared with smokers of low-tar cigarettes, after controlling for potentially confounding factors. Similarly, a prospective study in the USA found that for a given number of cigarettes smoked per day, the risk of lung cancer increased with increasing tar yield. It was noted that, even among smokers of cigarettes with the lowest yields, risk far exceeded that of ex-smokers and non-smokers. Another cohort study, also conducted in the USA, described weak positive associations between overall mortality from all causes and duration of cigarette smoking as well as tar and nicotine levels.

Cancer of sites other than the lung

A number of epidemiological studies have shown a reduction in risk of cancer of the oral cavity, pharynx, larynx, oesophagus and the urinary bladder for smokers of "light" cigarettes, as compared to smokers of "heavy" cigarettes. However, most of these studies did not distinguish between tar and nicotine content and other aspects of "light" versus "heavy" smoking, such as use of blond or black tobacco, presence or absence of filter, and degree of inhalation. So far, only three epidemiological studies have presented specific results on risk of cancers of sites other than the lung and smoking of cigarettes with different tar and nicotine content.

• In a large cohort study based on one million volunteers in the USA smokers were classified according to tar and nicotine content of the cigarettes they smoked. High tar/nicotine was defined as more than 2.0mg of nicotine and more than 25.8mg of tar. Low tar/nicotine was defined as less than 2.0mg of nicotine and less than 17.6mg of tar. Other cigarettes were classed as intermediate. Table 2 shows the relative risks of death from cancer for the smoker of cigarettes with low and intermediate tar/nicotine levels. Although a reduction in risk was found for all cancers, only a few relative risks attained statistical significance.

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1 Analysis by Dr P. Boffetta, International Agency for Research on Cancer, Lyon, France.
Table 2. Relative risks of cancer mortality and tar/nicotine levels

<table>
<thead>
<tr>
<th>Site of cancer</th>
<th>Sex</th>
<th>Smokers of low tar/nicotine cigarettes</th>
<th>Smokers of medium tar/nicotine cigarettes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral cavity,</td>
<td>M</td>
<td>0.56</td>
<td>0.69&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>pharynx</td>
<td>F</td>
<td>0.50</td>
<td>0.52</td>
</tr>
<tr>
<td>Oesophagus</td>
<td>M</td>
<td>0.88</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>0.32&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.65</td>
</tr>
<tr>
<td>Larynx</td>
<td>M</td>
<td>0.30</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>—</td>
<td>0.68</td>
</tr>
<tr>
<td>Bladder</td>
<td>M</td>
<td>0.79</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>0.41&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.58</td>
</tr>
<tr>
<td>Pancreas</td>
<td>M</td>
<td>0.91</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>0.95</td>
<td>1.10</td>
</tr>
</tbody>
</table>

* Relative to smokers of high tar/nicotine cigarettes
<sup>b</sup> P < 0.05


- In a case-control study in Spain, in which 430 cases of bladder cancer were compared with 405 hospital controls and 386 general population controls, smokers of light cigarettes (solely or mixed with medium-strength cigarettes) had a relative risk of 0.5 (95% confidence interval, 0.3-1.0) compared with smokers of medium-strength cigarettes only.
- In a hospital-based case-control study in northern Italy, 291 men with cancer of the oral cavity and pharynx, 238 with oesophageal cancer and 162 with laryngeal cancer were compared to 1272 controls. Smokers of high-tar cigarettes (22 mg or more) had a consistent increased risk for all types of cancers compared with smokers of low-tar cigarettes.

It should be noted that only the Spanish study was able both to separate the effect of low tar and nicotine content from the other aspects of "light" cigarettes mentioned above and to control for the total amount of tobacco smoked. Other possible confounding factors such as social class were controlled for in the two recent case-control studies, but not in the early United States cohort study.

**Scottish Heart Health Study**

For many years the cigarettes on sale in the United Kingdom have been classified according to their tar group, as indicated on the packet. The use of tar as a measure of safety has been questioned on two counts. First, although less tar is extracted from a low-tar cigarette than from a high-tar cigarette by the same smoking method (such as the method used by a smoking

machine), individuals may, in fact, alter their method of smoking to extract more nicotine from "weaker" cigarettes (through more frequent puffing, greater depth of inhalation, leaving a shorter stub, and so on). Since tar and nicotine yields are closely related for most cigarettes, the result may be that the amount of tar extracted is similar for all tar groups. A second concern is that, even if low-tar cigarettes do result in a lower tar consumption, this does not necessarily imply a lower consumption of other smoke components such as carbon monoxide, thiocyanate (a metabolite of hydrogen cyanide) and cotinine (a metabolite of nicotine). Some of these products may be particularly related to the development of certain diseases. It has, for example, been suggested that the gaseous constituents of tobacco smoke, such as carbon monoxide and hydrogen cyanide, may be important in the development of coronary heart disease.

Data on 1133 men and 1621 women who smoked solely cigarettes with a known tar yield were extracted from the baseline population of the Scottish Heart Health Study. The carbon monoxide, serum thiocyanate and serum cotinine levels in expired air were compared between smokers in three tar groups: low tar (below 13 mg per cigarette), middle tar (14-15 mg per cigarette), and high tar (above 15 mg per cigarette). An index of tar consumption was calculated, assuming that the intake levels of the different smoke components were in proportion to their concentration in the expired air. Carbon monoxide and cotinine were found to peak in the middle-tar group. Thiocyanate tended to increase from the low-tar to the middle-tar group for women and from the middle-tar to the high-tar group for men. Tar consumption increased with tar yield of the cigarettes smoked but the increase was much lower than would be expected.

In this population, therefore, the differences in the extraction of tobacco products between smokers of cigarettes of different tar yields were not what would be expected from the tar content of the cigarettes. In particular, smokers of middle-tar cigarettes may actually consume more of some smoke components than those who smoke high-tar cigarettes. Similar disparities have been found in many other studies, including population studies, although none have used such a large sample.

In conclusion, the tar yield of the cigarette smoked is not necessarily a good indicator of a person's consumption of smoke components, even after accounting for overall cigarette consumption. Smokers of relatively low-tar cigarettes do indeed consume less tar for the same number of cigarettes smoked, but the decrease is much less than the official yields would suggest. The consumption of other smoke components is not necessarily less among those smoking relatively low-tar cigarettes, and may even be higher for middle-tar cigarettes than high-tar ones. Health professionals should be aware of these limitations of tar yield as a measure of cigarette strength.

Comments

The conclusions of the studies presented above point to two main issues. Firstly, although low-tar cigarettes may not entail as great a risk as high-tar cigarettes, particularly for lung cancer, the health consequences of
active and passive smoking are so overwhelming that the best solution is clearly to recommend total abstinence from tobacco use.

Secondly, scientists are still uneasy with a number of issues related to the differences between low-tar, medium-tar and high-tar cigarettes. The first concern is how to measure the tar level of a cigarette and establish globally acceptable criteria. Related to this is the correlation between tar and nicotine levels and other factors that may influence the effect of smoking, such as filter use. Another area of concern is the fact that, despite the outstanding number of studies on cancer caused by tobacco consumption, there is a much smaller number of studies related to the other health effects of tobacco use.

In addition, in the evaluation of long-term trends in lung cancer occurrence, factors other than the increasing use of filter cigarettes or low-tar tobacco products should be taken into account. For example, it would also be useful to have data on any change in levels of air pollution, either outdoors or indoors, as well as in exposure to other lung carcinogens (asbestos, radon, bischloromethyl ether and so on).

In the studies presented above, the scientific facts are described. However, the effects of low-tar cigarettes on increasing consumption and in encouraging young people and women to start smoking are not considered.

**Guidelines for evaluation**

*Expected outcome of the policy*

The immediate outcome of a policy of setting upper limits on harmful substances is the exclusive marketing of cigarettes with a limited quantity of tar and nicotine. However, in putting restrictions on tar and nicotine content, authorities aim to reduce diseases caused by tar (particularly cancer) and nicotine (particularly cardiovascular disease). To be effective in the long term the measures should also eliminate the sale of high-tar and high-nicotine cigarettes from foreign countries. As indicated in Part 1, it may take years before the impact of such measures on the health of tobacco users is seen. Some immediate effects can be evaluated earlier, as in the Scottish Heart Health Study outlined above. Yet benefits from reductions in tar and nicotine have to be weighed against the risks that the strategy may encourage some people to start smoking and others to delay quitting.

Another approach to evaluation is to assume that a reduction in levels of harmful substances to which tobacco users are exposed will sooner or later improve health and therefore monitor only the various doses delivered. However, caution should be exercised as there is no consistent dose-response relationship for these substances, and some studies have shown that there is a phenomenon of compensation through altered patterns of smoking.

Tobacco control through the use of a policy restricting tar, nicotine and additive levels is relatively easy to establish in most countries. Measures have
even been taken on a regional basis, such as in the European Communities. These measures provide good platforms from which governments can launch other tobacco control measures.

It has been shown, however, that the tobacco industry can manipulate both the policy and public attitudes by changing the focus from "no safe level" to standards of safety. The shift by the tobacco industry from "smoking is safe" to "smoking low-tar cigarettes is safer" is intended to give smokers an excuse to continue smoking. To counter this, industry should be required to specify all cigarette contents. The burden of proof has often been placed on government, scientists and public health workers, but this approach is now being reversed in many countries.

**Information for evaluation**

Information relating both to the intermediate outcome (effective application of the law restricting tar and nicotine content) and to the ultimate outcome (reduction in tobacco-related diseases) is difficult and expensive to obtain. Various types of study will be necessary to determine the results of this tobacco control measure. Ideally prospective studies would be used to monitor progressive epidemiological changes in the population where the control measure is being applied. Various approaches, such as those described in the examples, will also be of use. Checking the tar and nicotine content of cigarettes will have to be done in specialized laboratories.

**Guidance for evaluation**

To evaluate programmes restricting tar and nicotine content, the process outlined in Chapter 2 should generally be followed, and the information contained in Chapters 2 and 3 used whenever necessary. The following methodological and practical advice is more specific to the policy of setting upper limits on harmful substances.

In countries where such evaluations are not yet common and where the necessary resources may not be available, a minimum evaluation of the programme could include three components:

- The relevance and validity of the policy could be assessed by, for example, comparing the tar and nicotine levels set in the country with levels set in other countries.
- The implementation of the restrictions could be evaluated by monitoring the contents of cigarettes and tobacco commonly sold in the country (including imported tobacco). One of the difficulties of such an approach is that many countries do not have laboratories where systematic
analysis of samples of tobacco and cigarettes can be carried out. In such situations, “twinning” with laboratories in wealthier countries is a practical solution. WHO could serve as a go-between to facilitate this approach.

- The evolution of tobacco-related diseases in the population could also be monitored.

When more technical support is available, not only can tar and nicotine content of cigarettes be monitored more regularly but also the effects of the policy on the behaviour of the population can be evaluated. One could aim to find out, for instance, what has been the shift in opinion as a result of that particular measure.

Impact on health can also be measured more specifically, as was done in the examples given above (pp. 66–71). In examining the impact on health, all possible health consequences of tobacco use should be taken into consideration, including those not directly related to the tar and nicotine content (as in the Scottish study, p. 67).

The cost–efficiency of systematically reducing tar and nicotine content, as well as carefully controlling the additives in tobacco, can be relatively high, as it is not an expensive measure for the government; however, the final health impact is somewhat uncertain.

**Indicators to support the evaluation**

When evaluating (or setting) government policy on upper limits of tar, nicotine and other substances in tobacco, a number of criteria can be used.

**Programme relevance**

- Have similar restrictions in other countries been investigated to ensure that the measures taken are efficient?
- Tar and nicotine content are often limited but increasing concern is being expressed about the various additives that are used in processing tobacco, especially for low-yield cigarettes. Is there any measure limiting the number of additives or requiring the disclosure of the additives used?

**Adequacy of policy formulation**

- Are the limitations also used to restrict the marketing of new tobacco products?
- Have the various authorities in the country (medical associations, medical schools etc.) and at international level been consulted for a scientific opinion regarding the establishment of the policy?
EVALUATING TOBACCO CONTROL ACTIVITIES

• Have appropriate laboratories been set up and methods used elsewhere studied to ensure that there is no unacceptable variation in techniques for measuring tar and nicotine content?
• Have provisions been made to avoid the dumping of tobacco from other countries not following the same rules or restrictions on levels of tar, nicotine and other substances?
• Have measures been taken to ensure that the standards for cigarettes exported from the country are the same as those in operation for cigarettes sold within the country?
• Have provisions been made to ensure the regular sampling and testing of the tar, nicotine and additive contents of cigarettes on the market?
• Have provisions been made to eliminate the positive images of “light” cigarettes portrayed in advertising?
• Have provisions been made to avoid systematic targeting of women and children by advertising for “light” cigarettes?

Efficiency

• Does the government regularly inspect and approve tobacco products in order to evaluate the implementation of the policy?
• Are standardized methods applied to:
  — evaluate at regular intervals the effects of the policy (through, for instance, randomized controlled trials for short-term effects)?
  — evaluate results on a long-term basis (by setting up, for instance, a prospective study in the country concerned)?

Effectiveness

• Is the policy respected?
• Are the limitations on harmful substances in tobacco used as a means to wider tobacco control measures?

Background reading


Chapter 7

Reducing availability of tobacco: age restrictions

What is age restriction?

Age restriction refers to a series of generally legislative measures establishing the age at which children or adolescents may buy and consume tobacco products.

Age restrictions aimed at decreasing young people’s access to tobacco not only limit tobacco consumption but also act to delay the uptake of smoking and the use of smokeless tobacco. Studies of tobacco use in industrialized countries show that by about 18 years of age, most of those destined to become daily smokers later in life are already smoking and that people who try smoking as teenagers are 16 times more likely to become adult smokers.

Easy access to a supply of tobacco appears to be one of the factors fostering tobacco use among teenagers. Yet the question of the role of the availability of cigarettes in limiting smoking prevalence in young people is at present still largely unanswered. There are several reasons for this uncertainty. Children’s smoking is not a simple issue. It is influenced by a variety of factors related to the wider environment (such as restrictions on advertising, price and availability) and to the child’s immediate situation (personal and social factors). Some of these elements will be more important than others, but each has a part to play and is therefore worth considering.

Legislation aimed specifically at preventing smoking by young people takes several forms:

- prohibiting sales of tobacco products to minors;
- banning or restricting sales of cigarettes from automatic vending machines;
- prohibiting smoking in schools or other places frequented by young people;
- prohibiting the free distribution of samples and loose cigarettes;
- prohibiting cigarette advertising at times and in places where children and adolescents are likely to be influenced.

1 The contribution of Dr Anne Charlton of the Cancer Research Campaign’s Education and Child Research Group at the University of Manchester to the drafting of this chapter is gratefully acknowledged.
These measures are generally complemented by various forms of health education.

While there is a general feeling that restriction of access to cigarettes, even to a limited degree, must be part of the fight against children's smoking, very few countries in Europe at present have legislation that prevents sales to minors and in some countries this is by no means seen as a priority. Canada and the USA have progressed much further with this issue. Legislation banning sales to minors differs from country to country in the age at which purchase of cigarettes is legal. Colombia, for example, prohibits sales of cigarettes to children under 14 years. Most jurisdictions, such as Hong Kong and all states of Australia except Western Australia, prohibit sales to persons under 16. In Japan the prohibition applies to all under 20. A few statutes, such as those of Western Australia and Uruguay, prohibit sales to persons under age 18. In the United States, the age for legal purchase of tobacco products is 19 years in three states, 18 in 36 states, 17 in four states, and 16 in one state and the District of Columbia.

**Effectiveness of age restriction measures: some examples**

In May 1989, a law was passed in Woodridge, Illinois, USA, that strengthened measures for the restriction of tobacco sales to minors, with provisions for its enforcement. The law also made provisions for the evaluation of its effects on vendors. This example is important because it is probably the first case of a community attempting to reduce cigarette sales by legislative means and measuring the effect on smoking prevalence among teenagers. Two other examples described below show different approaches to this type of evaluation

**Reinforcing legislation by education and active police enforcement**

The California State law prohibits the sale and purchase of tobacco products to and by anyone under the age of 18 years. Retailers breaking this law are fined US$ 200 for a first offence, US$ 500 for a second offence and US$ 1000 for a third offence. Minors caught purchasing tobacco are fined US$ 50 or required to perform 25 hours of community work. Four cities in Solano County, California, were involved in a combined programme to evaluate the effects of education and enforcement. Their populations ranged from 25,000 to 100,000.

The first intervention in Solano County used community education and publicity as well as packages of information mailed to tobacco retailers. The second intervention was the addition of law enforcement to this educational programme.

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Following announcements in the local press, four operations were conducted by three police departments. Each operation was given eight hours of each department's time — four hours visiting stores and four hours of paperwork. A total of 90 stores were visited in this operation by under-age police cadets.

The pre-test. From June to August 1988, 20 young people aged 14–16 years were escorted to 169 stores in the four cities. The young people attempted to buy cigarettes in the stores.

The first educational intervention was carried out in September.

The first post-test. In December 1988, a random selection of the same stores was visited by some of the same young people. Over-the-counter sales had not fallen significantly.

In November 1989, the police took action to enforce the law. Out of 90 stores visited, 34% sold tobacco products and were charged with the offence.

The second post-test. In May 1990, after police enforcement and continued education, 15 different young people aged 14–16 visited 104 stores from the original sample (the other 45 stores had gone out of business or changed in some way).

The results. In the pre-test, 72% of stores sold tobacco to minors, this figure was 62% at the first post-test and 21% at the second post-test. Vending machine sales were 84%, 93% and 83% at the pre-test and first and second post-tests, respectively.

The researchers followed some of the retailers who were caught selling tobacco to minors through the courts. In most cases the judges were lenient because they did not wish to establish a criminal record for the salesperson, the fine was seen as too high for a salesperson on low wages, and violation of this law was not considered to be as serious as some of the other crimes they had to deal with.

A test-purchase study in Japan

Smoking among minors has been prohibited in Japan since the 1900 Act for the Prohibition of Minors from Smoking which is one of the world's oldest pieces of legislation for such purposes. This Act comprises four articles. (1) persons under 20 years of age (minors) are prohibited from smoking; (2) if these people are caught smoking, tobacco and paraphernalia for smoking shall be confiscated from them; (3) a parent who permits smoking by his or her child shall be fined up to 1000 yen, and (4) anybody who sells tobacco to minors knowing that the tobacco is for the purchaser's own use shall be fined 4000–8000 yen. Tobacco retailers therefore have the responsibility to ascertain the age of customers who appear to be minors and also whether the tobacco is for their own use.

1 Illegal sale of tobacco to minors in Japan. *Japanese journal of public health*, 1993, 40:49–52. The summary here was prepared by Dr Yumiko Kobayashi of the National Cancer Research Institute, Tokyo, Japan.
The Act therefore penalizes the parents of young people who smoke and the retailers who sell cigarettes to them. Although this is a widely accepted law in Japan, the actual number of arrests or prosecutions is quite few. Furthermore, smoking prevalence among minors is quite high in Japan, reaching 15-40% for high school boys and 5-15% for high school girls, with most of them acquiring cigarettes from retailers or vending machines.

To evaluate compliance with the Act, a test purchase was conducted using under-age buyers (a 17-year-old girl and a 14-year-old boy) dressed in their school uniforms. These two young persons approached all retailers found during a three-hour cycle tour in two towns. The two young persons tried to buy a pack of the most popular brand of cigarettes sold in Japan and were instructed, if asked, to give their ages and to say that the purchase was for their own use. They also checked if vending machines were placed near the retail shops. A total of 38 retailers were surveyed and 30 (80%) had vending machines. Among them, 35 (92%) were willing to sell cigarettes to minors over the counter. Two retailers suggested that the young persons should use a vending machine and only one refused to sell them cigarettes because of their age. The purchase success rate (97%) was higher than that of any other study on test-purchase ever published.

The authors attributed the low compliance to the Tobacco Industry Law which promotes and protects the tobacco industry in Japan. They also suggested that their findings support any recent (though extremely rare) prosecution of offenders under the Act of 1900. They concluded that urgent enforcement of the Act of 1900 was necessary, not only by the police but also by society as a whole.

Comments and critical analysis

There is no single formula for taking action on illegal sales to minors in terms of either legislation enforcement or evaluation. Each country, state, city and town is different. Most have their own legislative procedures and have different attitudes to tobacco sales to minors. Some have laws that are not enforced, others have laws that need revision, and yet others have no legislation on this issue at all.

In a small town, such as Woodridge, where a law can be revised fairly simply and quickly through the efforts of a small group of eminent citizens, the outcome is also much more easily monitored and evaluated than for a whole country. It is relatively easy to carry out spot checks to assess the extent of illegal sales before and after legislation is passed. Concentration on retail outlets and vending machines in a small area, where the method and extent of enforcement of the law are known, could be a useful strategy.

1 As an evaluation method, test purchase also has an important side-effect, since disclosure of the survey data can help in law enforcement.
2 See also Chapter 18.
Personal committed leadership appears to be the key to success. A way has to be found to win the support of the community and the vendors through personal and public involvement and awareness raising. A important element appears to be to take action in small units, such as in individual towns, so that civic pride and personal commitment can carry enforcement forward. Demonstration of successful results through some form of evaluation or monitoring is important.

Consideration of the permanence of this effect is also important. Is any reduction simply a short-term effect while the legislation is new? One evaluation of an aggressive campaign to alert vendors to cigarette laws showed that the campaign was followed immediately by a reported drop in sales to minors from 74% to 39% but that sales from vending machines were unaltered. One year later, shop sales had risen to 60%. Constant reinforcement of the message and monitoring are needed, as is longer-term evaluation.

Guidelines for evaluation

What outcomes of the programme will need to be checked?

In order to determine intermediate outcome, the following questions should be asked:

- Is legislation acceptable and enforceable?
- Do vendors know the law and do they keep the law?
- How many vendors are breaking the law, and why?
- What needs to be changed?
- Has the law reduced the prevalence of tobacco use among young people?

The ultimate outcome can be evaluated by asking the following:

- Does prohibition of sales to minors lead to a reduction in smoking prevalence among minors?
- Does prohibition make smoking appear more adult and daring and therefore more attractive to young people?

Where to find the information for the evaluation

Checking vendors at regular intervals through test purchase (perhaps every 3–6 months) may be feasible. As shown in one of the examples above, and as has been the experience of other countries, such as New Zealand, checking of vendors can easily be carried out, for example by young people as a school project.

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1 Some studies provide excellent examples of evaluation programmes (see reference sources at the end of this chapter).
2 General information for evaluation and its sources are described in Chapters 2 and 3.
Checking smoking prevalence may be more complex. In most countries, a simple questionnaire can be administered to children in the same geographical area as the stores surveyed. Whenever feasible, the following points should be taken into account:

- Children are probably much more likely to lie if smoking, purchasing or possessing cigarettes is a punishable offence. It would be necessary to use physiological validation which is expensive and could be seen as intrusive, especially in these circumstances.
- Many factors affect children's smoking. It would be necessary to take all of them into account in the questions asked and carry out a complex analysis to separate out the relative association of smoking with each of the background factors.
- Children's beliefs should not be neglected. It has frequently been shown that it is a common opinion among young people that smoking makes a person look more grown-up.

Checking whether the law is enforced may also be complex. As the examples show, prosecution is one thing while sentencing is another. The weight given in the evaluation to the sentence should be seen in the context of general law enforcement in the country.

**Methods for evaluating the programme**

To evaluate the effect of a programme for reducing availability of tobacco to young people, the process outlined in Chapter 2 should generally be followed, and the information in Chapters 2 and 3 used whenever necessary. The following methodological and practical advice is more specific to the evaluation of age restrictions.

**Relevant legislation**

It is always interesting to look at the experiences of countries where evaluation has shown the effectiveness of legislation and enforcement. However, circumstances vary from country to country and, in view of the fact that many measures affecting tobacco use by children may be taken simultaneously, sophisticated analysis would be required to distinguish the effects of sales restrictions from those of education, price, advertising bans or other measures.

It will be necessary first to find out if a legislative approach to the issue of reducing smoking prevalence among young people is relevant to the sociopolitical and cultural situation, if enforcement is feasible, and how the legislation and its application have been planned. For instance, have all the necessary procedures to permit enforcement been carried out? Who is responsible for informing people about the legislation and who is responsible for enforcing it? Is the law being enforced? If not, check the route or mechanism by which enforcement can be developed, modified or completed.
Checking the relevance of legislation is particularly important in countries where the tobacco distribution system consists of a variety of retail outlets, from special tobacconists' shops to supermarkets, street vendors and other informal means. The relevance of the law and its potential effectiveness can both then be questioned at the outset and, if the law does not seem to be relevant, other means of influencing the behaviour of young people, such as price increases, will have to be sought.

**Progress and efficiency**

The methods used in the examples above provide indications of how to undertake an evaluation of progress and efficiency. Are vendors aware of the legislation? Is the law being broken? If so, by whom and to what extent?

To measure effectiveness and impact, it is necessary to find out if the smoking prevalence among under-age groups has decreased since the application of the law. It will also be interesting to monitor young people's beliefs to find out if their views of smoking have changed.

Some people are so convinced that a law prohibiting sales to minors must contribute to reducing smoking prevalence that they are willing to accept it without evaluation of the effect on prevalence. Enforcement can then be evaluated very cheaply — simply by sending children into shops of various kinds to buy cigarettes. The attitudes and beliefs of children can vary so much according to social, cultural and perhaps educational factors that it is often more effective to carry out evaluation at the local level. In addition, enforcement is often a community responsibility, which is another reason for evaluation based at community level.

The cost-effectiveness of such localized community evaluations can be quite high. However, complementary programmes of community education or police intervention as means of gaining compliance with the law do cost money. Where sufficient technical support is available for evaluation, it may be possible to undertake studies to distinguish the respective importance of the various factors that influence the prevalence of tobacco use in children. More precise evaluation, by questionnaire or interview, of young people's smoking habits will be useful but will need to be checked for accuracy. Physiological tests for validation offer more precise indications but are expensive. Opinion surveys of young people may be useful in showing what they consider to be adult and how to combat their smoking.

If the evaluation shows that the legislation is effective in both prohibiting sales to young people and reducing smoking prevalence, every effort should be made to maintain enforcement at its current level. If legislation is not successful in these ways, or if it actually makes cigarettes seem more desirable to young people, it should be adapted and re-evaluated, or another approach should be selected.
Indicators to support the evaluation

The following questions may help pave the way for assessing the relevance and adequacy of the policy of restricting access to tobacco. Other questions should be developed by the evaluation team in keeping with local circumstances.

Assessing the relevance of the policy

- Has the influence of restrictions on access to tobacco products in the community been ascertained?
- If there is legislation that prohibits sales of cigarettes to young people, will the idea that smoking is an adult activity be reinforced and thus make the habit more attractive to them? What are young people's beliefs about the adult attributes of smoking?

Assessing the adequacy of the policy

- Does legislation prohibiting sales to minors exist? If it does, what does it contain? Is it adapted to the economic and cultural characteristics of the society? Does the existing law need to be revised and strengthened? How does the law need to be enforced, and by whom?
- Do the licensing of vendors and the possibility of withdrawal of licences discourage sales to minors? Are identification cards showing minors' ages effective?
- Is there adequate education about the legislation for vendors, buyers and enforcers? If education is required, what is practical and affordable?
- Have incentives or disincentives been worked out to support the application of the law?
- Does the present restriction of sales of tobacco to young people also prevent them from obtaining cigarettes by other means (e.g. from older friends, from vending machines, or by stealing them)?
- Is the punishment for the retailer selling tobacco to minors adequate?
- Have provisions been made to review the application of the law at community level at regular intervals?

Assessing effectiveness

- Have the measures contributed to discouraging smoking by young people and strengthening their view of smoking as dangerous? Or, on the contrary, have the measures given smoking a more adult image? What are the effects of the measures in the short term and in the long term?
Background reading


There is increased recognition by the public of the right to breathe air that is free from the harmful effects of tobacco smoke when in public places. For the purposes of this chapter, public places are defined as indoor enclosed spaces to which the general public has relatively free access.

Restriction of smoking in public settings is influenced by a wide range of economic, cultural and political factors. Such restrictions may be in the form of one or more of the following:

- A complete ban on smoking. (The discussion of smoking restrictions in public places generally focuses on exposure to environmental smoke, but consideration of public safety as a result of a risk of fire may be a further motivating factor.)
- The provision of separate areas for smokers and non-smokers. (The areas may or may not have separate ventilation systems.)
- Rigorous restrictions on smoking in all public places without enforcement. (Experience with the restriction of smoking in public places suggests that local or municipal restrictions are generally more comprehensive and stronger than state or federal restrictions. If the initiative for restriction occurs at community level, a local structure is usually established to monitor or enforce the regulations.)

Communities may differ as to how they define a public space for legislative purposes. Government buildings, banks, schools, hospitals, shopping malls, retail stores, service establishments, auditoriums and sports arenas are typically viewed as public places. Private homes and businesses are generally excluded. Bars, cafes and restaurants are also public places but are different from other public places because of the association of cigarette smoking with eating and drinking. In places where food and drinks are served, resistance to the implementation of smoking restrictions tends to be greater. However,

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1 The contribution of Mr Wayne Millar, Statistics Canada, Ottawa, Canada, to the drafting of this chapter is gratefully acknowledged.
2 Because of their specific features in relation to tobacco control measures, workplaces are dealt with in Chapter 9. Hospitals and health facilities are treated separately in Chapter 10.
places where food is prepared have normally been subject to laws restricting tobacco use, which are generally well applied through food safety regulations.

Public transport, including underground services, was one of the first areas to be subject to anti-smoking legislation. This is probably because the close confinement usually associated with public transport exacerbates the discomfort and risks caused by smoking. Tobacco smoke is one of the most common harmful air pollutants found indoors and even the air-conditioning systems of modern aircraft do not efficiently extract it. In 1992 the International Civil Aviation Organization (ICAO) adopted a resolution requiring all airlines to be completely smoke-free by 1996.

It is often the responsibility of municipalities or local transport authorities or companies to decide whether or not smoking will be permitted in buses and trains. It is difficult to survey this area of transport since it covers a vast number of specific cases. Nevertheless, more than 80 countries have buses or trains that are completely smoke-free or have smoke-free areas. Vehicles that carry children, particularly school buses, are required to be free from tobacco smoke in most countries.

Many fires in public places (such as hotels, restaurants, nightclubs and even aircraft) are related to smoking.

Examples of evaluation

Population survey on legislative measures to restrict smoking in Ontario†

A study was conducted in Ontario, Canada, to assess the following: knowledge of existing restrictions on smoking and of the adverse health effects of active and passive smoking, attitudes towards a range of restrictive measures against smoking and changes in restrictions in specific settings, attitudes towards responsibility for enacting and enforcing such measures, and the predicted effects of such restrictions on behaviour.

The target population included all residents of Ontario of voting age (18 years and older). The sampled population consisted of all residents of Ontario living in households with a telephone (excluding the 1% who lived on Indian reserves). To obtain a representative probability sample from the target population, a three-stage stratified cluster design was used.

The survey design involved a telephone survey of the adult population of Ontario, using random digit dialling. The survey used a known probability sample which produced weighted estimates of population characteristics. The size of the sample and the analysis of the data were modified to take into

account the unique survey design, which produced larger variances than a simple random sample.

The study used independent data both in the design of the survey (census data, household sampling frames) and for the analysis (labour force smoking surveys). In the analysis of the survey data, test–retest reliability of responses was carried out using a partial interview procedure. The validity of the data was also assessed at the survey development stage by measuring thiocyanate levels in expired air in a random sample of respondents. The study design permitted comparisons of the effect of existing by-laws because of the presence of control groups comprised of persons who lived in cities with no by-laws.

The results of the survey demonstrated widespread support for smoking restrictions.

- The support for restrictions varied by location. There was a greater degree of support for restrictions in schools, health care facilities, day care facilities and stores than in other locations (such as workplaces and restaurants).
- The population favoured local responsibility for the enactment of measures.
- The study recommended that restrictions be introduced first in places where there is most support and where restrictions could be accompanied by education on the health effects of active and passive smoking. In addition, the discussion of findings stressed the importance of not introducing restrictions until the public’s views had been obtained.

**The response of Winnipeg retail shops and restaurants to a by-law regulating smoking in public places**

In the city of Winnipeg, Canada, a clean indoor air by-law was introduced in September 1983. The by-law banned smoking in all shops except tobacco stores, and required restaurants with more than 30 seats to provide a non-smoking section. Before the introduction of the by-law only a few shops were non-smoking and only a handful of restaurants had a non-smoking section. In 1986 a survey was conducted to assess the response of retail stores and restaurants to the new regulations, to assess business awareness of the new by-law, to assess the means by which businesses complied with the new regulations and to assess customer and respondent reaction to the by-law.

**Methods**

Two types of retail groups were targeted: small retail shops and restaurants. For the first group, all shops (except department stores belonging to national chains) in major shopping malls were visited, as well as small retail shops along the major city routes leading to the shopping malls. For restaurants, a one-in-three sample of all dining establishments listed in the business telephone

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directory of Winnipeg was chosen using a table of random numbers. An interviewer-administered questionnaire was used to collect survey data. The survey involved direct questioning by the interviewer as well as observation (visibility of signs, presence of ashtrays in non-smoking areas, smoking by staff or customers in non-smoking areas during the interview, sale of tobacco by the business).

**Results**

Of the 693 businesses approached, the owners of 490 retail stores and 161 restaurants agreed to an interview, giving a response rate of 95%. Some of the major findings were

- A high proportion of respondents were aware of the existence of the by-law (87%).
- About 14% of respondents who knew of the by-law did not know the sites where the by-law applied (city and school buses, taxis, service lines, elevators, escalators, reception areas, bus shelters).
- Only 22% of respondents who knew of the by-law were aware that there was a penalty for non-compliance.
- The new by-law required businesses to post signs of specific dimensions in conspicuous locations to advise the public of the regulations. Only 28% of businesses were in compliance with these requirements.
- When asked how they would respond to someone smoking in a non-smoking area, 42% of respondents said they would do nothing.
- Two and a half years after the ordinance came into effect, two-thirds of stores had non-smoking retail sales areas and over 90% of restaurants had non-smoking sections, with 24% of seats being in such sections.

**Comments**

Each of the above studies was carried out to address specific questions about the impact of legislated smoking restrictions in an urban area. The types of questions asked focused on issues that would interest specific target groups. The concerns of the non-smoking public, small business owners, politicians and programme managers may be quite different because each group has its own frame of reference. The information derived from evaluation studies may improve the implementation and conduct of smoking restriction programmes.

The Ontario population survey had a number of desirable features as an evaluation study. First, the survey design produced a sample in which the probability of inclusion was known for each individual. Second, the survey used existing information to produce weighted estimates for the general population. Third, the authors were aware of the complex nature of the survey and took precautions both in the determination of the final sample size and also in the manner in which the data were analysed.

Both surveys were cross-sectional. Because of this it is not possible to determine whether differences between control and experimental groups are attrib-
utable to increased regulation of smoking or to changing social attitudes to the implementation of restrictions.

Guidelines for evaluation

Expected outcome of programmes

Most of the effects of programmes to restrict smoking in public places will be immediate, such as:

— better information for the public on the health risks associated with tobacco use, and public support for restrictions on smoking in public places;
— an awareness by the community of the existence of smoking restrictions in public settings;
— compliance with smoking restrictions in public settings;
— a reduction in the exposure of the public to smoke in public settings.

However, in the long term, such programmes can also be expected to have indirect effects, by increasing smoking cessation rates, deterring the onset of smoking and improving the health of the general population. While these objectives will be difficult to assess, the effect of restrictions on smoking in the workplace, public settings and transport services could be expected to help current smokers to stop.

Where and how to find information for evaluation

Before a regulation is adopted, its acceptability can be measured on a sample of the population. A telephone survey yields valid results and may prove cheaper than personal interviews.

In order to measure progress in terms of an increased number of smoke-free public places, information may be found in the minutes of municipal government meetings or in the reports of smoking prevention agencies or groups. Examination of local newspapers may provide an indication of the context in which changes in smoking behaviour are occurring.

Finally, a smoking ban covering public places and public transport is often the first tobacco control measure taken. Its impact on tobacco use can be estimated through simple questionnaires.

Methods for evaluating the programme

To evaluate the success of a programme in creating a tobacco-free environment in public places and transport, the process outlined in Chapter 2

1 General information for evaluation and its sources are described in Chapters 2 and 3.
should generally be followed, and the information contained in Chapters 2 and 3 used whenever necessary. The following methodological and practical advice is specific to programmes for restricting smoking in public settings.

Measures to limit smoking in public settings are based on internationally validated information about the harmfulness of passive smoking and sometimes on resolutions of international organizations such as WHO and ICAO. Thus the methods used for evaluation should focus on the relevance and applicability of the measures to local circumstances. Judgement and good sense are essential elements of such evaluations. The evaluations can be carried out in the same manner in all countries, except that the surveys may be more sophisticated where human and financial resources are more easily available. In countries where such evaluations are not yet common, a number of issues can nevertheless be addressed using local surveillance methods.

Evaluation of relevance may address public opinion on the need for restricting smoking, public readiness to comply with intended legislation, and the type of legislation to enact. The movement to restrict smoking in public places is taking place mainly in countries where the prevalence of smoking in the general population has diminished dramatically over the last two decades. When introducing smoking restrictions in countries where smoking rates are high, it is important to find out whether the population would support the restrictions. This is an essential element of an evaluation of the relevance of such measures.

To evaluate the adequacy of the programme, the regulations, by-laws and laws should be examined, to make sure that all major public places and transport are included and that proper provisions have been made with the authorities for the enforcement of the law.

Methods for evaluating the progress, effectiveness and impact of the law will consist of checking implementation and enforcement of the law and, in the long term, smoking cessation rates. Although comprehensive evaluations cannot always be conducted because of economic or operational constraints, well designed surveys before and after implementation, with a control group, may be possible. Although the introduction of smoking restrictions in public settings aims to reduce exposure to environmental smoke, to date there has been little study of the actual reduction in exposure to suspended particulate matter in public buildings (with the exception of some studies on aircraft and in workplaces). Given the wide variation in the methods by which non-smoking areas in public settings are established and given the differences in, for example, the ventilation systems of public buildings, the effects of smoking restrictions may differ. In countries where technical support is available, impact studies should include evaluation of reduction in exposure to suspended particulate matter in public places.

The cost-efficiency of such measures may appear to be high. However, it is difficult to measure the cost and time spent in campaigning for the enactment of such regulations, by-laws and laws. In addition, it is difficult and costly both to assess the diminution in exposure to passive smoking, except
perhaps in very specific closed places, such as aircraft, where measurements can be carried out, and to assess the reduction in smoking prevalence induced by such measures.

**Indicators to support the evaluation**

Evaluation of programmes to restrict smoking in public places and on public transport will need to address the issue from a variety of standpoints.

**Relevance**

- Is the scope of restriction of smoking in public settings comprehensive enough?
- Have surveys been made to assess how smoking restrictions affect business in stores and shopping malls or affect use of public transport? Will restrictions result in reduced sales? Can counter measures be taken?
- Have smokers, as well as non-smokers and those who favour a ban, been consulted before the measures are implemented?

**Adequacy**

- Have preliminary steps been taken to improve support within the community for legislated smoking restrictions?
- Who will enforce the legislation? How comprehensive will the protection be? Have measures been taken to promote voluntary compliance with the rules rather than compulsory enforcement?
- Have the most effective ways of building consumer awareness of smoking restrictions been devised? What factors will be used to create and sustain the view that the rights of non-smokers must be protected?
- Has the policy been well publicized? Are signs designating public areas as smoke-free used to increase compliance with non-smoking. (Visible signs help to convey the message that smoking is not permitted. Signs also reduce the potential for conflict, as they promote voluntary compliance with non-smoking regulations.)
- Have the policy measures been strengthened by health promotion programmes explaining the reasons for not smoking in public places?

**Efficiency and progress**

- To assess the continuous implementation of the policy, the following factors should be taken into account:
PART 2. HEALTH PROTECTION: ECONOMIC MEASURES AND RESTRICTIONS

- public awareness of the health hazards of environmental tobacco smoke;
- public attitudes towards restriction of smoking in public places;
- factors that promote or inhibit public compliance with smoking restrictions;
- attitudes of managers of small businesses towards restrictions;
- perception by the public that restrictions are being adhered to and enforced;
- perception by smokers that restrictions are causing them to reduce the number of cigarettes smoked per day.

**Effectiveness and impact**

- Is smoking in public places less of a hazard as perceived by the general population, and as measured by criteria for environmental tobacco smoke after introduction of the programme?
- What proportion of smokers state they have reduced their consumption of cigarettes as a result of smoking restrictions in public places?
- Has the evaluation been designed to produce practical suggestions to improve the programme?
- Is there an increased demand for smoke-free public places and transport?
- Can a shift in perspective be observed? For example, has non-smoking become the general rule, so that signs in public places now indicate where smoking is permitted in exceptional circumstances.

**Background reading**


US Department of Health and Human Services. Major local smoking ordinances in the United States. A detailed matrix of the provisions of workplace, restaurant, and public

Chapter 9

Reducing exposure at the workplace

What is a tobacco-free policy at the workplace?

There are many variations in restrictions on tobacco use at the place of work. Laws and regulations differ. Some merely require employers to adopt policies on smoking without specifying the kind of policy; some State laws in the USA go as far as to stipulate such details as the minimum distance between smoking and non-smoking areas; and regulations in France require minimum ventilation rates for smoking areas. This chapter will consider workplace restrictions that cover one or more of the following:

- prohibition of smoking on employer’s premises;
- smoking only in designated areas;
- smoking only at designated times;
- prohibition of smoking in the presence of clients and the public, or in meetings with other employees;
- smoking restricted to areas with separate ventilation systems;
- workplace ban in conjunction with employer-sponsored smoking cessation programmes;
- preferential hiring of non-smokers.

Many organizations that introduced restrictions on smoking in the workplace in the past did so because there was a risk of fire, explosion or damage to property and equipment, or because of hygiene considerations such as in the preparation of food. The workplace is becoming an increasingly popular target for health promotion activities. The amount of time many people spend at work, the economic and other incentives for employers to invest in health promotion, and the opportunity to mobilize colleagues to change health habits have made the workplace an important focus for health promotion.

Restrictions on smoking in the workplace (see Box 2, p. 101), especially when strengthened by a smoking cessation programme, may encourage a number of smokers to quit. They may also prove cost-beneficial for the

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1 The contributions of Mr Wayne Millar, Statistics Canada, Ottawa, Canada, and Dr Hermann Brenner, Department of Medical Sociology, University of Ulm, Germany, to the drafting of this chapter are gratefully acknowledged.
enterprise. The direct economic benefits to be considered in the analysis of workplace initiatives include reductions in health care costs, life insurance premiums, short-term and long-term disability, workers' compensation, sick pay, staff turnover and absenteeism, and improvements in productivity. Attention should also be given to indirect benefits such as increased employee morale, job satisfaction, company image and the value of better employee health. Direct costs that are measurable include the cost of the programme (labour, supplies) and the cost of employees' time off work to attend health promotion sessions.

**Examples of evaluation**

*Evaluation of smoking restrictions in a government work setting*¹

In May 1985, senior management at Health and Welfare Canada initiated a survey to assess the prevalence of smoking among employees, to measure employee attitudes and opinions about smoking in the workplace, and to solicit suggestions for a fair and effective smoking policy. The motivation for the survey stemmed from the increasing body of evidence regarding the effect of passive smoking on non-smokers, the health risk of smoking to smokers, and concern about the possible legal implications of permitting smoking in the workplace.

In August 1985, a questionnaire was distributed to all Health and Welfare employees in the Ottawa region through the departmental mail system. The questions in the survey sought data relating to the prevalence of smoking in the workplace, employee perception of smoking as a general nuisance, symptoms ascribed to smoking in the workplace, the prevalence of specific health conditions exacerbated by smoking, employee attitudes towards smoking cessation programmes based in the workplace, and the extent to which employees would support various policy options regarding smoking in the workplace.

In January 1986, a new smoking policy was introduced, banning smoking in the workplace except in specially designated areas such as cafeterias in most worksite locations. Concurrent with the introduction of the new policy, employees were offered two self-help smoking cessation programmes ("Time to quit" and "Butt out") conducted by public health service nurses.

In February 1987, a second survey obtained data on smoking prevalence, attempts to quit smoking, use of the smoking cessation courses, and attitudes towards the efficacy of the new smoking policy. The employee population numbered 4200 persons. The response rate was 62% in the first survey and 53% in the follow-up survey.

In addition, all employees who registered for smoking cessation courses during the year following the introduction of the new smoking policy were interviewed by telephone at six weeks, six months and at the end of one year. The telephone

follow-up was conducted by health students employed by the department for their work term. The primary criterion of success was continuous abstinence from smoking for one-year. Other parameters examined included the number of people who had abstained continuously for six months, the proportion of people who had stopped smoking at six weeks, six months and one year, and the reduction in the number of cigarettes smoked per day at work and in total. Respondents who were lost to follow-up were classified as smokers. In the year following the implementation of the new smoking restrictions, the prevalence of smoking in the employee population declined from 29% to 24%.

**Study of a national sample of the German population**

In a study conducted in the Federal Republic of Germany in 1987, the relationship between prohibition of smoking at the workplace and smoking cessation was assessed in a national sample. A cross-sectional study of smoking habits and worksite smoking regulations was nested within a national sample survey, with data collection through standardized personal interviews. The sample consisted of 734 employees aged 22–65 years who were actively engaged in the workforce for at least 20 hours a week and were either current or former smokers.

Among men, there were only minor differences between employees in smoking and non-smoking workplaces. After jointly controlling for the effects of age, mental status and education, men working at places where smoking was prohibited were less likely (odds ratio 0.8, 95% confidence interval 0.44–1.45) to be current smokers than men working where smoking was permitted, but the difference was not statistically significant. For women, the effect was more apparent. Women working in non-smoking environments were only about 22% (95% confidence interval 9–50%) as likely to smoke as those working where smoking was permitted (Table 3). Cessation rates were also much higher among older people and those with higher levels of education.

Since these data are from a single cross-sectional survey, they do not reveal the temporal sequence or causal relationship between workplace smoking policies and quitting smoking. They reveal only an association between the variables, particularly for women. Nevertheless, the results suggest that prohibition of smoking in the workplace is associated with a higher frequency of smoking cessation, particularly among women.

**Comments**

The examples above illustrate some of the major problems encountered in this kind of research.

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Table 3. Adjusted odds ratios for current smoking among people who have ever smoked cigarettes

<table>
<thead>
<tr>
<th>Men</th>
<th>Smoking at workplace</th>
<th>Odds ratio (95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>allowed</td>
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</tr>
<tr>
<td></td>
<td>not allowed</td>
<td>0.80 (0.44–1.45)</td>
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<td>Age</td>
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<tr>
<td></td>
<td>36–50 years</td>
<td>0.71 (0.38–1.37)</td>
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<td></td>
<td>51–65 years</td>
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<td>Marital status</td>
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<td></td>
<td>married</td>
<td>0.89 (0.44–1.78)</td>
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<tr>
<td></td>
<td>widowed/divorced</td>
<td>0.52 (0.14–1.97)</td>
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<tr>
<td>School education</td>
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<tr>
<td></td>
<td>10–11 years</td>
<td>0.89 (0.44–1.78)</td>
</tr>
<tr>
<td></td>
<td>≥12 years</td>
<td>0.41 (0.22–0.75)</td>
</tr>
<tr>
<td>Women</td>
<td>Smoking at workplace</td>
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<tr>
<td></td>
<td>not allowed</td>
<td>0.22 (0.09–0.50)</td>
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<tr>
<td>Age</td>
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<td></td>
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<td></td>
<td>widowed/divorced</td>
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<td>School education</td>
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<td>1.00a</td>
</tr>
<tr>
<td></td>
<td>10–11 years</td>
<td>0.26 (0.10–0.71)</td>
</tr>
<tr>
<td></td>
<td>≥12 years</td>
<td>0.20 (0.06–0.62)</td>
</tr>
</tbody>
</table>

* Reference group

Study design

Like most other studies, the example from Canada does not provide an adequate comparison group, making it difficult to separate the effects of smoking policy from general trends. Furthermore, in this study and in others presented elsewhere in this book, no effort was made to separate the effects of the smoking policy from the potentially confounding effects of additional health promotion or protection measures, such as offers of smoking cessation classes. The example from Germany is an exception in that it refers to smoking regulations that typically have been in effect over long periods for legal or safety reasons. Finally, most studies are carried out in highly selected populations...
(usually special occupational groups) which makes it difficult to generalize from the findings, but the German study was conducted in the "general population". Furthermore, in this second example, employees with workplace restrictions were compared with employees without workplace restrictions.

Sample
The two examples given above were based on relatively large samples and had modest to satisfactory response rates, unlike most studies where unsatisfactory response rates contribute to selection bias.

Results
Most of the studies that have addressed the impact of workplace restrictions on the smoking habits of active smokers have found some reduction in the average number of cigarettes smoked per day, although results are less consistent with regard to the reduction of smoking prevalence.

Guidelines for evaluation

Expected outcome of the programme
It is important to consider the range of effects that result from the introduction of a workplace smoking policy. Effects may be anticipated or unanticipated, direct or indirect. A comprehensive evaluation of worksite smoking restrictions should consider a variety of outcomes, both qualitative and quantitative. Direct outcomes to be evaluated include:

- acceptance of and compliance with the restrictions;
- reduction in exposure to environmental tobacco smoke (measurement of respirable suspended particulate matter);
- reduction of annoyance of employees by environmental tobacco smoke;
- reduction of smoking prevalence among employees;
- reduction of average number of cigarettes consumed per smoker.

Potential indirect effects include the following:

- decrease in absenteeism;
- reduction in cleaning and maintenance costs;
- increase in morale;
- increase in attempts to stop smoking;
- increase in proportion of smokers who intend to quit;
- reduction in smoking-related problems at work (e.g. fires);
- perceived reduction in exposure to second-hand smoke;
- increased cessation rates among employees who use in-house programmes;
— reduced personnel turnover;
— improved health.

Where and how to find information for the evaluation

The implementation of tobacco-free policies in workplaces is often preceded by a survey of the number of smokers, providing baseline information for evaluation. Such a survey is easy to carry out since a captive and usually stable population is involved. Thus, if the costs of the evaluation have to be kept to a minimum, a simple survey of the number of smokers, done at regular intervals, may be sufficient.

If technical support, money and time permit, the following activities may prove useful:

• Conduct cross-sectional studies, with detailed retrospective information on smoking habits and worksite regulations, to evaluate existing measures.
• Conduct prospective longitudinal studies to evaluate newly introduced smoking policies with a minimum follow-up of 2–5 years. Include comparison groups with different smoking policies. Whenever possible, it may prove worth while to allow for the effects of other tobacco control measures implemented at the same time on the population in question.
• Include study populations that are heterogeneous with respect to baseline smoking behaviour, smoking regulations at the worksite and access to other preventive measures (such as smoking cessation classes). A minimum requirement should be to include appropriate questions in national health surveys.
• Validate information on smoking habits and regulation of worksite smoking wherever possible.
• Carry out a routine check-up at the workplace to collect smoking information.

Methods and steps for evaluating the programme

To evaluate workplace policies and programmes restricting tobacco use, the process outlined in Chapter 2 should generally be followed, and the information in Chapters 2 and 3 used whenever necessary. The following methodological and practical advice is specific to this chapter.

Whatever the specificity of the studies carried out, it is useful to address all the direct outcomes listed on p. 97 and to include indirect effects whenever possible.

1 General information for evaluation and its sources are described in Chapters 2 and 3.
In circumstances where such evaluations are not yet common, it will be necessary to assume that the long-term health effects are positive for those quitting and for those not exposed to second-hand smoke (see also Chapter 8). The evaluation will thus centre on the quality and outcome of the workplace programme itself.

To demonstrate that the approaches and methods employed are relevant and adequate, it will be necessary to assess the ethical and legal implications of the restrictions, the role of labour unions and other smoking restrictions in the workplace. The cost per capita and per person who stops smoking should be compared with similar programmes. The evaluation should consider if the programme has progressed according to schedule and has been efficiently implemented according to the original schedule.

Finally, the evaluation should assess the overall effectiveness and impact of the programme, and of specific components such as economic incentives and support for smoking cessation. The effectiveness and impact should be seen from the points of view of both the employees and the employer.

Most of the elements of a workplace policy can be implemented and evaluated with little difficulty and without external experts. Prohibition of smoking at the workplace might be a particularly cost-effective public health measure, since it costs little, provides effective protection from involuntary exposure to tobacco smoke, and may encourage some smokers to quit.

**Indicators to support the evaluation**

In the evaluation of a smoke-free policy at the workplace, the following indicators may be used for the elements mentioned above.

**Relevance of the policy**

- Have all policy options been explored? These include: carrying out environmental alterations (separating smokers with physical barriers); restricting smoking by employees; combining these policies by permitting smoking except in designated no-smoking areas or by prohibiting smoking except in designated smoking areas; and banning employee smoking completely at the worksite.

**Adequacy**

- Has the original plan been developed with support from management and employees? Has a working group representing a wide range of management and employees been established?

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1 A number of the indicators mentioned in Chapter 8 can also be used for this evaluation.
• Does the plan provide adequate information, give advance notice and offer assistance with quitting? Does it emphasize the advantages to both management and employees?

• Has there been a review of the present policy, including an examination of the suitability of the present facilities as smoking and non-smoking areas?

• Have the views of the workforce been assessed after proper explanation of all aspects of the policy? Has a survey of the staff been conducted to find out the ratio of smokers to non-smokers, their attitudes and their recommendations? (The best guarantee that a non-smoking policy will be successful is that it reflects as closely as possible the wishes of the workforce.)

• Have the overall objectives of the policy been established (written formal policy is preferred)?

• Has the information campaign been well planned? Will it continue throughout the policy implementation period and even beyond it? Does it emphasize that the issue is a health problem, that it is smoking and not the smoker that is being controlled, and that no one is forcing smokers to quit?

• Is the implementation of the policy adequate? Has the date for starting been announced? Have relevant signs and other notices been adequately displayed? For example, signs announcing the policy should appear at every entrance to the facility and, if smoking is restricted to designated areas, signs should indicate where those areas begin and end.

• Has the policy been well designed? Is the ban simple? Is it clear where and when smoking is or is not allowed? Have alternatives been provided for those who cannot change their smoking pattern overnight? Have measures been planned for the enforcement of the policy?

• Is the policy explained when new employees are being recruited?

• Have incentives been created for employees to quit smoking?

• Has proper assistance been planned to provide support to those wishing to quit smoking?

• Have plans been made to keep the policy under review, to evaluate it at regular intervals and refine it accordingly?

**Progress**

• Is the policy progressing according to schedule?

• Is the policy flexible enough to be adapted to changing situations?

**Effectiveness**

• Is the policy proving effective? If not, are the specific shortfalls being analysed with a view to modifying the policy?
• Has the number of smokers diminished?
• Has environmental tobacco smoke decreased? If so, by how much?
• Has absenteeism decreased?
• Has productivity increased?

**Box 2. How to create a smoke-free workplace**

Governments and the private sector are increasingly adopting or strengthening policies restricting tobacco use at places of work. Over the past few years, some elements have been found to be critical for success in the elaboration and implementation of such policies:

- The first critical element is to provide the right information to employers and employees on the dangers specific to the particular place of work, linking smoking with the occupations concerned.

- Employee participation in the elaboration of the policy is a key factor, while top management support is a condition for its follow-up. Ideally, a joint working group comprising representatives of management and employees, smokers and non-smokers, should be set up to steer the development of the policy from the initial opinion survey through to implementation.

- Prior notice of the policy or a phasing-in period is important to allow people to change their attitude. Smoking cessation programmes should be offered simultaneously.

- The continuing administration of the policy, after its adoption, includes universal enforcement within the premises and possible adaptation and strengthening, when necessary.

Numerous practical guides on how to create a smoke-free workplace have been elaborated on the basis of the current legislation and regulations in individual countries. The guides are adapted to the particular socioeconomic and cultural backgrounds of these countries but some basic steps are common to most of them. They can be summarized as follows.

1. **Develop a plan**. Obtain support from management and employees, provide adequate information, give advance notice and offer assistance with quitting smoking. Emphasize the advantages to both management and employees. Establish a working group representing a wide range of management and employees.

2. **Review present policy**. Examine the suitability of the present facilities for adaptation as smoke-free areas.

3. **Establish overall policy objectives**. A written formal policy is preferred. Do not commit the company to a specific policy until employee opinion and other information have been assessed. Explore all policy options such as carrying out environmental alterations (separating smokers with physical barriers), restricting employee smoking, combining these policies by permitting smoking except in designated no-smoking areas, or by prohibiting smoking except in designated smoking areas, banning employee smoking at the worksite, and preferential hiring of non-smokers.
Box 2. continued

4 Plan an information campaign. This should commence before the questionnaire is circulated and should continue throughout and beyond the policy implementation date. Approach the issue as a health problem. Emphasize that it is smoking that is being controlled, not smokers. The issue is not whether people smoke but where they smoke. Smokers are not being forced to quit.

5 Assess the views of the workforce. Survey the staff to find out the ratio of smokers to non-smokers, their attitudes and their recommendations. The best guarantee that a non-smoking policy will be successful is that it reflects as closely as possible the wishes of the workforce. Make clear that comments will be taken into account in any final decision.

6 The policy. Keep the ban simple. Be clear about where and when smoking is or is not allowed. Consider providing alternatives for those who cannot change their smoking pattern overnight. Reaffirm the policy of those who infringe restrictions.

7 Provide assistance with quitting. When an employer introduces a corporate smoking policy, smokers’ needs must be considered. Support and counselling should be offered as part of the policy. This must be planned and the available materials and human resources need to be ascertained.

8 Implement the policy. Set a date for starting — about 12 weeks ahead. Put up no-smoking signs and notices announcing the policy. Smoking restrictions and bans are generally self-enforcing, but self-enforcement will not be effective unless the policy is clearly indicated by signs and other notices. Signs announcing the policy should appear at every entrance to the facility. Where smoking is restricted to designated smoking areas, signs should indicate where the designated smoking areas begin and end. Make this policy known when recruiting new employees.

9. Keep the policy under review. Evaluate the policy at regular intervals and refine it accordingly.

Background reading


Kristein M. How much can business expect to profit from smoking cessation? Preventive medicine, 1983, 12:358–381.


Petersen LR et al. Employee smoking behaviour changes and attitudes following a
restrictive policy on worksite smoking in a large company. *Public health reports,* 1988, 103:115-120.
Rigotti NA et al. The impact of banning smoking on a hospital ward: acceptance, compliance, air quality and smoking behaviour. *Clinical research,* 1986, 833A.
Chapter 10

Tobacco-free health services

As hospitals and health facilities are both public places and workplaces, most of the issues discussed in Chapters 8 and 9 apply to them. However, health services are also places where those who are ill seek care and reassurance, looking to health workers for relief from suffering and for guidance in maintaining and improving health. In many countries, one of the most glaring violations of the exemplary function of hospitals and health facilities is the use of tobacco and the dependence engendered by it.

What constitutes tobacco-free health services?

Mention of a tobacco-free policy for health premises usually brings hospitals to mind. However, other health premises are often more visible to the community and play an important exemplary role. Such premises include health centres, maternal and child health clinics, screening facilities, ambulances, doctors' surgeries, dental clinics and practices, pharmacies, rehabilitation facilities and medical schools.

The term "tobacco-free health premises" implies that tobacco is not used in health care facilities, either by health care workers or by patients or visitors. Nor should tobacco be advertised, promoted or sold in health care facilities (such as at sales kiosks in hospitals). In some countries, substantial amounts of tobacco products are purchased in pharmacies, some of which may even advertise tobacco products — a practice completely incompatible with the idea that pharmacies and their staff strive to protect and improve the health of their customers. In other countries, pharmacists are playing to the full the role of health promoter and have important roles in tobacco control programmes.

Tobacco-free health services also include health promotion activities for a tobacco-free society, including cessation support services for patients and staff, and support for tobacco control policies.

The terminology defined by the Ontario Hospital Association, Canada, can be used to describe the various possibilities currently in use:

Tobacco-free: A hospital environment where no smoking is allowed in any area inside the buildings by any patient, staff member or visitor.

Tobacco-free with humanitarian exceptions: A hospital environment with
no designated smoking areas. The hospital maintains and advertises itself as
tobacco-free for all patients, staff and visitors, but will honour individual
exceptions for humanitarian reasons (e.g. terminally ill or chronic care patients,
or a distressed visiting family member).

Severely restricted: A hospital environment where a maximum of three
areas or rooms are designated for patients, staff or visitors to smoke.

Restricted: A hospital environment where smoking is limited to certain
areas or rooms. Patients, staff and visitors are subject to rules governing
smoking within the premises.

Unrestricted: The hospital does not have a policy on smoking, or the policy
does not limit who may smoke or where they may smoke.

The interest in tobacco-free premises lies not only in the exemplary role
health services have to play, but also in the protection of patients, particularly
those who, because of severe disease or disability, are unable to avoid exposure
to tobacco smoke or to communicate their objection. Another important objec­
tive of tobacco-free health services is to protect health workers from the
harmful effects of passive smoking.

In order to achieve tobacco-free health premises, legislative steps often
have to be taken. More than 60 countries have already introduced national
legislation that restricts smoking in health care facilities. In addition, a num­
ber of subnational jurisdictions, such as states, provinces, counties, cities,
towns and hospitals, have adopted regulations banning smoking in health
facilities. The number of facilities declared “tobacco-free” is growing in both
developing and developed countries. The laws in different countries vary in
their comprehensiveness. In some instances smoking is totally prohibited on
health care premises, while in others smoking is allowed in designated areas
only.

Examples of evaluation

Pharmacists helping smokers to quit in Denmark1

A joint project of the Danish Pharmaceutical Association and WHO aims to
document experiences and results of community-based programmes designed
to help smokers to quit. Denmark has 304 community pharmacies evenly
distributed throughout the country. The pharmacies have 154,000 consumer
contacts a day and are widely used by people from all walks of life. This puts
pharmacists in an ideal position to help smokers to quit.

The programme for quitting smoking combines the use of nicotine substitutes in
the form of chewing gum or plaster with pharmacist-led support groups at the
community pharmacy. The programme lasts eight weeks and includes six 90-
minute meetings at the pharmacy. The concept was tested in a pilot project at

1 Mollen L. Pharmacists helping smokers to quit (report on interim results). Copenhagen,
WHO Regional Office for Europe, 1992.
20 community pharmacies in different parts of Denmark in 1992. Participating pharmacists completed a two-day compulsory training course before starting on the programme.

The project uses process and outcome evaluation methods. A diary kept by the pharmacists and a questionnaire completed by the participants are used in the evaluation. The diary, which is kept throughout the project, records:

- the smoking status of each participant, attendance rate and satisfaction with participation;
- time spent by pharmacists;
- marketing and information activities aimed at the general public and health care professionals;
- responses from customers of the pharmacy and from health care professionals.

The participants filled in a questionnaire at the final group meeting. The questions concerned, among other things, smoking status and response to participation in the support group. The evaluation provides data on the long-term effect of the project, through a survey of participants' smoking status 3, 6 and 12 months after the last group meeting. The non-smoking status of participants 12 months after the final meeting is verified by measurement of carbon monoxide in exhaled air. The evaluator visits the pharmacy at the end of the course and interviews the pharmacists and participants separately about their experiences and views on the programme.

Preliminary reports give an average success rate of 60%. Fully 97% of group members were satisfied with the programme and 94% were satisfied with the way the pharmacists led the group. All of the pharmacists were interested in starting up new support groups and 85% of them expressed interest in organizing support groups on other health subjects.

**Johns Hopkins Medical Institutions**

A number of factors make the establishment of a tobacco-free environment in a health care institution more complex than in other public places. A series of phases of evaluation and implementation may be needed in an attempt to reach a consensus on policy.

In 1987 the Board of Trustees of Johns Hopkins decided to ban smoking in all areas of the hospital complex. Because the complex comprised 23 buildings in a 12-block area and employed more than 10000 individuals, the implementation process focused on changing the underlying organizational culture as it related to smoking. A six-month programme was instituted on 1 January 1987 to prepare the employees for a total smoking ban that would become effective on 1 July 1987. This was preceded by a survey in November 1986 of

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all permanent employees of the hospital complex and the school of medicine. A year after the first survey, a second survey was done, again using a self-administered questionnaire. The results were confirmed by various direct observations.

**Self-report of smoking behaviour by employees**

During the year between the surveys, the reported cross-sectional smoking prevalence declined by 25%, from 21.7% to 16.2% ($P < 0.0001$). Those who continued to smoke reported that the average number of cigarettes they smoked per day had declined by 20% from 16.4 to 13.1. The average number smoked during working hours had declined from 7.8 to 3.8.

Service workers had the highest self-reported smoking prevalence both before and after the start of the policy (34.6% at baseline, 27.3% at follow-up), whereas physicians had the lowest self-reported prevalence (5.5% at baseline, 2.7% at follow-up). The number of cigarettes smoked per day decreased in all employee groups after the policy was implemented.

Observed smoking by staff and visitors declined dramatically between the two surveys, indicating widespread compliance with the smoke-free environment. A decrease in the number of staff and visitors using the cafeteria was reflected in a reduction in overall cash receipts as well as a reduction in the total number of people present in these areas during the six months after introduction of the smoke-free policy. The effect was short-lived, however, and the numbers of individuals using the cafeteria had returned to baseline levels one year after the smoke-free policy was initiated.

**Cigarette stub counts and hospital fires**

In elevator lobbies, lounges and entrances, a reduction of 80.7% in the total count of cigarette stubs was observed during the six months after the smoke-free policy was introduced, whereas a reduction of 96% was observed in waiting areas. An increase of 7.7% was recorded in the number of cigarettes extinguished at hospital entrances.

The number of fire incidents had averaged 20 per year (ranging from 12 to 29) for the four years before the policy was introduced. Most of these fires did not involve property damage or injury. There were no fire incidents between 1 July 1988 and 1 July 1989, the first year of the hospital's no-smoking policy.

**Monitoring of atmospheric nicotine vapour**

Change in the concentration of vapour-phase nicotine was used as a proxy for environmental tobacco smoke. The level of environmental tobacco smoke fell by 1–2 orders of magnitude in offices, elevator lobbies, corridors, lounges, and cafeterias. Environmental tobacco smoke decreased by nearly 80% in restrooms, but the differences were not statistically significant.
Smoking cohort quitting rates

The first survey found a total of 1124 self-professed smokers. Of these, 889 were still employed one years later, and 446 of these returned the second survey questionnaire, giving a follow-up rate among the remaining smokers of 50%. The self-reported sustained quitting rate in the years between surveys was 20.4% (91/446). If the worst-case scenario is assumed — that is, that all of the remaining non-respondents had continued smoking — the quitting rate would be 10.1% (91/899). The exclusion of those with self-reported non-smoking status of less than three months slightly altered these quitting rates (91/446(18.2%); 81/899(9.0%)).

This evaluation suggested that the introduction of a smoke-free environment at the Johns Hopkins Hospital was effective in reducing exposure to environmental tobacco smoke and in reducing the overall prevalence of smoking among employees.

Comments

The evaluation presented in the example from the Johns Hopkins medical institutions can be considered as a model, in part because of the relatively high return of the questionnaire and the practical methods used to cross-check the replies received (butt counts, nicotine vapour). The discipline in responding to the survey and in complying with the policy can be attributed to the preparation of the employees. In a number of other hospital surveys carried out in the same circumstances and for the same purpose, service workers had a higher rate of smoking and more difficulties in cutting down; some even mildly opposed the policy. Around the world, moves both for and against stricter policies in a number of hospitals have coincided with the general social atmosphere in the city or country, showing how much the success of a tobacco-free hospital can be influenced by the larger community.

Guidelines for evaluation

Expected outcomes

As described above, the three expected immediate outcomes of a tobacco-free health service are:

- no use of tobacco on health premises by patients, visitors or staff;
- prohibition of the sale or promotion of tobacco on the premises;
- health promotion activities for a tobacco-free society, including support services for patients and staff who want to stop smoking, and support for improved tobacco control policies.

Ultimate outcomes, in addition to the health effects already described, would be related to the role of the health services in setting an example and the encouragement their example may provide directly or indirectly to other public places, workplaces or individuals.
Surveys and sources of information

To promote a tobacco-free health service, it may be necessary to get an idea of tobacco-control efforts being implemented in other health services by means of legislation or local regulations. This can be done through literature searches, exchange programmes and so on.

With the above background information, most of the surveys described in Chapter 9 will then be applicable — survey of staff smoking behaviour and opinions on smoking, follow-up surveys at regular intervals, validation of results though observation and measurement (e.g. nicotine concentration), staff opinion with regard to continuing or extending the policy.

How to evaluate

To evaluate the implementation of a tobacco-free health services programme, the process outlined in Chapter 2 should generally be followed, and the information in Chapters 2 and 3 used whenever necessary. The following methodological and practical advice is specific to this chapter.

The methods presented in Chapter 9 apply generally to all components of the evaluation process. As for other workplaces, it is important to precede the creation of a tobacco-free environment by an opinion poll of staff. This is an evaluation measure that also serves as a health promotion measure.

It should not be necessary to demonstrate the relevance of the programme. Ethics and compassion dictate that patients be cared for in the healthiest environment possible. In order to be adequate, the policy should take into account the needs of certain patients and the progression of smoking cessation among staff. Physical facilities should also be considered when estimating the adequacy of a programme.

Cost-benefits may be similar to those described in Chapter 9. However, the systematic institutionalization of tobacco-free health premises relates to matters of an ethical nature and it does not seem appropriate to judge a moral issue in terms of costs and benefits.

Indicators to support the evaluation

The indicators mentioned in Chapter 9 should also apply here, with the following additions mainly regarding the adequacy of the programme:

• Is the establishment of a tobacco-free policy part of a local community endeavour, is it part of a national tobacco control movement, or is it being carried out independently?

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1 General information for evaluation and its sources are described in Chapters 2 and 3.
2 Indicators listed in Chapter 16 should also be considered.
Has a steering group representing all categories of personnel in the health facility been created to promote, monitor and follow up the implementation of the tobacco-free policy?

Are all hospital personnel encouraged to stop using tobacco? Is advice on stopping smoking provided?

Is support for stopping smoking given to patients as an integral part of treatment — particularly for certain diseases such as cardiovascular disease, chronic lung disease, cancer and diabetes — in much the same way as drugs and physiotherapy are prescribed?

**Background reading**


Chapter 11

Bans on tobacco advertising and sponsorship

Tobacco brand names and the image associated with them are the key to tobacco product advertising and sponsorship, and public health surveillance and legislation should focus on controlling them. While the tobacco industry often denies that its advertising, promotion and sponsorship are aimed at encouraging young people to smoke, a number of studies have shown otherwise.

In the generally controversial area of tobacco control, measures banning advertising and sponsorship have attracted unprecedented controversy. The World Health Assembly took a firm stance on this issue in 1990 by adopting Resolution WHA43.16 which recommends WHO Member States “to consider including in their tobacco control strategies plans for legislation and other effective measures at the appropriate government level providing for . . . progressive restrictions and concerted actions to eliminate eventually all direct and indirect advertising, promotion and sponsorship concerning tobacco”.

Content of a ban on advertising and sponsorship

Advertising is one of the strongest weapons of the tobacco industry. Firstly, advertising conveys the message that smoking is socially acceptable, and even pleasurable and sophisticated. By associating tobacco with youth, beauty, sport, nature and sexuality, advertising encourages and invites smoking. Secondly, the substantial revenue that newspapers and magazines receive from tobacco advertising may influence their editorial policies and deter some of them from publishing articles on smoking and health. In 1994, 21 countries had total bans on tobacco advertising.\(^1\)

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1 The support of Dr Murray Laugesen, Public Health Commission, Wellington, New Zealand, in drafting of this chapter is gratefully acknowledged.

2 Classified by WHO Region, these are as follows:
- Africa: Algeria, Mozambique, Sudan.
- The Americas: Canada, Cuba.
- Europe: Finland, France, Iceland, Italy, Lithuania, Norway, Portugal.
- South-East Asia: Mongolia, Thailand.
- Western Pacific: Australia, New Zealand, Singapore and Viet Nam.

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Tobacco brand names are promoted in three main ways:

- through tobacco product advertising;
- through indirect advertising on non-tobacco goods. The tobacco industry has systematically endeavoured to fight restrictions by placing brand names or trademarks on other products, such as sports clothing, that indirectly advertise tobacco. This type of deviation around advertising restrictions has often been attacked in the courts.
- through tobacco-sponsored advertising. Increasingly, the tobacco industry seeks to keep its name and products before the public and to promote a positive image by sponsoring and financing sports events and the arts.

Comprehensive legislative action aimed at protecting children and adults from being influenced and encouraged to smoke should cover these three areas of promotion. A complete ban on tobacco advertising would call for generic packaging rather than brand names.

In addition to their direct intent, bans on advertising may act in a variety of ways:

- Legislated bans on advertising announce society's verdict on the product. Tobacco advertising bans passed by parliament may have enough authority to convince some smokers that smoking really is dangerous.
- Bans on advertising directly remove support for smoking behaviour. Advertising bans take away from smokers many reminders to light up another cigarette.
- Bans on advertising also take away the glamorous imagery that supports the use of each brand of cigarette.
- Advertising bans remove persuasive arguments to keep smoking. Advertisements for low-tar cigarettes imply that, by smoking low-tar cigarettes, smokers can keep their habit and avoid the health risks. Instead of quitting, smokers are encouraged to switch to low-tar brands.

In view of the results of evaluation of the influence of tobacco advertising and sponsorship on children during the past two decades, a complete ban on advertising and sponsorship may be the most essential element of a multifaceted tobacco control policy. Additionally, the visibility of such a measure, which may often be controversial, will give wide publicity to the issue of tobacco control.

**Examples of evaluation of the effectiveness of a ban on advertising**

**Norway, 1975**

In 1970, the Norwegian parliament endorsed the development of a national tobacco control programme and called for the establishment of a central author-
EVALUATING TOBACCO CONTROL ACTIVITIES

ity, the National Council on Smoking and Health, to "prepare, propose, coordinate and supervise government measures against the harmful effects of tobacco". In 1975, a comprehensive Act on Restrictive Measures for Marketing of Tobacco Products (the Tobacco Act) came into force. It incorporates the following major provisions:

- a total ban on all forms of advertising. This means a ban on advertising of any type of tobacco product, including not only cigarettes and cigars but also cigarette papers, cigarette-rollers and pipes. Window displays and point-of-sale advertising are prohibited. Showing tobacco products in advertisements for other products is prohibited;
- compulsory warning. Several different health warnings are required to be used in rotation on packages of cigarettes.

To evaluate the effectiveness of the Tobacco Act (which is part of a more complete tobacco control policy), extensive use was made of surveys of smoking prevalence and attitudes to smoking. Youth surveys were made possible by the cooperation of schools and teachers. Professional groups such as doctors and nurses responded well in postal surveys. Surveys of the general public were commissioned through the Central Bureau of Statistics.

Of particular interest to the debate, current in many countries, on whether advertising bans lead to a loss of employment in the advertising industry is a study showing that there is no evidence whatsoever that anyone in the advertising industry became unemployed as a result of the advertising ban. Norway saw a continuous increase in annual advertising sales, both before and after enforcement of the tobacco advertising ban in 1975. The average annual increase

<table>
<thead>
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<th>Year</th>
<th>Total value of advertising (Norwegian Kroner, millions)</th>
<th>% spent on newspaper advertising</th>
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<tbody>
<tr>
<td>1971</td>
<td>943</td>
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<td>48.3</td>
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<td>1306</td>
<td>45.9</td>
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<td>47.2</td>
</tr>
<tr>
<td>1983</td>
<td>1443</td>
<td>47.3</td>
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</tbody>
</table>

* 1979 prices
- Information not available

Source: Norwegian Association of Advertising Agencies
Fig. 3 Per capita consumption of cigarettes and smoking tobacco by people aged 15 years and over, Norway

![Graph showing per capita consumption of cigarettes and smoking tobacco by people aged 15 years and over in Norway over time.](image)

Source: Norwegian Directorate of Customs and Excise

was higher in the eight years after 1975 than in the eight years before, as shown in Table 4.

Registered sales of tobacco per adult (aged 15 and above) in Norway showed an increase during the 1950s and 1960s. From 1970 the sales levelled off, decreasing during the 1980s from 2044 g per adult in 1979-80 to 1853 g per adult in 1990-91 (Fig. 3).

The advertising ban had different effects in the age groups 16-24 years and 35-44 years during the period 1973-1990. Data indicate that the ban was especially effective in reducing the number of young people taking up smoking (Fig. 4).

**New Zealand, 1990**

Advertising restrictions on tobacco were tightened in New Zealand in 1963, 1973, 1979 and 1987, and in 1990 when the Smoke-free Environments Act 1990...

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1 Based on studies carried out in New Zealand by Dr Murray Laugesen, Public Health Commission, Wellington, New Zealand.
banned tobacco advertising, reducing tobacco advertising expenditure in the mass media by 80%.

In 1984 New Zealand adults smoked the equivalent of nearly 2800 cigarettes annually. Tobacco consumption was at mid-range, with New Zealand ranked 12 among the 24 countries in the Organisation for Economic Co-operation and Development (OECD). New Zealand repeatedly increased tobacco taxation from 1984 on, indexed tobacco prices in 1989 and banned tobacco advertising almost totally in 1990. In 1991 tobacco consumption fell to 1783 cigarette equivalents per adult per year, the lowest rate among OECD countries except for Sweden which in 1991 was 1719 cigarette equivalents per adult. A combination of tax and advertising control policies appears to be the most effective mix for decreasing tobacco use.

Although final figures are not available for all OECD countries, by 1991, those in which consumption had decreased below 2000 cigarette equivalents per adult were countries that had legislated for total or near-total bans on tobacco advertising—New Zealand, Norway and Sweden. Between the six months before and the six months after the advertising ban in New Zealand, sales fell markedly (see Table 5), by 8–15%. The possible causes were higher prices (up 2.2%), lower income (down 0.2%), lower expenditure on tobacco advertising in the mass media (down 81%), and a more severe tobacco advertising ban. Independent of price and income effects, a drop in consumption of 8.2% was attributed to the ban on tobacco advertising.
Further study revealed that the consumption of tobacco products in New Zealand peaked in 1963 and cigarette sales peaked in 1975. Sales fell rapidly between 1984 and 1990 when the real price of tobacco increased by 60%. During the period 1984–90, before the latest ban took effect, tobacco consumption fell by 1% every 11 weeks. In 1992, after the ban, it fell by 1% every six weeks, a change not adequately explained by other factors, to a new record low level of 1600 cigarette equivalents per adult per year. Tobacco consumption was halved between 1975 and 1992, with four-fifths of that decrease after 1984.

**Comments**

In the United Kingdom in 1992, the Department of Health published a review of evidence on the effect of tobacco advertising on consumption. Examining first the "indirect and circumstantial evidence", the review found both plausible mechanisms and extensive correlations between advertising and increased smoking but found no proof of causation. Comparisons of different countries

**Table 5.** Tobacco consumption and its determinants, in the six months before and after the New Zealand advertising ban, December 1990

<table>
<thead>
<tr>
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<td>Real disposable income,</td>
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<tr>
<td>households with full-time</td>
<td>1000</td>
<td>998</td>
<td>−0.25</td>
</tr>
<tr>
<td>wage-earner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>all adults ≥ 25 years</td>
<td>1000</td>
<td>994</td>
<td>−0.6</td>
</tr>
<tr>
<td>Real retail trade index per</td>
<td>1000</td>
<td>959</td>
<td>−4.1</td>
</tr>
<tr>
<td>capita, seasonally adjusted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real price index</td>
<td>1000</td>
<td>1022</td>
<td>+2.2</td>
</tr>
<tr>
<td>Tobacco advertising</td>
<td>1.74</td>
<td>0.32</td>
<td>−9.1</td>
</tr>
<tr>
<td>expenditure, (million NZ $)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobacco advertising</td>
<td>7.5</td>
<td>9.0</td>
<td>+20.0</td>
</tr>
<tr>
<td>restriction score (max = 10)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Measures of consumption**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total tobacco products</td>
<td>2603</td>
<td>2203</td>
<td>−15.4</td>
</tr>
<tr>
<td>released for sale^</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(cigarette equivalents,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>millions)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adults smoking any</td>
<td>28.6</td>
<td>25.6</td>
<td>−10.5</td>
</tr>
<tr>
<td>cigarettes (%)^</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adults smoking only</td>
<td>14.9</td>
<td>12.1</td>
<td>−18.1</td>
</tr>
<tr>
<td>manufactured</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cigarettes (%)^</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adults smoking only</td>
<td>4.4</td>
<td>4.2</td>
<td>−5.1</td>
</tr>
<tr>
<td>hand-rolled</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cigarettes (%)^</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufactured</td>
<td>13.5</td>
<td>12.7</td>
<td>−6.5</td>
</tr>
<tr>
<td>cigarettes smoked per</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>smoker per day^</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufactured</td>
<td>3.3</td>
<td>2.7</td>
<td>−17.1</td>
</tr>
<tr>
<td>cigarettes smoked per</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>adult per day^</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume of manufactured</td>
<td>7.9</td>
<td>7.3</td>
<td>−8.6</td>
</tr>
<tr>
<td>cigarette sales in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>supermarkets (% of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>grocery sales)^</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

^ Data from the Department of Statistics.

^ Data from OTR Spectrum Research surveys.

^ Data from AGB Scandata, purchased by the Department of Health.
showed a correlation between tighter controls and lower consumption but did not prove that the former gave rise to the latter. Studies of individual countries over time presented many methodological difficulties, but showed a preponderance of positive correlations between expenditure on advertising and consumption. 68 significant and 103 insignificant negative results in the 19 studies examined. The review concluded that, if advertising had no effect, roughly equal numbers of positive and negative findings would be expected, and that therefore the balance of evidence was for a positive effect on consumption. Finally, the review examined the effects of four bans on advertising. Econometric analyses of the ban in Norway found drops in consumption of 9-16%, and evidence was quoted for a 6.7% effect in Finland, 4% in Canada, and 5.5% in New Zealand. These are described as falls "on a scale which cannot be reasonably attributed to other factors."

**Evaluating advertising and sponsorship bans**

Ideally, the effects of advertising bans have to be compared with what would have happened without such intervention, assuming other factors had remained the same. In practice, prices and income may change, as may other socioeconomic factors.

**Expected outcome of such programmes**

The first impact of a ban on advertising is reduced contact with promotional images of tobacco and a decrease in the apparent prestige of tobacco use. Taking into account the effect of advertising on consumption, the second impact is a decrease in tobacco use, thus leading to long-term health gains.

**Sources of information and methods for evaluation**

To evaluate the success of advertising bans, the process outlined in Chapter 2 should generally be followed and the most appropriate methods selected from Chapters 2 and 3. The methodological and practical advice given here is specific to this chapter.

The approaches detailed below describe how to measure the effectiveness of a ban on advertising and sponsorship. Complex studies and techniques are not needed but continuous monitoring and comparison of trends are essential. This can be done even in countries where such evaluations are not yet common.

Effects of advertising bans on cigarette sales can be seen from data collected on a weekly basis within five weeks, a period which allows for the

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1 General information for evaluation and its sources are described in Chapters 2 and 3.
influence of monthly magazines. Quarterly data will show an effect in the following quarter. Annual data will show sales falling in the same year.

The relevance of advertising bans has been demonstrated in a number of countries at various stages of socioeconomic development. For those who argue that such bans are not relevant or effective, it should be pointed out that if major tobacco companies are spending increased amounts on advertising (US$ 1.8 thousand million in 1978 and US$ 3.27 thousand million in 1991, not including large amounts spent on sponsorship of sports and cultural events), it is because they expect an enormous return from these expenditures.

The adequacy, efficiency, effectiveness and impact of a ban on advertising can be evaluated by means of the following comparative approach which considers the evolution of a number of factors.

**Measuring the amount of advertising**

- Outdoor and shop advertising can be measured by a simple count every year of tobacco advertisements on outdoor signs, on public transport, or outside shops (either all the shops in the area or a random sample). The count will show if the number of signs is decreasing or increasing. This simple means of monitoring and evaluation can produce immediate results for policy action. For example, members of the public will take increased interest once they know how many tobacco advertisements there are in their town, by how much the number is increasing, and that product and sponsorship advertising may be seen at certain locations. The results may even increase local pressure on government to ban tobacco advertising and sponsorship.

- Tobacco product advertising in the mass media typically contains the brand name in large lettering, often with supportive imagery. A packet of cigarettes or tobacco is often given prominence, with a short advertising slogan about the product.

  In many countries, media research firms count the number of advertisements in each publication or on each television channel and estimate the cost according to the publisher’s or broadcaster’s rates. The research firms then sell data on the estimated total expenditure by tobacco manufacturers and importers on advertising tobacco products in print media and on television. This information is reported on a monthly, quarterly or annual basis. Any health agency may purchase such information. This information can be made public to make people aware of the issue, to help the public evaluate the need for further restrictions, and to help evaluate tobacco manufacturers’ and importers’ compliance with current restrictions.

- Sponsorship (tobacco brand name) advertising associates the tobacco brand name with a sports, artistic or charitable event. In sponsorship advertising, tobacco products are not mentioned or shown and no ad-
EVALUATING TOBACCO CONTROL ACTIVITIES

Advertising slogans about the product are used. To monitor sponsorship advertising on television during a sports event, one can count either the number of times the tobacco brand name is seen or, with a stopwatch, measure the length of time for which the brand name is seen.

If a health agency knows of a major tobacco-sponsored event to be screened on television, it could call on medical students, tobacco control advocates, members of NGOs or other concerned individuals to monitor the number of times a tobacco brand name is seen sufficiently clearly to be readable. Brand name exposure may vary from one event to another, depending on the position of the advertising signs and the position of the camera crew.

- Indirect advertising on non-tobacco goods may serve to promote tobacco products and the smoking habit. Brand names may be placed on toy racing cars and sports clothing — promotion obviously designed to popularize smoking among the young. A considerable amount of candy, gum and other products are sold in packaging that resembles cigarettes, oral snuff cans or dry tobacco pouches. From the tobacco industry’s marketing viewpoint, there are excellent reasons for promoting look-alike products. Children and young people learn the shape, form and feel of tobacco look-alikes.

Measuring trends in use of tobacco products

- One way of measuring trends in use is to review excise statistics of tobacco released for sale. Because governments in almost all countries collect tax from tobacco sales, data are available at national level on the quantity of tobacco products released onto the market. Apparent consumption can also be calculated by taking the total production minus exports, plus imports and plus or minus change in stocks. For international comparisons, the figure for consumption of tobacco products in tonnes is divided by the population age 15 and over in millions to give the number of cigarette equivalents consumed per adult (whether smoker or not) per year. (One gram of tobacco is assumed to be equivalent to 1 cigarette, so that 1 tonne of tobacco is equivalent to 1 million cigarettes). The trend in total consumption over the previous 12 months is the best guide to current trends. The monthly trend may fluctuate wildly as wholesalers buy up stocks when prices are low.

- Tobacco control agencies can monitor weekly or monthly cigarette sales at local, regional or national level. Data can be purchased locally from supermarket managers or nationally from media research firms. Sales of cigarette packets reported as a percentage of the number of grocery items purchased allows for fluctuations in the number of customers. The price of cigarettes can be monitored in the same way. By watching the weekly sales graph, tobacco control agencies can study the effect of
price discounting and see whether heavy advertising or health campaigns affect sales from week to week. If discounting is found to promote cigarette sales it can be prohibited by legislation.

• In many countries, the steepest rise in the percentage who smoke occurs at 13–15 years of age when many adolescents smoke only occasionally. In other countries, notably China, smoking uptake occurs late in adolescence. However, for nearly all countries, the percentage of 20–24-year-olds who smoke is a measure of complete smoking uptake by adolescents. This percentage is the most appropriate for international comparison of smoking uptake. Surveys of 15-year-olds conducted in schools (which should include questions about pocket money and source of cigarettes) will give up-to-date measurement of uptake close to the event.

• Smoking prevalence can be measured in several ways. In some countries, smoking prevalence is monitored continuously by house-to-house surveys. Other countries monitor smoking once a year or every two years. In Norway, for instance, the smoking habits of thousands of students have been studied by surveys mailed to schools every year or so. Countries should determine their own ways of measuring tobacco consumption as part of their national information system and should identify the resources they can put into it. People should, if possible, be classified as current smokers, former smokers, or those who have never smoked.

Measuring publicity for tobacco control

An important side-effect of tobacco advertising bans is that they get visibility and often generate controversy. A simple count each week of news items about smoking in local newspapers can trace the impact of legislation controversies.

At national level, news agencies may provide news clippings for a fee based on the number of items supplied, thereby providing a count of the number of news items purchased each week. In countries with several main languages or regions, differences may show up in the daily news balance.

Monitoring visibility in newspapers can give a good picture of the effectiveness of the advertising ban. In addition, a more qualitative analysis of some of the data — that is, the number of times tobacco brand names are seen during the broadcast of sports events — can show the relevance and adequacy of the ban.

Evaluating anti-tobacco sentiment

Response to a standard question, such as “Do you think smoking causes lung cancer?”, monitored regularly will indicate the readiness of the public for political action aimed at further control of tobacco. This question can be adapted to “Do you think snuff can cause mouth cancer?” or “Do you think
smoking can harm unborn and new babies?” or “Do you think smoking or using chewing tobacco or snuff is addictive?”

One of the advantages of the methods presented above is that they can be modified for application in a variety of situations and countries, even with limited resources.

**Indicators to support the evaluation**

Evaluation of bans on tobacco advertising and sponsorship can be carried out through a variety of indicators.

**Extent of the ban**

- Does the ban adequately cover all media? Has the possibility of using tobacco brand names for other purposes been covered by the ban? Are all forms of sponsorship covered?
- Does the ban cover promotion, advertising and sponsorship of tobacco products exported to other countries? How can the original country control this?

**Application of the ban**

- Have proper provisions been made to put the ban into effect?
- Have proper measures been taken to enforce the ban? Has a surveillance mechanism been established? Have provisions been made for possible litigation?
- Have all interested parties — health agencies, major NGOs interested in tobacco control, professional groups such as physicians, charities concerned with disease prevention (cancer and cardiovascular disease), politicians, Members of Parliament and the media — been urged to support the ban on advertising?
- Have proper information campaigns been conducted to:
  - alert the public to how much money is being spent in persuading people to smoke?
  - keep the need for tobacco control measures, and particularly advertising bans, in the public mind?
  - inform the public as to whether the problem is getting worse, getting better or remaining static?
  - tell the public whether any ban is decreasing advertising as intended (and if not, why not)?
  - let the public know that tobacco advertising is a concern of health officials?
  - let industry managers know that their promotion of tobacco is under public scrutiny?
PART 2. HEALTH PROTECTION: ECONOMIC MEASURES AND RESTRICTIONS

— let the public know the ratio of expenditures for and against smoking?

**Monitoring of the ban and evaluation of its effects**

- Has the law been monitored and have its effects been evaluated? At what intervals has this been done? Is the monitoring integrated into a general public health surveillance system?

**Follow-up**

- Has continuous follow-up been planned?
- Is continuous political support for the ban being ensured?
- Will the law/decree be reviewed and adjusted in light of the results of the monitoring and evaluation?

**Background reading**


Planning for a smoke-free generation. Copenhagen, WHO Regional Office for Europe, 1988 (Smoke-free Europe, No. 6).

Pushing smoke: tobacco advertising and promotion. Copenhagen, WHO Regional Office for Europe, 1988 (Smoke-free Europe, No. 8).

*Successes against smoking. The story of four countries.* Geneva, World Health Organization.


Chapter 12

Content, form and use of health warnings

What are health warnings?

Health warnings are statements put on packaging, product information inserts or advertisements to warn consumers that the product may have negative effects on their health or on the health of others. Health warnings may be voluntary or obligatory. By themselves, statements of yields of tar, nicotine and carbon monoxide are not considered to be health warnings.

Warning statements and more detailed explanations should include information on general health effects, specific disease risks, effects of passive smoking, effects in pregnancy, dependence and benefits of quitting. The consumer has a moral and, in many countries, a legal right to know these facts. They are all important concerns and information about them should be included on cigarette packets.

Health warnings (and other mandatory product information) are an essential component of a comprehensive tobacco control strategy that aims to:

- alert the public to the health hazards of cigarette smoking, its dependence-producing nature and its major adverse health effects (there is also a strong case for warning about the dangers to other people, particularly to children and unborn babies, of involuntary or passive exposure to tobacco smoke);
- deter people from starting to smoke or from becoming habitual users;
- support a health education programme;
- put the weight of governments and health authorities behind an anti-smoking policy and thus assist the movement towards a non-smoking environment;
- provide information on the benefits of quitting smoking and thus motivate people to quit smoking, or help those who have decided to quit or reduce their smoking to do so;
- specify tar, nicotine and carbon monoxide levels with a view to

1 The information provided by Michelle Scollo, Director VSHP, QUT, Victoria, Australia, for the drafting of this chapter is gratefully acknowledged.
explaining what these constituents are and what each does to the body.

As of January 1991, 77 countries required health warnings on tobacco products, but most of these countries (48) required merely a statement that smoking is injurious to health. Following the example pioneered by Sweden, however, increasing numbers of countries are adopting the use of warnings that are regularly changed to capture the attention of the smoker. In all, 27 countries or territories require "rotating" or strong warnings (one country in the WHO African Region, six in the Region of the Americas, five in the Eastern Mediterranean Region, 11 in the European Region, one in the South-East Asia Region and three in the Western Pacific Region).

Examples of evaluation

Health warnings and contents labelling on tobacco products in Australia

In 1991 the Centre for Behavioural Research in Cancer (CBRC) in Victoria, Australia, was given the task of reviewing the possible purposes of health warnings and contents information on tobacco packaging. In addition to the obvious principle of the customer's right to know, it seemed that public health objectives could be served by appropriate warnings and labels, aimed at influencing decisions and behaviour in respect to smoking.

If manipulating features of packaging can have effects on behaviour, two issues arise. First, under what circumstances and with which groups of individuals is it most likely that effects would be found? Second, where is it most important that the effects should occur? Since the opportunities for empirical research were limited by time and budget constraints, priority was given to studies of samples of children and adolescents. The effects of tobacco packet manipulation are likely to be greatest on people experimenting with tobacco but not yet dependent on it. This is a group already identified in Australia as a major target in all the national and state programmes directed at reducing the prevalence of smoking.

Using an extensive amount of information on a range of subjects, CBRC looked at several features of the presentation of such messages that might increase their effectiveness. The researchers then developed some options for constituent labelling, wording and placement of warnings, warning explanations and package design.

1 The two examples given here centre on warnings to be placed on tobacco packages. However, it should be underlined that warnings are also important for billboards and printed advertisements, as well as for radio if broadcasting of tobacco advertising is allowed.

Next, CBRC developed and conducted a comprehensive series of surveys and experiments to test a number of hypotheses, options and recommendations. These tested, among other things, the legibility of messages, comprehension, the credibility and persuasiveness of messages, the personal relevance of warnings to the target group, and message recall.

One of the most interesting studies in the CBRC report is titled Adolescent comprehension of words and concepts used in tobacco health warnings. In the study, high school students were tested on their comprehension of various words and terms that might be included in health warnings. Comprehension was judged by several criteria. Some were strict — whether the students correctly answered an open-ended question. Others were generous — whether the students could choose the correct meaning from a multiple choice of possible meanings, where hints were given to the correct meaning in the context of the description.

The results are sobering for anyone trying to educate young people about health risks. None of the terms tested was understood by all the students, judged by either the strict or the generous criteria. Only 33% of students definitely understood the word "causes", and only 13% understood the word "premature". Over 50% definitely did not understand the word "fatal", and over 80% did not understand the word "lethal". No student could correctly define the words "cancer", "asthma", "heart", "lungs" or "stroke", while a large proportion of them were judged as definitely not knowing what these terms meant.

The results of these surveys show that many of the words commonly used in health warnings are not understood by most teenagers at the age when they are likely to consider taking up smoking.

Given the low levels of comprehension apparent among high school students, CBRC concluded (and Australian Health Ministers subsequently accepted) that health warnings were not sufficient and that a full explanation of the health risks of smoking and the benefits of quitting was also necessary. The Australian regulations now require that the entire back of the pack be devoted to this explanation.

The results demonstrate the need to frame messages as clearly and simply as possible, and to provide clear explanations for terms that are poorly understood but cannot be avoided in any sensible discussion of risk and health effects.

It also demonstrates the need to test proposed warnings with priority target groups and to monitor target group understanding of warnings over time. Language is constantly evolving and is culturally determined. The words "lethal" and "fatal", for instance, may be less accurately understood in the 1990s because of confusion caused by association with film titles such as Lethal weapon and Fatal attraction.

After careful analysis of the results of those studies, CBRC recommended that warnings be structured as short, simple, unambiguous statements, and that they should include evocative words that encourage readers to identify with the suffering caused by smoking.
Tobacco health warning messages, inserts and toxic constituent information study, Canada

In 1990, the Health Protection Branch of Health and Welfare, Canada, indicated its intention to change the warning component of the Canadian Tobacco Products Control Act of 1989 by adding four new messages, introducing packet inserts and changing the size, location and colour of the messages. Given the Health Protection Branch’s commitment to implementing these changes, the probable reluctance within the tobacco industry and the differing views regarding the nature and effectiveness of warning messages on cigarette packages, Health and Welfare Canada requested research to evaluate the effectiveness of the text of:

- existing and proposed health warning messages,
- proposed packet inserts;
- existing and proposed formats for information on toxicity.

The research was intended to evaluate effectiveness in the context of smokers’ comprehension of the various terms and text (interpretation and clarity), general reactions as they related to appeal and believability, and educational impact, covering such issues as motivation, relevance and memorability.

Some 228 personal interviews were conducted in three cities. Individuals were recruited by telephone and brought to a central location. The sample consisted of male and female smokers between the ages of 12 and 50 years. A quota sampling design was used to obtain target groups according to age/sex and light/heavy smokers. At the analysis stage, data were weighted to reflect proportions of smokers in the population, by age and sex, as estimated by Statistics Canada. Because of the large number of materials to be evaluated, not all were shown to each respondent. However, all respondents were asked questions about general health warnings, existing health warnings, preference for packaging and information format, and all were shown proposed health warnings.

For the proposed health warning messages the sample was divided in two so that each respondent was shown four of eight messages. Finally, for the inserts, the sample was split into four, with each respondent being shown two of the eight inserts. Examples were rotated to correct for order bias.

The conclusions of the research indicated a number of new approaches that showed the usefulness of the evaluation. For example:

- Messages are particularly important to young smokers (12-15 years) who may be less aware than older persons of the health risks associated with smoking.
- Proposed messages dealing with "new" health issues are less acceptable and details may need to be provided with the inserts if the information is to be

believed. It would be appropriate to match inserts with packet messages, at
least for new message ideas (such as "Cigarettes cause strokes" which
elicited the most controversy without the benefit of an explanation). In addi-
tion, the French translation of the message about stroke was unclear
caused many smokers to dislike and disbelieve
- Proposed messages were perceived as stronger than existing ones, as
equally important and meaningful, and their format was preferred to that of
existing messages.
- Words like "fatal" and "kill" were seen as too strong, and should be avoided
if the message is to be accepted. Statistics were effective in communicating
news and, although some people questioned their validity, most were
motivated by them.
- Reading of messages at point of sale is seen as minimal compared with
reading during everyday handling of cigarette packets.

Comments

To be effective, health warnings have to be noticed, they have to be persuasive
and they should provide guidance for appropriate action. To be noticed, health
warnings need to stand out from the surrounding packet design and need to be
large enough to be read easily. To be persuasive, the warnings need to be
understood, believed and judged by the reader to be personally relevant. It
follows that use of warnings about a comprehensive range of ill-effects in-
creases the chance that at least one of the warnings will have an impact on the
reader. Further, the effectiveness of any call to action is enhanced by specific
instructions about the first step to take.

Agencies wishing to regulate labelling and warnings on cigarette packets need
to ensure that proposed listings, warnings and explanatory notes meet each of
these criteria. The Australian CBRC report provides comprehensive guidance
on the design of studies to evaluate the impact of proposals against these
criteria.

Government agencies contemplating the introduction of new health warnings
are encouraged to examine this report very closely. Many of the findings, such
as those concerned with legibility, will be universally applicable. The methods
used to demonstrate the legibility of warnings could easily be replicated in any
jurisdiction. The CBRC study and international research on legibility provide
essential information covering print size, font type, background colour, contrast
and many other features.

In other cases the findings are probably fairly specific to English-speaking
cultures. Whether the message is understood, believed and seen as relevant
is probably largely influenced by the existing level of knowledge of smoking
and other social and cultural factors, such as the standards of literacy and
knowledge of science in the population. However, these papers provide a
useful methodology that could be replicated by any agency wishing to establish
the comprehensibility, potency and believability of various terms and
messages.
Guidelines for evaluation

Expected outcome of the programme

The World Health Assembly, in resolutions WHA39.44 and WHA43.16, has recognized that restriction of marketing by the tobacco industry, including the regulation of packaging and labelling, is a key component of a comprehensive tobacco control programme. Effective health warnings, messages, inserts and contents labelling provide the smoker (or potential smoker) with information aimed at discouraging tobacco consumption. The purpose of evaluating these elements is thus to ensure their maximum effect. In particular, the policy aims to ensure that packaging will not appeal to young people and that appropriate product information is provided.

Sources of information and studies to be conducted

Standard methodological approaches can be used or adapted for assessing opinions and understanding of words and images within the context of individual cultures. Empirical questions and studies may often be sufficient. Focus group approaches, the use of questionnaires and household surveys should be considered if time and resources permit. When addressing a population with a great diversity of culture and education, care should be taken to select representative samples of each category.

Surveys and experiments should be designed to address the various elements of the health warnings, from the identification of target groups to the format, content and legibility of the message and its expected impact. The same comments are valid for health warnings on radio and billboards.

Methods and steps for evaluating the programme

To evaluate the use of health warnings and information, the process outlined in Chapter 2 should generally be followed, and the information in Chapters 2 and 3 used whenever necessary. The following methodological and practical advice is specific to this chapter.

In the light of the findings of the study in Canada, described above, and by comparing these with the expected output of the programme, evaluation should help to determine where and how health warnings and information should be presented. Evaluation should identify the information and messages to be given and should determine the effectiveness of the information. A complete evaluation of a “warning programme” should then demonstrate:

— if the programme is relevant to the main target groups of population;
— if warnings have been designed in a way that is likely to have more

1 General information for evaluation and its sources are described in Chapters 2 and 3.
PART 2. HEALTH PROTECTION: ECONOMIC MEASURES AND RESTRICTIONS

impact on some population groups than on others (for instance, simple messages and drawings may be particularly important for young smokers of 12–15 years or to illiterate sections of the population in a number of countries);

— whether or not the programme has been properly and adequately elaborated and carried out (see the criteria, pp. 132–133).

Methods of evaluation are presented here as a set of essential questions to be answered; such simple evaluations should be possible even in countries where evaluations are not yet common.

The effectiveness of health warnings in fulfilling the purposes and functions outlined above will depend on the extent to which they are legible, read, understood, believed, thought by the target audience to be relevant, and remembered. Thus, the following questions need to be raised and answered:

• Is the message noticed?
• Is the message (delivered through written words or pictograms) legible?
• Is the message read?
• Is the message believed?
• Is the message thought to be personally relevant?
• Is the message remembered?
• In addition, has the label (or accompanying text) been tested to determine if it:
  — alerts the user to the fact that there is a danger;
  — specifies what the danger is;
  — specifies what steps should be taken to avoid that danger?

How can the impact of warnings be evaluated?

Choosing the measure of outcome is complicated and deserves discussion. Ideally, one would like to measure behavioural outcomes, but it is not possible to measure changes in smoking uptake until a new system of health warnings has been implemented. Obviously it is not ethical to give children cigarettes (regardless of how they are labelled) and so it is not possible to measure smoking uptake or decreased consumption as dependent variables in preliminary research. Behavioural theory tells us that knowledge and understanding are likely to influence firstly attitudes and intentions about smoking and ultimately behaviour. Ways of improving knowledge and understanding of health effects can be tested.

The long-term impact of health warnings across the entire population of a country will be similarly difficult to disentangle from the effects of other smoking control strategies. In Australia, for instance, the new health warnings were introduced one year after large price increases in cigarettes and several major legal judgements on passive smoking. In addition, all forms of tobacco promotion were phased out over the two years following the introduction of the new warnings.
Introducing a new system of health warnings could itself change the social context of smoking. It is likely to provoke media discussion and public debate. It is also likely that other components of a tobacco control strategy, such as a health education programme, will be introduced concurrently.

It is crucial for government agencies to monitor the impact of the health warnings over time. Are the cigarette manufacturers complying with the requirements? Have they found loopholes to exploit, thus undermining the intent of the legislation? Is the language in the health warnings still appropriate to the population and current linguistic usage? Is the impact of the warnings waning over time? Are some warnings more potent than others?

From the public health perspective, no other strategy can match health warnings for cost-effectiveness of health education. Once the original planning is completed, the public cost of health warnings is near zero and involves only a one-time cost for the manufacturer. The message is likely to reach every potential smoker before the decision to purchase is made, and will reach every confirmed smoker dozens of times a day. The crucial issue is to prevent warnings from becoming ineffective through being too small, too vague, too difficult to understand or too familiar.

Indicators to support the evaluation

To facilitate the adoption of culturally acceptable and effective warnings and information, responses to the following questions may be of use.

• Have the dangerous contents of tobacco smoke been effectively conveyed on the packaging of all tobacco products? In particular, children handling cigarettes with a view to trying smoking should be provided with comprehensible information on the hazardous contents of tobacco smoke.

• Have the adverse health effects of tobacco smoking been effectively conveyed on the packaging of all tobacco products? Consumers have a right to be informed about the hazardous consequences of use. Information is most likely to affect behaviour if it is available at the time the behaviour takes place.

• Has the dependence-producing nature of tobacco smoke been effectively conveyed on the packaging of all tobacco products? Non-smokers may be more cautious about experimenting with smoking if they understand the risk of dependence.

• Are the dangers to other people caused by involuntary or passive exposure to the adverse effects of tobacco smoke effectively conveyed on the packaging of all tobacco products? Smokers need to have information on the consequences their smoking may have on others.

• Is information to encourage dependent smokers to quit, and to assist those wishing to do so, provided on the packaging of all tobacco prod-
ucts? Smokers need to have available to them the first step towards quitting at the very moment when they decide to try.

- Have the content, wording and sequencing of health warning materials taken into account priority target groups according to the situation in the country? These could include adolescents at risk of taking up smoking, smokers contemplating quitting, pregnant women, parents and smokers with smoking-related diseases.

- Have the content and wording of warnings taken into account the knowledge, literacy level and cultural experience of the country?

- Has the possibility of selling tobacco products in "standard" packages (without brand names) or even in "tombstone" (blank) packages been considered? This would undermine the impact of advertising and brand recognition, particularly among adolescents and young people.

- Has the physical format of the health message or warning been tested for:
  - noticeability,
  - legibility,
  - the parts most likely to be remembered,
  - the size of the warning compared with the size of the package?

- Have the adequacy and effectiveness of the messages been analysed to maximize the possibility that the warnings are noticed, read, understood, believed, considered relevant to their intended audience and remembered. Have provisions been made for illiterate sections of the population or for people using another language?

- Are there provisions, with respect to all aspects of labelling, for changes to be made in the light of new discoveries? Are there provisions for monitoring and evaluation to ensure continued effectiveness?

**Background reading**


Positive cultural, social and behavioural determinants of health interact with the provision of health services to reduce morbidity and mortality. While health protection measures can ensure that essential warnings about the risks of tobacco consumption are communicated to the population and that some control is exercised over smoking, there remains a need for thorough public information and education to help people change behaviour. Protecting the health of the population is indispensable but it is not sufficient. The role of health promotion is to encourage people to be responsible for their own health by convincing them, collectively or individually, of the value of health-promoting behaviour.

Health promotion ranges from mass campaigns giving evidence of the harmfulness of tobacco use, to the individual training and persuasion that are often required because of the dependence-producing nature of nicotine. Indicators of success thus include modification of behaviour at the level of society and individual qualities such as knowledge and self-esteem.

In tobacco control, the strategy of imparting knowledge and creating awareness by giving information on health issues has not proved to be sufficiently effective. Various approaches have been designed to involve the target populations of smokers and future smokers more closely, taking into account their information needs, beliefs, lifestyles, and ways of thinking and learning.

Health promotion activities call for evaluation at different levels. Analysis of the situation of the population and the successes and failures of previous attempts to educate and inform should be followed by pre-testing of proposed programmes and continuing evaluation and monitoring of behavioural change leading to healthier lifestyles. Success in discouraging the use of tobacco results from a cumulation of individual behaviours. Evaluation of health-promoting tobacco control activities will thus have to look at individual behaviour before making generalizations about the target groups of public health action.

In preventing people from using tobacco, the challenge is twofold: firstly to reach as many users as possible (often through various intermediaries such as political leaders or other decision-makers), and secondly to discourage the users from smoking and change their behaviour. This challenge varies in its qualitative and quantitative terms (particularly with regard to resources) according to the country, the society and, most probably, the stage of the tobacco
epidemic in the target population groups (see p. 3). The effectiveness of intervention approaches (from public information in the media to individual intervention by highly-skilled personnel) needs careful evaluation as such approaches may often represent a high cost both for society and for individuals.

Several investigations have concluded that health promotion programmes return a clear net economic benefit within the domain of tobacco control. As discussed in Part 1, however, the prime purpose of health promotion is not to enable individuals or governments to save money or increase productivity, but to attain a better standard of health for the whole population.
It has been suggested that tobacco control activities using the mass media should seek to accomplish two goals: firstly to increase the public’s exposure to pro-health, anti-tobacco messages and, secondly, to limit the public’s exposure to pro-tobacco messages. This chapter deals with the first issue; the second issue is dealt with in Chapter 11.

The mass media have been used in attempts to modify a wide variety of health-related behaviours, including smoking, drinking driving, exercise, food preparation, and sexual behaviour.

The initial per capita cost of mass media approaches to the general population is low. It can be even lower when well conceived and merged with entertainment that can convey the message. In many countries, such programmes may be the only feasible approach to tobacco control. The media used will vary according to the popularity they enjoy in different cultures and countries.

What are the different uses of mass media for tobacco control?

Over the past few decades, the use of mass media has become increasingly popular as a strategy for delivering preventive health messages. Mass media interventions involve the use of:

- written media, daily press or other periodicals (even newsletters);
- radio;
- television;
- entertainment that may help carry a message.

Recent advances in communication theory and techniques allow precise targeting of desired audiences.

Mass media campaigns appear to have a number of advantages over more traditional public health strategies. First, mass media presentations can reach a

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1 The contribution of Dr Pál Kraft, National Institute of Public Health, Oslo, Norway, to the drafting of this chapter is gratefully acknowledged.
large proportion of the population. Second, such programmes are able to reach groups that are often difficult to reach through traditional health care channels. Third, mass media interventions integrated into existing programmes provide a relatively inexpensive means of exposing the population to health information. Fourth, the message itself can be more sophisticated and potentially more powerful than in other types of intervention by using, for example, positive role models. Finally, mass media have the potential to modify the knowledge and attitudes of a large proportion of the community simultaneously, thereby providing social support for behaviour change in a way that individually targeted interventions cannot do.

On the other hand, mass communication also has a number of obvious disadvantages. First, the use of some mass media (e.g. television) requires the accessibility of relatively expensive technical equipment to both the sender and the receiver of the message. Second, the use of some mass media requires the target group to be able to read, yet illiteracy is still widespread around the world. Only radio, the mass medium least commonly used for tobacco control in industrialized countries, reaches a general audience. Third, the use of mass communication generally implies a one-way communication process which precludes feedback from receivers who may have misunderstood the message. Nevertheless, used in a planned and reasoned manner, adapted to each national situation and to the characteristics of each target group, the mass media can in most countries play an important role in a comprehensive tobacco control programme. In some developing countries, the mass media may be the main (and often the only) means for communicating the “tobacco or health” message since the meagre resources for health are usually directed to health problems, such as communicable diseases, that are perceived as immediate priorities. The general population may not even be aware of the risks linked to tobacco consumption while the media may be widely disseminating tobacco advertising.

The combined use of many media through multimedia campaigns can be even more profitable than use of a single medium. There is every reason to expect that the aggregate effect of a number of mass media campaigns will surpass the sum of the effects of each one of them. Such programmes and campaigns help place concerns about tobacco on the agenda for public debate and interest, generating media coverage. This is what has been attempted by WHO in coordinating the international World No-Tobacco Days and in producing material for the press (press kits with articles, posters, photos and cartoons), the radio (audio tapes) and television (videotapes). In addition, an advisory kit is produced to support NGO and community actions to create their own media campaigns and events.

Media advocacy is the strategic use of the mass media to promote public policy initiatives. It does not attempt to change individual smoking behaviour directly, but uses the media to promote public debate about tobacco. Media advocacy shifts attention from smoking as solely an individual problem to the role of public policy in shaping individual health choices. Media advocacy
stimulates community involvement in defining public initiatives that influence the social environment in which consumers make choices about tobacco use. In contrast to a planned information campaign or public relations effort, a media advocacy campaign is more like a political campaign in which competing forces continually react to unexpected events, breaking news, and other opportunities. Effective media advocacy requires knowledge of the media, knowledge of the relevant tobacco policy issues, and skill in framing an issue for public debate.

Examples of evaluation

_Evaluating World No-Tobacco Day in Norway: the advertising approach_¹

World No-Tobacco Day was originally intended to provide an opportunity for all those who smoke to stop for at least 24 hours. Every year, WHO, the initiator and coordinator of World No-Tobacco Day, produces and distributes a number of materials such as radio recordings, videos and posters. In each WHO region, all sorts of activities are organized in the Member States and at the regional levels, by health authorities, schools, NGOs and other groups. The press makes people aware of the theme of each Day and draws attention to the idea of a tobacco-free society and non-smoking as a social norm. In most of the Member States of the World Health Organization, national, regional and local mass media have intensively covered "tobacco or health" issues in relation to the celebration of World No-Tobacco Day.

In Norway, the behavioural effects of World No-Tobacco Day were evaluated in 1988 through an interview survey of a representative sample of Norwegian adults (n = 1200) carried out two weeks after World No-Tobacco Day. The sample was selected using a two-stage cluster procedure and the data collected by a commercial poll organization. During the interview, information was obtained on the respondents' awareness of World No-Tobacco Day, and on changes in their smoking behaviour on that particular day and during the following two weeks.

The results showed that 96% of the respondents were aware of World No-Tobacco Day. Five per cent of daily smokers reported not having smoked on the day itself, while 18% reported having reduced their smoking. Two weeks after the day, 2% of the previous daily smokers still had not smoked, while 9% reported that their smoking was still reduced. On the basis of official smoking prevalence data, the number of people who quit on World No-Tobacco Day was 45 times higher than on any ordinary day among daily smokers, and 200 times higher among occasional smokers.

Comments

The Norwegian example is a study that falls within the advertising paradigm. A post-test only was used to estimate the effect of the campaign, and data were collected by means of an interview survey of a representative sample of the Norwegian adult population undertaken by a commercial poll organization. This design is relatively cheap and easy to manage in countries where the representative samples can be easily drawn and where commercial poll organizations can be hired. With just a small number of questions, a picture can be obtained of the effect of a mass media anti-smoking campaign.

Guidelines for evaluation

Expected outcome of the mass media campaign

The expected outcome of a mass media anti-smoking campaign is:

- to increase public knowledge about a series of tobacco control issues, from the risks associated with tobacco consumption to the different methods of stopping smoking;
- to discourage tobacco consumption and thus to decrease smoking prevalence among the population.

A review of 40 mass media programmes and campaigns designed to influence cigarette smoking concluded that, when properly planned and implemented, such programmes may produce changes in awareness, knowledge and attitudes to smoking.

How to find the information

Three aspects of the campaign will need to be measured:

- How many people have been reached with the information (and have understood it)?
- How many people have changed their behaviour as a result of the campaign?
- What has been the cost of the campaign?

For newspapers and television, useful information can easily be obtained from advertising and press agencies, and from bodies that monitor advertising. To assess the impact of mass media advertising, it will be necessary to register progressive changes. Probably the least expensive approach is to have specific questions inserted into existing regular surveys. A more expen-

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2 General information for evaluation and its sources are described in Chapters 2 and 3.
sive approach, but one that yields much more information, is a special survey of a representative sample of the target audience. A compromise option is to survey only those people who request further information as a result of a particular media presentation, which is what most evaluations of mass media smoking cessation programmes have done. Any survey can include a range of questions, covering awareness, recall, attitudes, intentions and actual behaviour. Decisions need to be made about the number of surveys — post-tests only, pre-test and post-test, or multiple pre-tests and post-tests. Some options obviously cost more than others but also provide more information, which makes interpretation easier. An experimental approach (which is relatively costly and time-consuming) will consist of having two groups, one exposed to an anti-smoking campaign and the other not exposed. Any differences between the groups at the post-test are attributed to the intervention. The experimental approach involves some difficulties, especially when larger aggregated units are being compared. In some instances, the cost of implementing such an evaluation may be an argument against its use.

**How to evaluate the programme**

To evaluate the use of mass media in tobacco control, the process outlined in Chapter 2 should generally be followed, and the information in Chapters 2 and 3 used whenever necessary. The following methodological and practical advice is specific to this chapter. It is based on questions and issues that are simple enough to be used in countries where such evaluations are not yet common.

**Relevance and adequacy of the mass media campaign**

A number of mass media campaigns have failed because they were not tested adequately during development or because they simply did not reach the target audience. Such outcomes suggest that emphasis must be placed on planning, pre-testing, and audience testing of a finished product before it is disseminated. Evaluation of how well the final product reaches its intended audience and is accepted by them is as important as determination of the effectiveness of the product.

Mass media programmes can generally be considered to be relevant (see p. 137), but it may be necessary in some circumstances to check how they relate to the main health and social policies of the country and if institutions are in a position to follow up the campaigns.

The adequacy component of the evaluation is much more important. Too often media approaches have followed models developed in other countries and have thus been either inefficient or misunderstood. The adequacy of such programmes lies not only in the fact that the programme has been properly
formulated but also in its cost and the possibility of repeating actions as often as necessary.

Several standard strategies are used in formative evaluations of mass media campaigns. Several phases of formative evaluation are recommended:

- **Idea generation** evaluates the idea of the campaign in the context of the lives of the people towards whom the message will be directed and in the context of health behaviour theory and empirical research.
- **Concept testing** is based on focused interviews and qualitative research techniques with the aim of determining the role of the behaviour one wants to change in the lives of the people one wants to reach. This information is used to assess the appeal of the campaign message. Group interviews can be extremely valuable in preliminary research on the contextual validity of a basic idea or message for a campaign.
- **The positioning statement** is the product of the concept testing; it is an outline of the message one wants to communicate to the target audience and is the starting-point for the development of creative materials for the campaign.
- **Copy testing** is research that exposes a test audience to an advertisement and evaluates the success of that advertisement in communicating the intended message. Usually small population samples are used for reading and discussing the advertisements, but more sophisticated controlled experiments can also be undertaken.

The process of formative evaluation may lead to changes in the final production version of the campaign. These may be small changes or dramatic revisions. Efficacy trials try to establish whether the campaign can produce the desired effects. This type of evaluation should be carried out prior to the launching of the campaign and should be based on test campaigns conducted in a small sample of markets. Ideally, the campaign's efficacy (i.e. whether it will work if ideally implemented) should be distinguished from its effectiveness (i.e. whether it does work when implemented). Campaign efficacy should be determined through the use of randomized experiments. The proposed media campaign should be implemented in several carefully selected test markets and potential outcomes estimated.

**Progress, effectiveness, impact**

Most research into media effects recognizes that outcomes are mediated by the following factors:

- audience attention to the message, existing knowledge and attitudes, and behavioural experience;
- the extent to which media messages capitalize on the audience's perceived needs;
- the campaign designer's ability to limit counter-messages in the media environment;
— the extent of interpersonal communication about media programme content; and
— supplementation of media programmes.

Formative evaluations of media campaigns are especially useful for obtaining detailed, documented evidence of effectiveness prior to further development. During a formative evaluation, alternative campaigns or campaign messages can be tested on a small scale, thus helping to contain costs. This type of research partially answers the question "What works best?" It is an unfortunate fact that the budgets of most anti-smoking campaigns do not allow the kind of formative evaluation that is common in the development of commercial advertisements. Indeed, in many cases the formative evaluation involves nothing more than a review of creative ideas by the officials funding the campaign (perhaps the selection of one campaign from a set of two or three that have been developed to the idea stage) and a selection of the campaign design based on personal responses.

Process evaluation involves inquiry into the implementation of the campaign. It involves asking what was actually delivered, whether the campaign message was aired, how often and to whom. It is common to measure this either through surveys of awareness of the campaign or by monitoring feedback such as requests for more information. Process evaluation also involves studies of the practical organization and coordination of the campaign, asking whether all parties involved received the necessary materials in due time, whether actions were coordinated and so on.

Outcome evaluation attempts to find out if the campaign made a difference, if it was effective as implemented, and what its effect was on the target audience.

The impact of mass media approaches in a comprehensive tobacco control effort may also be evaluated in terms of whether they:

— provide information to the public about facts and issues relating to tobacco use;
— alert citizens and policy-makers to public policies that promote tobacco use;
— motivate people to stop or not to start using tobacco;
— recruit smokers into treatment programmes;
— conduct smoking cessation programmes.

**Cost**

While the cost of media utilization may appear significant, it is necessary to underline that the cost per person reached, per person understanding the message, and even per person modifying behaviour as a result of the mass media campaign is usually very low. For example, World No-Tobacco Day receives considerable media coverage in all countries at very little per capita cost.
In most cases, it may be costly to test the impact of mass media campaigns. On the other hand, it may be possible to improve the impact of the invested resources. If economic constraints preclude sophisticated studies or representative surveys, less expensive options can be tried. Usually less expensive options are related to formative (i.e. pre-campaign) studies such as group interviews. In some cases, even this may prove too costly. A totally cost-free but still effective strategy is for the campaign planner to examine critically each step of the campaign in terms of the criteria specified above and give explicit reasons for the solutions that are chosen. All decisions should be based on explicit arguments related to the national situation, although the amount of empirical data may vary according to available economic resources.

**Indicators to support the evaluation**

Mass media activities lend themselves to use of a great many indicators. Among these, some apply to campaign methods and others to issues that may vary by country, group, behaviour, or culture.

**Planning a campaign**

- Has an objective for the preventive initiative been set?
- Has the potential of the mass media been discussed with regard to this objective?
- Has a target group been defined?
- Has the mass medium been selected in order to reach the targeted audience?
- Has the target group been involved in the production of material?
- Has the message been pre-tested to ensure that it is understood by the target audience?
- Have the information and material been tested for their capacity to alter individual knowledge, beliefs, attitudes and behaviour concerning tobacco use?
- Is the media intervention part of a longer-term campaign aimed at social and behavioural change?
- If the media campaign is aimed at changing specific aspects of public opinion on health policy issues (legislation, taxation), has it been coordinated with politicians, decision-makers and others likely to be involved?

**Implementation of the programme**

- Does the programme include:
  -- training for tobacco control advocates on how the different media
work (i.e. explanation of what types of stories are deemed newsworthy, how editors decide what stories get covered, and what deadlines and logistic issues may influence coverage);
— training for journalists in covering “tobacco or health” issues?
• Has the programme been implemented as planned?

Evaluation of the programme

• Have provisions been made to calculate the number of people reached by the programme?
• Are specific surveys planned to measure the impact of media activities on knowledge and behaviour of the target population?

Background reading

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Chapter 14

Tobacco use prevention programmes for school-age children

What are tobacco use prevention programmes for school-age children?

It has been estimated in the United Kingdom that over 90% of teenagers who smoke 3–4 cigarettes become trapped into regular smoking, very often for the rest of their lives. It is thus important to “stop before starting” (as advocated by a popular children’s programme in Belgium) and this has led to the development of an array of policies and measures aimed at children and adolescents (see also Chapters 7 and 15).

Personal characteristics (assertiveness, moodiness, rebelliousness) and social factors (peer pressure, parents’ behaviour, advertising, etc.) influence the susceptibility of young people to smoking. Prevention efforts have thus centred on reducing access to tobacco and on equipping young people with the necessary social skills to resist various forms of pressure. For the latter, the complexity of the programme and the methods of delivery vary from country to country. Often programmes are delivered mainly in schools, but with strong links with the community. In countries with many out-of-school young people, similar programmes could be delivered by voluntary agencies. This chapter concentrates on health education in schools but a number of the issues raised and the recommendations given can be applied to tobacco control programmes aimed at young people in general. These programmes may progressively have to assume greater responsibilities as studies demonstrate that out-of-school children often have high-risk behaviour (i.e. smoking, drinking alcohol, carrying weapons). Thus there is a need for a “lifestyle” approach to these issues.

The size and accessibility of the school population make school-based health education of children and young people a high priority. In tobacco control, interventions have aimed to delay or prevent the onset of smoking and to improve related knowledge, health values, self-esteem and other life skills.

The support of Professor Don Nutbeam of the Department of Public Health, University of Sydney, Australia, and Mr Jack Jones of the Division of Health Promotion and Education in drafting of this chapter are gratefully acknowledged.
Interventions in schools to reduce smoking have been undertaken in various forms for many decades. A review of programmes in various countries, published in 1978, concluded that the vast majority of the early programmes failed to influence smoking behaviour (although a number had achieved educational objectives such as improving knowledge and understanding of the relationship between smoking and disease). This failure was ascribed in part to an incomplete understanding of the relationship between knowledge acquisition and subsequent changes in behaviour, as well as to the use of inappropriate teaching techniques. There have been no studies to compare the output of school health education programmes with the impact of tobacco advertising, which continues to impose its images on children even in countries where tobacco consumption is still relatively low.

During the late 1970s and early 1980s, a number of innovative approaches to smoking education in schools were developed and evaluated. These drew heavily on psychosocial theories (particularly social learning theory) in their understanding of adolescent health behaviour, and were designed to help young people develop the personal skills needed to resist social pressures to smoke. They included, to varying degrees:

- strategies to prevent children and young people starting to use tobacco, to help young people who had already started to stop, and to enable children and young people to encourage others not to use tobacco;
- school policies prohibiting smoking on or near school property;
- tobacco use cessation programmes for young people and school personnel;
- implementation strategies such as extracurricular school-based programmes, comprehensive school health education covering a broad range of health-related information, skills and affective experiences, and multicomponent community-wide programmes (in which schools are one component).

These programmes also used new approaches to teaching and learning — for instance by making use of classroom videos and student-led discussion, and by seeking to involve the family more directly in smoking education. Some programmes even aimed to encourage children to pass on health education to their parents, whether about the hazards of tobacco or alcohol use, how to maintain a clean water supply, or how to achieve a healthy diet.

**Examples of evaluation**

No other health education programme has been subject to such rigorous and repeated evaluations as smoking education. Yet, regrettably, smoking education programmes are rarely subject to rigorous outcome evaluation, usually because of the prohibitive costs and long time-lags involved. Very few evaluations have been carried out in developing countries.
The evaluation of two school smoking cessation programmes in the United Kingdom

Smoking remains the most common cause of premature death and ill-health in the United Kingdom. The two basic strategies for reducing the toll of smoking-related disease are to support smokers in giving up and to dissuade young people from starting. In the past decade, considerable attention has been given to reducing smoking uptake by teenagers, particularly using educational opportunities available through the school system. Smoking prevalence among teenagers in the United Kingdom has been monitored in an ad hoc way since the late 1960s. Since 1982, a series of biennial national surveys conducted by the Office of the Population Censuses and Surveys has provided valuable information on adolescent smoking behaviour, indicating no significant change in prevalence between 1982 and 1990.

To assess the effectiveness of school-based smoking education projects in delaying onset of smoking behaviour and in improving health knowledge, beliefs and values, a cluster-randomized controlled trial of two such projects being taught under normal classroom conditions was carried out. Thirty-nine schools in England and Wales were matched by size and catchment profile and were allocated, using a factorial design, to one of four groups. One group received the Family smoking education project; one received the Smoking and me project; one received both projects in sequence and the last group received no intervention at all. All first-year students in the schools were included and were assessed on three occasions (4638 at the pre-test, 3930 at the immediate post-test, and 3786 at follow-up after one year).

Main outcome measures

Analysis was based on self-reported information backed by saliva sample. Groups were compared for change in smoking behaviour and change in relevant knowledge, beliefs and values. Differences between groups in potential confounders, such as social background and smoking status of parents, were adjusted for in the analysis, as were the effects of the cluster-randomization procedure.

Results

No consistent significant differences in smoking behaviour, health knowledge, beliefs or values were found between the four groups. For those who had never smoked at baseline, the proportion who had still not smoked at first and second follow-up were: control, 85% and 74%; Family smoking education project, 82% and 65%; Smoking and me project, 81% and 70%; both projects, 84% and 69%.

These results are disappointing. They contrast with many studies from the early 1980s which showed a clear impact of health education on teenage smoking.
PART 3. HEALTH PROMOTION: ADVOCACY, INFORMATION AND EDUCATION

behaviour but are consistent with findings from other recent comparable studies. Some very modest differences in the achievement of educational objectives may be observed, but the fact remains that two major school-based smoking education projects in the United Kingdom have failed to offer any improvements over nonspecific, population-wide approaches.

**Conclusions**

Reducing smoking will require more comprehensive interventions than school health education alone. Other measures, including further restrictions on access to cigarettes and on the promotion of tobacco products, need to be considered. Further research is needed to develop effective school-based health education projects, which should be formally field-tested under normal conditions before widespread dissemination.

**School interventions in Goa**

Children have been a particular target of tobacco advertising in Goa, India. Use of tobacco in different forms is very common and starts at a young age. Sweets and candies that look like cigarettes are sold in packages similar to cigarette packets. A tobacco product in paste form has been sold in toothpaste-like tubes. Called a "creamy snuff", this product is initially used as toothpaste. Because of this problem, the Goa Cancer Society conducted several epidemiological studies to determine the prevalence of tobacco habits among schoolchildren and adults, to educate schoolchildren through a specially designed curriculum on tobacco habits and interventions, and to assess the feasibility of using schoolchildren to encourage their parents and the community in general to stop using tobacco.

The first survey was carried out from 1986 to 1987. Thirty-one schools were randomly selected from 73 villages, and self-administered questionnaires distributed to 6271 children. Information was elicited on sociodemographic data, the nature of tobacco habits, the age of starting to use tobacco, and the possible influence of parents and family members. About 13.4% of boys and 9.5% of girls used tobacco, mostly of the smokeless variety. They began use as early as five years of age and most were introduced to tobacco use by family members and friends. The second survey was carried out the following year on persons aged 15 and over. A house-to-house survey was carried out on a 40% systematic sample from the 73 villages in the first survey. Information on age, sex and tobacco use was collected on 29713 individuals. The results showed that 33% of men and 20% of women used tobacco.

Following these two surveys, education about tobacco habits and interventions was given to students in 46 selected villages. Class teachers were given a three-hour training course. A sample of 448 boys and 338 girls from the inter-

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vention areas were interviewed again and were compared with a sample of a similar number of boys and girls from the non-intervention areas.

At the same time as the school-based intervention, information on tobacco was also distributed to the community by multipurpose health workers and Anganwadi (child welfare) workers.

The main measures used were assessment of cognitive and attitudinal changes towards tobacco use following the school health intervention, and the cessation rate among adults who were influenced by the children in the community. (The study did not, however, make clear which were the results of the school health education and which were attributable to the community-based intervention of the Anganwadi.)

Children who received health education on tobacco and intervention methods were instrumental in achieving a stoppage rate of 9.7% among adults. Moreover, there was a significant difference in attitude among children who had been given the programme, compared with the control group. The former group developed a negative attitude towards tobacco.

The investigation focused on the importance of including health education material on tobacco in school curricula. It highlights the findings that such material is useful in shaping children's attitudes towards tobacco and in conveying the intervention messages to their parents.

Smoking prevention in South Africa

An anti-smoking intervention took place in the black townships of Guguletu and Lange near Cape Town in South Africa. Thirty-one children were pre-tested and post-tested in the intervention schools, as were 40 in control school A; 40 children were post-tested only in control school B. The programme consisted of four 1-hour lessons aimed at increasing the children's self-confidence in their ability to choose healthy lifestyles. The evaluation consisted of self-administered questionnaires. The reactions of parents, principals and teachers were recorded and a video programme of the intervention was evaluated by health and educational authorities. During the intervention, children's self-confidence increased, using a series of scores, and their use of tobacco decreased compared with children at the two control schools. The evaluation of the programme led to a recommendation that the local Department of Education should incorporate the programme in the official school curriculum. This is currently being implemented and the programme is being expanded on a nationwide basis. As part of the evaluation, the overall cost of developing the programme was calculated. The estimated total cost was approximately US$ 20,000, while the cost of a single lesson is approximately US$ 6400 (including staff time and value of teaching aids). For a community interested in trying this approach, the

estimated cost per student will decrease as the number of participants increases. It is recognized that children need to gain self-confidence in their abilities to make correct decisions. This health promotion programme provided that opportunity for every child in the class. Booster sessions in the form of a dramatized song reinforced the message in the classroom. A long-term study is needed to test the ultimate effectiveness of this programme.

Comments

The results of the study conducted in the United Kingdom are difficult to explain. This study deliberately examined the impact of the projects under normal classroom conditions. Previous success, such as with the original Minnesota Smoking Prevention Programme, may well be a consequence of the experimental classroom conditions under which it was taught. Results available from two recent trials of programmes based on the original Minnesota model also show disappointing findings in their impact on smoking behaviour. In both cases, these programmes were taught under real-life conditions, using ordinary classroom teachers for their implementation.

Study results such as these indicate the need for closer examination of the intended behavioural outcomes of school-based programmes. The United Kingdom projects both went through limited field-testing to examine acceptability to teachers and pupils before being rushed into wide dissemination. Given that the problem of teenage smoking needed to be tackled with some urgency at that time (and still does), such a course of action was understandable. However, in the future such speedy implementation of promising innovations will need to be accompanied by efforts to monitor intended behavioural outcomes and by testing of school projects in real-life settings.

A meta-analysis of evaluations in the USA identified eight strategies and programme characteristics that have helped schools carry out successful prevention efforts. These are:

- giving smoking prevention significant attention in the school curriculum (at least five classroom sessions in each of two years and a booster session in senior high school);
- teaching students how to refuse to use tobacco, including information about the social influences on tobacco use and about tobacco's short-term effects on the body,
- scheduling tobacco education to fit into the existing curriculum so that it can be delivered effectively in a variety of sequences and classes,
- beginning tobacco education during the transition year from primary to secondary school (at about age 11),
- involving students in presenting tobacco prevention programmes, but having teachers lead the sessions;
- getting parental support for tobacco prevention programmes;
- training teachers thoroughly;
- using an approach that is socially and culturally acceptable to each community.
The example from South Africa stresses the need to focus on specific aspects of behavioural theory. In this case, teaching concepts were derived from social cognitive theory developed locally. This study also emphasizes the need not to rush into the development of health education material that is unlikely to bring about significant changes. A greater investment in behavioural theory is needed if children's behaviour is to be changed in a significant way.

**Guidelines for evaluation**

To evaluate school health education programmes, the process outlined in Chapter 2 should generally be followed, and the information in Chapters 2 and 3 used whenever necessary. The following methodological and practical advice is specific to this chapter.

**Expected outcome of the programme**

The ultimate expected outcome of school tobacco prevention programmes would be:

- a reduction in the percentage of students who report they are “current smokers” using a definition that does not include “experimenters”;
- an increase in the age at which students try tobacco;
- an increase in the percentage of students who encourage others not to use tobacco.

Intermediate steps towards this goal will be to:

- impart knowledge about the harmful effects of smoking;
- encourage children towards more healthy behaviour;
- build children's self-esteem;
- give children the means to control their own behaviour.

Immediate measurable outcomes are:

- the percentage of schools that conduct tobacco control activities, by grade;
- the percentage of students that take part in tobacco control activities, by grade;
- the percentage of teachers who have been trained to conduct tobacco control activities;
- the extent to which the activities are carried out as planned.

**Information required for evaluation**

The analysis will depend on the modifications of knowledge, attitudes and beliefs, and on smoking behaviour of those who have undergone the

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1 General information for evaluation and its sources are described in Chapters 2 and 3.
programme compared with groups not submitted to the programme. As mentioned in Part 1, tobacco use is such a social issue that it is almost impossible to eliminate all confounding variables in the assessment of different types of interventions. However, in the case of school programmes, it may be better to analyse at baseline such data as sex, mother’s smoking status, father’s smoking status and father’s occupation, which can be potential confounding variables in the assessment of intervention effects. In particular, smoking rates and levels of knowledge may differ among groups at baseline.

The above outcomes can be measured by means of student surveys of self-reported behaviour. Knowledge and attitudes can be assessed through classroom tests. Skills can be assessed by observation of role-playing exercises. Measures of programme achievements can be obtained through questionnaires, census, sample surveys and observations. A number of approaches are available to measure these knowledge scores and perceived values, and can be supported by a variety of statistical methods. It is thus suggested that evaluators not familiar with these methods should seek appropriate support.

It should be pointed out that, although it is far from indispensable to carry out such tests, saliva samples were also taken from the school students in the United Kingdom survey. The students were told before completing the questionnaire that they would be required to provide a saliva sample to check the accuracy of their reported behaviour. This method, known in the literature as the “bogus pipeline” technique, is reported to improve the accuracy of self-reports of current smoking.

**Evaluation of the programmes**

In countries and circumstances where evaluations are not yet common, all tobacco control efforts in schools should at least measure how well the programme is being implemented. Evaluation should also measure the impact of programme activities on students in terms of changes in knowledge, attitudes, skills and behaviour. Not all tobacco control programmes in schools will be able to evaluate whether their efforts are influencing behaviour and skills. Schools that have few resources may limit their evaluation efforts to testing of students’ knowledge and attitudes.

The measurement of programme-influenced changes in student skills and behaviour can be very costly and complex. Before any programme is designed, the relevance of its components to the target population has to be assessed. To be relevant, the programme has to consider not only the age and characteristics of the target group, but also what determines the values of the young people and the society in which they live. The acceptability of the programme (and the facility with which it is understood) can be judged through pre-testing by the children and their teachers. For example, some studies have shown a higher prevalence of smoking among less able children, and it will therefore be necessary for the approach to be accessible to these children.
Some of this pre-testing has been done in school programmes under optimal conditions. Often this has involved the use of researchers as teachers following rigid guidelines for the implementation of projects. It is important to test projects in real-life classroom settings, with the usual teachers and regular school routines. Similarly, the acceptability of projects to teachers and pupils should be studied under the usual conditions of the target population. This pre-testing should lead to an improvement in empirical evidence of the effectiveness of the intervention. Checking the adequacy of the formulation will also include checking on the availability of the budget for large interventions over a period of many years. The budget should, of course, include a component for evaluation of the programme itself.

Several studies and evaluations have shown that while school health education programmes may have some influence for a while on the smoking behaviour of children, the dominant influence very soon becomes the children's social environment—parents, siblings, peers and role models. The attitude of teachers and resolutions by parent/teacher associations are also very influential. These social influences cannot be ignored and an ideal school programme should have strong links with the community tobacco prevention programme (see Chapter 15).

The importance of adequate planning and budgeting is emphasized by the fact that such programmes have a long duration and that final results may have to be measured 10 or more years after the start.

Progress and effectiveness can be estimated through various scales of measurement of knowledge, attitude, and skills that should have been acquired at different grades through school-based tobacco control efforts.

Impact will be measured by changes in smoking behaviour or intended smoking behaviour. Since one aim of the interventions is to delay the onset of smoking behaviour, the proportion who have never smoked can be considered an appropriate primary indicator, to be measured at baseline, and at first and second follow-up surveys. Rates can be expressed as a percentage of those who had not smoked at the baseline survey, or of all students in the survey.

As schoolchildren represent a captive population and since a teacher's function is to teach, health education may appear highly cost-effective. However, recent evaluations of programmes in developing countries have shown the high costs involved in training teachers to deliver these programmes. Factors that encourage or discourage the learning process of children will influence the effectiveness. Cost-effectiveness is closely linked to the cultural situation.

Even in countries where the outcome of these interventions may be difficult to evaluate, it is necessary — and should be possible — to include process evaluation in all tobacco control efforts in schools with a view to

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1 First follow-up can be done 1 year later and second follow-up 2-4 years later.
reshaping and revising the programme and to ensuring that it is effectively implemented.

Schools in which evaluations demonstrate that the programme is implemented as intended should publish their findings. Positive findings can serve as evidence of the viability of school-based efforts and may be useful for school officials who must make a case for tobacco control efforts in their schools but who are not able to invest in their own evaluation of programme impact.

Indicators to support the evaluation

**Preparation of tobacco prevention programmes in schools**

- Have the individual behavioural factors involved in young people's smoking been analysed for specific groups of the youth population in the country? Have studies been carried out to identify the main factors that influence young people in their general behaviour? Who are the role models? What social group influences exist (such as music festivals, films, youth magazines)?
- In the preparation of curricula for health education, have the degree and depth of knowledge, attitudes and skills related to tobacco use prevention been considered for different school levels or grades?
- Have provisions been made to reach early school leavers, a large number of whom may be smokers?
- Have community programmes, mass media campaigns and other tobacco control activities been planned to coincide with specific school health education efforts against tobacco use? More specifically, is the tobacco control issue, as propagated through school health programmes, part of a multicomponent community-wide programme?
- In view of the relationship that needs to be strengthened between school learning and out-of-school health behaviour, have the intervention programmes in schools been coupled with health promotion programmes outside school?
- Is the tobacco prevention programme part of a broad programme to build health-related knowledge and skills and to strengthen positive experiences?
- Have studies been carried out to assess the most suitable time for the country or society to target smoking prevention programmes at younger children?
- What plans have been made to train teachers? What is the budget allocation for this purpose?

**Implementation of the programme**

- Is the school completely smoke-free (i.e. there are no areas where smoking is permitted, and teachers do not smoke)?
• Is the programme given enough time and attention?
• If the school health programme starts early, are booster sessions planned throughout the school year? Are reinforcement sessions planned in later years? Is there heavier emphasis just prior to the age at which tobacco use is commonly initiated (10–12 years)?
• Are peers used as models for social skills in tobacco use prevention efforts focused on adolescents?
• Are parents and student councils involved in the development and implementation of the programme?
• Is the school education programme supported by regulations, ordinances or legislation?
• Has the school intervention programme been planned to be flexible enough to allow specific interventions by teachers in different local situations (i.e. interventions directed at immigrant children, different interventions for boys’ and girls’ schools)?
• Have cessation programmes been designed to motivate young adults to quit?

**Evaluation of the programme**

• Is there potential for evaluation of the programme at regular intervals (one year, two years, three years, 10 years)? Is reorientation of the programme planned in light of these interventions?
• Have indicators been established to facilitate the evaluation of the programme (e.g. indicators of knowledge, beliefs and values)?
• Have comparative studies been planned to measure the respective influences on children of tobacco advertising and of school health education?

**Background reading**


PART 3. HEALTH PROMOTION: ADVOCACY, INFORMATION AND EDUCATION

Chapman S, White P. *Pushing smoke: tobacco advertising and promotion*. Copenhagen, WHO Regional Office for Europe, 1989 (Smoke-free Europe, No. 8).
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New Zealand Toxic Substances Board. Health or tobacco — an end to tobacco advertising and promotion. Wellington, Department of Health, 1989.


Nutbeam D. Planning for a smoke-free generation. Copenhagen, WHO Regional Office for Europe, 1988 (Smoke-free Europe, No. 6).


PART 3. HEALTH PROMOTION: ADVOCACY, INFORMATION AND EDUCATION


Townsend J. Tobacco price and the smoking epidemic. Copenhagen, WHO Regional Office for Europe, 1988 (Smoke-free Europe, No. 9).


Community intervention programmes

What is a community intervention programme?

Community intervention programmes are aimed at promoting the non-use of tobacco in the community, preventing tobacco use, encouraging people to stop smoking and influencing attitudes and policies towards tobacco use. Participation is the essential feature of this approach. Whatever form the intervention process may take, local people are encouraged to participate in activities. It is also necessary to involve bodies such as civic associations, NGOs, local businesses, local government and especially health services and the media.

Community intervention programmes may involve measures such as age restrictions, tobacco-free public places and transport, tobacco-free workplaces, tobacco-free hospitals and health facilities, various media communications, and special programmes in schools and local health services. They may be closely linked to other specific tobacco control activities. However, the difference between programmes described in previous chapters and community intervention programmes is that activities of the latter are oriented towards the community as a whole and not towards individuals or specific groups. Consequently community intervention programmes are also supported by community resources.

Setting up a community-based tobacco control programme involves recruiting appropriate programme personnel (voluntary or paid), preparing suitable material (with consideration given to culture and language), enrolling the assistance of voluntary organizations, contacting the relevant authorities (school boards, police, etc.), and recruiting participants. Such programmes mobilize people and institutions. People are more interested in a programme’s success when they feel a sense of belonging to it. Indeed, some measures that might have fallen into abeyance, such as age restrictions, may be revived by a community programme. NGOs, civic and grass-roots organizations, local businesses and government figures often feature prominently in community-based tobacco control efforts.

Community programmes may involve the enactment or strengthening of ordinances by municipalities. The programmes may comprise a number of
activities described in other chapters, such as media campaigns, and they are always characterized by strong community participation.

**When communities get involved in tobacco control**

There have been many community-instigated tobacco control programmes. The following selection illustrates that low-cost approaches can be as successful as sophisticated approaches if the programme is sufficiently comprehensive and if participants are earnest and persistent in their endeavours.

**“Besançon Non Fumeur” (France)**

Over the last 10 years, the city of Besançon (a community of 120000 inhabitants) and its Department of Public Health, in conjunction with their local partners, have developed ambitious public health policies in numerous areas. These include the environment (air and noise pollution), nutrition, prevention of accidents involving children and combating inequalities. The concept of public health has become ever wider and now includes quality of life and a social dimension. An integral part of the “Besançon Non Fumeur” [Besançon Smoke-free] programme is its plan of action which aims to change the attitudes and behaviour of the local population towards tobacco in a fundamental and lasting way. There are three main objectives:

- to create a climate that favours non-use of tobacco;
- to help smokers who want to quit;
- to establish primary prevention by stopping the problem before it starts for children and teenagers.

Initiated in 1988, the “Besançon Smoke-free” programme initially had a five-year outline plan, using a marketing approach and with adjustments each year. It promoted a tobacco-free lifestyle “with pleasure”, and promoted Besançon as a leading tobacco-free European city.

Detailed programmes have been elaborated to achieve each of the three main objectives including permanent communication tools (newsletters, etc.), special events, and a special approach for children, a game called “Kangaroo”.

Two types of evaluation have been established to track the programme — process evaluation and impact evaluation.

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1 Components of this section and other parts of the chapter are based on various documents produced by the “Besançon Non Fumeur” programme, as well as contributions from Dr Yvon Henry, Head, Besançon Non Fumeur programme. Elements of the programme are described in English in: Baudier F et al. The “Besançon Smoke-free” programme. Concepts, measures and evaluation. Hygée, 1991, X:9-25.
Process evaluation

This evaluation relies on two approaches. Firstly, regular meetings of the Technical Committee provide an overview of progress and permit strategies to be adjusted according to various criteria (human and financial resources, etc.). Outside experts are brought in as necessary. Secondly, specific surveys are implemented depending on how the parts of the programme develop. Three surveys have been carried out since the beginning of the programme.

1. A telephone poll was conducted using a representative sample of 10% of Besançon’s medical practitioners one month after the “That’s it, you’re quitting. Your doctor can help” campaign. The results showed that 76% of the doctors surveyed used the materials supplied, and that half said they would like information about techniques for giving up smoking, with the postgraduate education programme as the most frequently requested method.

2. Teachers and students were surveyed systematically during the first year the “Kangaroo” game was used. The results confirmed that there was interest in the game and that it was a valid method of prevention. The survey results also led to certain adjustments in the rules of the game. The survey was conducted among 730 pupils and 31 teachers. Satisfaction rates were consistently higher than 90%.

3. A public awareness poll was organized to survey the opinion of Besançon residents one year after the programme was launched. It was conducted on a representative sample of 300 people over the age of 15. The results can be summarized as follows:

- The programme was well known: 92.5% of the population surveyed (regardless of age, sex, profession or smoker/non-smoker status) had heard of “Besançon Smoke-free”
- The project was perceived clearly and with approval: 90% of the residents surveyed thought that the project did not infringe their liberty (regardless of age, sex, profession or smoker/non-smoker status) and 86% said that the campaign was useful.
- The means used to promote the message were successful: 80% knew the logo, 54% had seen posters, 35% had seen T-shirts, and 29% had seen stickers. One out of two smokers had noticed the “Besançon Smoke-free” literature when visiting the doctor (but only 29% of the non-smokers had).
- Interest was expressed in enlarging the no-smoking areas: more than half the local residents had seen the “no-smoking area” signs (more smokers than non-smokers); buses, public places and government offices were the “high-

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1 The committee is made up of six people who represent the three sponsoring organizations (the Department of Public Health of the city of Besançon, the Mutualité du Doubs (a type of regional mutual insurance union), and the Regional Association for the Prevention of Air Pollution). Certain other outside individuals with specialized skills may be involved for limited periods.
impact" areas, 73% were in favour of complete prohibition of smoking in schools.
• Only one resident in five knew about the locally offered smoking cessation programmes.

Impact evaluation
This evaluation is based on a number of surveys which are repeated every 2–3 years.
• Survey of the local population: At the beginning of the project in 1988, tobacco consumption was evaluated in a sample of 1000 people (representative of the local population). Some 34% of Besançon residents aged 15 years and older were smokers (41% male, 27% female). This sample was to be evaluated again at the end of the project in order to determine the success of the programme in terms of smoking cessation.
• Survey of families. Every three years, tobacco consumption is evaluated in a sample of 3500 people (representative of families with one child in the intermediate years of primary school). The first such survey was conducted in April 1988.
• Survey of legal and illegal drug use among young students in Besançon and the Doubs Department. Since 1982, surveys have been conducted every three years on legal and illegal drug use among young students in Doubs administrative district.

The tobacco prevention programme of Gampaha District, Sri Lanka

The Gampaha District, with a population of 1.5 million and 1200 villages, is the second largest administrative district in Sri Lanka. A special tobacco prevention programme was launched in this district in the latter part of 1990 under the guidance of the Alcohol and Drug Information Centre. Throughout 1991 and 1992 the programme continued to operate with the involvement of governmental organizations and NGOs. The Gampaha project is a community-based innovative programme aimed at multiple targets. Rather than creating new societies and organizations, it integrates prevention activities in existing systems with community development approaches. The key feature of the programme is that it includes the entire district and does not omit a single village or household. Throughout the programme a special effort has been made to help the community assess the need for preventing tobacco use and realize the importance of tobacco prevention activities. The responsibility for the prevention effort was given to communities by allowing them to plan, monitor and evaluate activities.

Information on this project was supplied by Shakya Nansayakkara, Urban Council Office, Gampaha, Sri Lanka, and by Dr Dyanath Samarasinghe, Faculty of Medicine, University of Colombo, Sri Lanka.
while expertise was developed within the communities through training programmes. Up to January 1993, those involved in the programme had been directly involved in 244 training programmes for 10,898 participants.

The programme

It is commonly believed that tobacco smoking is pleasurable and helps people to relax. The programme challenges this belief and tries to change the social setting in which tobacco use is considered as a pleasurable experience.

The Gampaha tobacco prevention programme explains how social attribution creates an artificial idea that tobacco use is pleasurable. The programme tries to reverse influences that enhance the social attraction of tobacco use.

Before the programme was started, no significant tobacco use prevention activities existed in Gampaha District. At the outset there was reluctance as well as resistance on the part of Government officials and volunteer leaders responsible for development activities as they considered such prevention efforts futile and impracticable. However, within a year they acknowledged the importance of prevention activities and tobacco prevention has now been integrated into development activities. Officials responsible for administration of the district have, on their own initiative, declared a tobacco and drug prevention week to coincide with World No-Tobacco Day and have prepared material for dissemination to schools and community groups.

Under this tobacco prevention programme, an action guide was sent to all 1,200 village units within the district. Some 800 villagers have already launched tobacco prevention activities in line with this action guide by forming groups (each with 10 participants), by mobilizing key people in voluntary organizations, and by involving tobacco users and non-users alike in the villages.

The results

At the outset of the project, a group of 100 young women were interviewed. Each was asked what she would think if the young man she expected to be her future husband was a smoker. About 90% said they considered smoking a fashionable and manly quality. Two years after the launch of the programme to deglamorize tobacco, a similar group was questioned about tobacco use and 95% expressed the view that smoking was a silly and stupid thing to do. Tobacco use among young people has been considerably reduced.

One of the methods employed in this programme was to debunk the message conveyed by tobacco advertising. Tobacco advertisements have since disappeared from about one-fifth of shops and in many other places such advertisements have been defaced.

Previously, ashtrays were a common sight in all government offices and in most houses. Now in about two-thirds of these places, not only have ashtrays disappeared but there is a definite no-smoking attitude.
When the programme started, many tobacco users felt that it was trying to destroy their pleasure and satisfaction. But now even tobacco users have joined in the fight against the spread of tobacco use. They admit that they are trapped in the use of tobacco and they want to prevent others from making the same mistake.

The Gampaha Urban Council, the local government authority, having realized the amount of money and health resources wasted as a result of tobacco use, has passed by-laws to tax tobacco outlets and has used the money for tobacco prevention activities.

While previously it was a common sight to see people using tobacco freely and openly in public places, it is now evident that the number of tobacco users has been reduced. Even anti-smoking protests are not met with resistance or anger by tobacco users.

At the very beginning of the project, voluntary workers calculated the large amount of money that was being spent on tobacco use in each village and which could otherwise have been used for development activities. This provided motivation for further prevention efforts. It has now been shown that in at least 33% of these villages the money spent on tobacco has been reduced by about 30%.

Comments

Community intervention evaluations have been carried out in many countries and circumstances, and the references at the end of this chapter provide a number of important indications for evaluators. Special mention should be made of the Community Intervention Trial for Smoking Cessation (COMMIT) in the USA which was planned and carried out with in-built evaluation that included permanent tracking of variables such as cost. COMMIT’s methods are well documented and backed by appropriate statistical methodology.

Mention should also be made of the American Stop Smoking Intervention Study for Cancer Prevention (ASSIST), a large demonstration project in 17 states of the USA, designed to reduce smoking prevalence to 15% or less by the year 2000. It is the largest tobacco control project in the United States. At the outset ASSIST envisaged that more than 900 million Americans would be directly affected by the project. The ASSIST project is expected to result in 4.5 million adults quitting smoking, the prevention of 2 million children from ever taking up the habit, and the prevention of nearly 1.2 million premature smoking-related deaths, including more than 400,000 deaths from lung cancer. Such targets lend themselves to specific evaluation.

1 COMMIT is a comprehensive, community-based approach to smoking cessation in the USA. It is designed to change the community environment by making smoking a major public health issue and by strengthening the social norms and values that support non-smoking.
Guidelines for evaluation

In all cases, community programmes are influenced by local cultural factors and are difficult to replicate in other cultural settings. However, the general principles and methods can prove useful for programmes implemented in similar socioeconomic situations. Whatever the situation, programmes need to be carefully monitored, evaluated and reoriented as necessary to ensure that the best use is made of community resources and to determine to what extent the goal of reducing tobacco consumption is being achieved.

Expected outcome of community interventions

With a final goal of cessation of tobacco use and a decrease in tobacco-related diseases, community programmes establish a number of intermediate outcomes. These include more thorough public information on the risks of tobacco use and the creation of a social climate within the community where the non-use of tobacco is the norm. Enactment of by-laws and ordinances related to tobacco control is also an intermediate result.

The above examples provide a number of indicators, which cannot be considered as final in themselves but are significant steps, i.e. the increase in the number of non-smoking public places and the progressive disappearance of ashtrays.

Measurement tools

Measurement tools for evaluation range from observation (e.g. of disappearance of tobacco advertising on billboards) to statistical analysis. Community programmes are multifaceted and a number of extraneous factors may influence the results of the tobacco control programme. It is thus essential to have baseline information on knowledge, attitudes, sales of tobacco products, smoking prevalence, etc. in order to measure trends. A baseline analysis is indispensable in identifying vulnerable and target groups in the community.

The outcome surveys may consist of:

- telephone surveys of a representative sample of adults assessing self-reported behaviour;
- school-based self-administered survey of adolescents;
- telephone survey of restaurant managers to obtain information on the availability and the proportion of non-smoking and smoking seats in restaurants;
- surveys on community activities, gathering information on organizational relationships and health promotion activities.

1 General information for evaluation and its sources are described in Chapters 2 and 3.
Community programmes vary in complexity. Some may involve a large number of people and may take some time before achievements are evident. ASSIST involves about 1000 community health agencies, social service organizations and voluntary health groups in state and local coalitions for tobacco control.

Decisions on the interval between evaluations are an important aspect of cost-effectiveness. A management programme and accounting system may have to be created to monitor the implementation of interventions and to make an inventory of all resources used.

A series of surveys may be required to track changes in prevalence of tobacco use in the population. Specific attention may be given to groups at risk and to young people. Variables will have to be carefully selected. In this respect, it may be useful to refer to the analysis made in the Community Health Promotion Grants Program of the Henry J. Kaiser Foundation in the United States, where the following variables were identified:

- Community involvement: community leadership, awareness among individuals, political support, community planning efforts, coordination of programmes.
- Programme activity/exposure: publicity for programmes, programme availability, programme utilization, matching of programmes to needs, participation in smoking cessation courses.
- Environment: problems (weak enforcement of smoking regulations, advertising of tobacco products, availability of tobacco products), percentage of restaurant seats in non-smoking sections.
- Norms: cultural attitudes approving use.

**Evaluation of the programme**

To evaluate community intervention programmes, the process outlined in Chapter 2 should generally be followed, and the information in Chapters 2 and 3 used whenever necessary. The following methodological and practical advice is specific to this chapter.

Community intervention programmes are implemented in a complex sociobehavioural and economic environment. Persons carrying out evaluation may be easily sidetracked by positive indicators that do not reflect the programme or by positive achievements that are not due to the programme. Consequently, it is especially important to determine adequately the objectives of the programme, its targets and its methods.

The relevance of action at community level can be demonstrated from both social and economic points of view. In view of the fact that concerned communities usually begin with other safety, environmental and social programmes, tobacco control programmes can often be developed at marginal cost.

The relevance and adequacy of the various activities of the programme will have to be considered in relation to the community concerned. The
presence of a strong leader or role model, the existence of local television or radio networks and the importance of a sense of community spirit will facilitate different types of approaches and probably render them more cost-effective.

As shown in the examples above, evaluation of community intervention programmes can be lengthy and sophisticated, using economic, sociological and statistical methodologies (as was done for “Besançon Non Fumeur”) or it can be simple, cheap and rapid as in Gampaha District.

Methods of evaluation described in Parts 1 and 2, as well as in other chapters of Part 3, could be applied to community intervention programmes, which may comprise approaches ranging from tobacco-free public places to children-oriented action. In such a complex situation it is important to define clearly the expected results prior to the intervention and to use measurement tools applicable to the community, for instance, questionnaires, observations, and telephone surveys.

Ideally, an evaluation team should be created including a number of persons from the community who are involved in the programme. Data related to the achievement of the objectives, as gleaned from indicators and through performance, should be collected and made available. One difficulty in evaluation is the problem of measuring the involvement and motivation of the community. In general, if the intervention has been properly designed from the outset, elements for the evaluation can be easily obtained from the document establishing the programme. Once agreement on the evaluation needs has been reached, the team can proceed to compare the results with the objectives of the intervention.

Particular emphasis will have to be placed on the following:

— evaluation of the continued relevance of the project and its approaches, as community interventions often extend over a long time span;
— the factors affecting the project’s performance (for example, if the intervention relied on volunteers, was the number sufficient throughout the period under evaluation?);
— any unexpected effects in a complex community setting. (Such effects could be beneficial or detrimental. What are these unexpected factors? Are they hindering the success of the intervention? At this point, the project managers could benefit from constructive discussion in the community in which problems can be addressed and alternative approaches identified.)

Indicators to support the evaluation

Development of the programme

• Have the programme’s objectives been well defined in terms of a reduction in tobacco use? Have population groups requiring special attention
been identified (ethnic and linguistic minorities, young people, women)?

• Have all the community’s available resources been identified — such as voluntary agencies (health-related or not), religious organizations, youth groups, social insurance and social security, health services, schools, libraries, existing cessation programmes, police and the media?

• Has a coordination mechanism been established to ensure the most effective use of all human and financial resources? Have coalitions been created?

**Implementation of the programme**

• Have all participants been informed of the need for a phase-in period to allow for adjustment of strategies?

• Are community leaders and media regularly involved in the programme?

• Are activities flexible enough to adapt to local situations?

• Are tobacco industry reactions (advertising, free samples, articles in the local press) monitored with a view to adjusting the programme’s activities?

• Are specific efforts being made to enrol participants who are difficult to recruit (populations at a distance, hardened smokers)? Have innovative programmes been designed for them? Are prevention programmes directed at appropriate age groups?

**Effectiveness of the programme**

To test the effectiveness of community interventions in the cessation of tobacco use, it is necessary progressively to set up a monitoring system.

• Is the efficiency of the implementation of the programme followed up? Are costs maintained at the planned level? Is the schedule for the delivery of activities adhered to?

• Is the implementation of by-laws and ordinances followed up?

• Is prevalence of tobacco use regularly evaluated by sex, age and special target group?

**Background reading**


Cheadle A et al. An empirical exploration of a conceptual model for community-based


Chapter 16

Role of smoking cessation programmes

What are smoking cessation programmes?

Research has shown that most cigarette smokers who have tried to quit did so without professional help. A survey conducted in the United States in 1986 demonstrated that, during smokers' latest attempts to quit, the majority of those who succeeded and those who relapsed (95% and 89% respectively) had stopped smoking on their own. While the former group was more likely to employ the "cold turkey" approach of abrupt cessation without any substitution, those in the latter group gradually decreased their daily consumption of cigarettes. During any of their quit attempts, the majority of persons of both groups (92% of those who succeeded and 80% of those who relapsed) had been unassisted in quitting smoking. Those who sought help smoked more and had made more cessation attempts than those who had quit unaided. These findings suggest that cessation programmes could play a limited but nevertheless important role, especially among heavy smokers who are at higher risk of tobacco-related illnesses and death.

Smoking cessation programmes have made substantial contributions to anti-smoking efforts over the past 25 years by helping several millions of smokers to quit. Increasing awareness of the problems created by tobacco use, and the difficulties associated with achieving and maintaining abstinence, have led to the gradual adoption of methods that vary according to the values, culture and sex of the tobacco user and to the stage of dependence. Recent years have seen the development of more comprehensive and intensive approaches to the reduction of tobacco use in smoking cessation clinics.

It has been estimated in the USA that over 90% of people who quit on their own start smoking again within a year. There is therefore a need for a comprehensive broad public policy which includes a range of cessation activities.

1 The contribution of Robyn Richmond, Associate Professor, School of Community Medicine and National Drug and Alcohol Research Centre, University of New South Wales, Sydney, New South Wales, Australia, to the drafting of this chapter is gratefully acknowledged.
The range of assistance offered through self-help programmes, primary health care facilities, the workplace and cessation clinics should be viewed in a broad public health perspective. Complementary approaches often serve different clienteles, although they may be seen as alternatives competing for limited resources. A number of methods can be proposed within these settings, ranging from acupuncture to substitution devices.

Primary health care settings — which include general medical and dental practices, community health settings and workplaces — have the potential to reach a large number of smokers who might be prepared to quit. These smokers could be referred to more specialized clinics for quitting. Smoking cessation clinics reach a relatively small number of smokers but they are a resource and source of hope for many dependent smokers. The clinics provide an important service for those who are unable to quit on their own. For those heavy, dependent smokers, specialist clinics offer more intensive help. There was a major increase in the number of these programmes between 1980 and 1985, and the trend continues.

Programmes that include a greater number of sessions, with professional leaders rather than volunteers, and with more extensive follow-up and maintenance support show better results than other methods. While clinic-based programmes require a commitment in terms of time and expense, the long-term financial benefits for the individual and for society may outweigh the short-term cost.

Clinics can also conduct research and develop smoking cessation methods that can be applied at a later stage in the community. The staff in specialist clinics are usually highly trained and can contribute to improving knowledge about the process of quitting, understanding the nature of tobacco dependence and developing useful quitting strategies. Cessation clinics provide settings within which new knowledge about smoking and new techniques can be evaluated and refined. Further, the clinics may help to train experts in smoking behaviour who can, in turn, influence public opinion.

Summary of evaluations

**Impact of primary prevention of oral cancer among Indian villagers**

Most oral cancer in India and in several other south-east Asian countries — as much as 90% according to WHO estimates — is directly attributable to the chewing and smoking of tobacco. A study was undertaken to assess the

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feasibility and effectiveness of a primary prevention programme for oral cancer in a rural Indian population through a combination of public information/education and direct intervention by dentists.

The health education programme consisted of two broad approaches: firstly, providing information to create awareness of the relationship between tobacco and oral cancer and to convince the target population of this relationship, and secondly, helping individuals to stop using tobacco. In the health education campaign, personal as well as mass media communication was employed. The personal communication was given by a dentist after oral examination and then by a social scientist according to a predesigned format. This happened once a year at the time of follow-up examination.

After the population had become aware, and more or less convinced, of the relationship between tobacco use and oral cancer, the emphasis of the health education was gradually shifted to explain possible strategies for stopping tobacco use. Personal communication continued to be a major and important health education resource.

The evaluation was undertaken with two objectives: firstly to find out whether rural individuals could be motivated to give up tobacco use through a concentrated programme, and secondly to find out whether such a programme would affect the incidence or the risk of oral cancer.

For the intervention cohort, a complete screening of the population from selected karas (the smallest population unit identified in census publications) was carried out in Ernakulam District and all available tobacco users aged 15 years and over were chosen (12,212 persons) as the study group. The baseline survey was conducted in 1977-78 and the present report covers eight annual follow-up surveys thereafter.

For the control cohort, karas were selected by random sampling and their entire population aged 15 years and above was examined. The baseline survey was conducted in 1966-67 and the first follow-up survey three years later. A total of eight annual follow-up surveys were conducted providing follow-up results for 10 years. For the purpose of this report, only a subset of the original cohort was included — namely tobacco users in the baseline survey and the results for the first eight years of the 10-year follow-up. The baseline control cohort consisted of 6067 tobacco users.

As the most common oral precancerous lesion is leukoplakia, it was used as an indication of the consequence of tobacco use.

The loss to follow-up was 0.8% in the intervention cohort and 10.3% in the control cohort. The annual follow-up percentage varied from 93.2% to 83.6% in the intervention cohort and 74.2% to 70.2% in the control cohort.
Comparison of smoking cessation programmes in a hospital clinic and at worksites in Australia

The question of how hospital clinic populations differ from those at worksites in terms of outcome of a smoking cessation programme and pretreatment characteristics was the subject of an Australian study.¹

The study sample was based on 668 clinic participants and 1474 employees at worksites in Sydney. Most clinic clients had been referred by a medical practitioner or had gone to the clinic as a first step in seeking treatment. Employees at worksites were recruited on a voluntary basis following notification of an impending smoke-free policy.

The Smokescreen programme is a multicomponent programme for cognitive behaviour change. It consists of two-hourly sessions held once a week for five consecutive weeks. The emphasis in the first two sessions is on facilitating change by increasing awareness of the effects of smoking and enhancing the commitment to change. The remaining three sessions focus on behavioural techniques and cognitive strategies that assist participants to stop smoking. The relapse prevention component of the programme is designed to help participants to maintain abstinence by assessing high-risk smoking situations and planning strategies for coping with them. Other lifestyle factors such as stress management, exercise, nutrition and weight management are dealt with in sessions 4 and 5.

The programme was conducted in the clinic and in the workplaces by the same counsellors. The group, of between 10 and 16 people, provides a support network to help in the cessation process.

Pretreatment assessment included demographic characteristics, smoking pattern, nicotine dependence level, social influences, motivation to quit and the relative importance of the pros and cons of smoking. Follow-up assessments were conducted by telephone at 3, 6 and 12 months after completion of the programme.

Results were analysed using all subjects, with drop-outs considered as continuing to smoke. The average age of the participants was 40 years at the clinic and 34 years at the worksite. The proportion of men was 38% at the clinic and 49% at the worksite and the participants smoked 22–26 cigarettes per day. Clinic participants were more motivated to stop than those in the workplace.

The six-month point prevalence abstinence rates were 28% for the clinic and 19% for the workplace and at one year, 20% and 15%. Sixteen per cent of clinic participants and 12% of worksite participants remained continuously abstinent.

PART 3. HEALTH PROMOTION: ADVOCACY, INFORMATION AND EDUCATION

for the entire year. The rate of drop-out and unsuccessful follow-up at one year was considerably more in the workplace (42%) than in the clinic (32%). Smoking status was not biochemically validated as there were insufficient personnel to do more than make telephone contact at 3, 6 and 12 months.

Comments

The value of prospective studies in analysing the final health impact of tobacco control is well demonstrated in the first example. This study is also exemplary as it shows how cessation programmes benefit from being organized within a broad public health perspective that comprises complementary activities. The study does have some limitations (for example, the nonconcurrency of the intervention and control cohorts) but, none the less, provides a good example of a large-scale evaluation carried out in a developing country.

The two examples also show the variety of actions that can be undertaken and the need to modulate the activities according to local circumstances and resources.

Guidelines for evaluation

To evaluate cessation programmes, the process outlined in Chapter 2 should generally be followed, and the information in Chapters 2 and 3 used whenever necessary. The following methodological and practical advice is specific to this chapter.

Expected outcomes of the programme

The expected outcome of the programme is an increase in the number of people quitting definitively or for a long period of time.

Information for evaluating the outcome

To analyse the results and to evaluate the quality of cessation programmes, it will be necessary to take into account the following points:

- Sample sizes should be large enough to show an effect if one exists. When calculating sample sizes, the expected difference between groups should be estimated, based on reports from previous studies, and the power should at least be set at 80%.
- Smoking cessation programmes should present outcome data at one year, and at even longer intervals if possible.
- Abstinence should be presented in two ways: as a point prevalence figure which gives a cross-sectional "snapshot" of abstinence at a spe-

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1 General information for evaluation and its sources are described in Chapters 2 and 3.
cific point in time; and as lapse-free abstinence measured from the end of treatment to the follow-up point which enables the sustained impact of a programme to be estimated.

• Programmes should not discount drop-outs from the analysis, but should include them as continuing smokers. Outcome should never be presented only on the basis of those who could be contacted or those who completed the programme. Thus the outcome measure used is a proportion (number of successful quitters out of all those who started the programme). It is appropriate to present outcome on the basis of those who comply fully and attend all scheduled visits compared with partial attenders as this is an indication of the value of the intervention. However, discussing outcome in this way should follow a presentation of the overall abstinence rates, as described above.

• Moderator or predictor variables refer to clients’ characteristics that may have an influence on the quit rate. It is important to be aware of these variables as they can significantly influence the selection of approaches for the programmes.

If a clinic is the setting for the research, strict research conditions should apply. These should include: a control group, randomization or matching of groups, “blind” follow-up (where the person carrying out biochemical verification does not know to which group the participants belong), follow-up at one year as a minimum, self-reports by all clients who enter the programme.

If a service rendered to the general population is to be evaluated, these rigorous methods may not be possible. In this situation, careful follow-up and inclusion of all subjects in the analysis is a minimum requirement.

Evaluation should include quality control of the counsellor’s performance in the group.

Methods for evaluation

Evaluation will cover the phases of development, advertising of the service or programme, discussion with key referral sources, implementation, types of clients and follow-up.

For countries where such evaluations are not yet common, adaptation of material from other countries may be possible. Focus groups, including programme trainers and therapists, should analyse the proposed material to ascertain if the elements are appropriate to the target population. Usually the Department of Health, local cancer society, other NGOs or interested private companies can be encouraged to support financially the production and evaluation of materials. Evaluation can focus on the process of development, training, promotion and implementation of the programme as new service delivery. Follow-up evaluation of programmes, perhaps on a yearly or two-yearly basis, is important for comparison of outcomes with baseline data. A simple questionnaire collecting information on basic demographics, smoking
patterns and dependence level is important for establishing a baseline and, whenever possible, for determining predictor variables. A similar questionnaire can be used to measure the outcome of the programme.

Analysis of the relevance of the programme and its proposed activities to the target audience will be particularly important, as motivators for tobacco use vary not only from country to country but by sex, socioeconomic grouping and geographical area within a country. Whenever feasible and affordable, evaluation of relevance should include a pre-evaluation of the intentions of the target group: the intervention process cannot succeed if the smoker is not ready to quit.

Evaluation of relevance may provide useful indications for the elaboration of cessation programmes. The classic example is a study carried out in 1979 which demonstrated that, with simple advice from a leaflet and the promise of follow-up, 5% of smokers had stopped at one-year follow-up, as compared with 0.3% of a control group.

With specific emphasis on relevance to the communities and individuals concerned, as well as to the cost, approaches to evaluation can be similar to the ones described in Chapter 17.

Calculation of cost-effectiveness is quite feasible and should be carried out whenever possible. The direct cost of the development and implementation of the programme should include the training of staff to deliver it, and should take account of the time required from participants and the cost of the development, production and dissemination of material. Benefits can be measured by number of participants (cost-efficiency) or by complete abstinence after a given period of time (cost-effectiveness). According to what is possible in follow-up, immediate cost-effectiveness could be defined at the end of the programme, medium-term effectiveness after one year and long-term after 2–5 years.

Indicators to support the evaluation

A number of criteria described in Chapter 17 — particularly those on the training of health personnel, self-help material, specific needs of populations and implementation of the programme — can also be used for evaluating smoking cessation programmes. In addition, the following criteria may be useful for analysing and evaluating the role of smoking cessation programmes and their adaptation to the community and other groups of smokers they are intended to serve.

2 A recent study in the USA revealed that counselling smokers to quit would cost only US$1.2–2.1 per year of life saved for females. In Brazil, the cost of public information and personal smoking cessation services is estimated at 0.2–2.0% of per capita GNP for each year of life gained (treatment for lung cancer costs 200% of per capita GNP per year of life gained).
**Planning the programme**

- Has the target group for the smoking cessation programmes been well defined?
- Has the type of activity been determined with regard to these target groups?
- Have tobacco cessation programmes been organized to benefit a maximum number of the population and not an elite group?
- Are there special programmes targeted at women and young people?
- Have all popular means of communication been employed, such as the press and telephone?
- Are these programmes well adapted financially to the means of the group or community they will serve?
- Is the material for distribution, such as self-help materials, comprehensible and adapted to the target groups? Have self-help materials been evaluated in the national or local context?

**Evaluation of the programme and follow-up**

- Has a follow-up to the cessation programmes been planned for heavy smokers who have already relapsed? Can this be evaluated?
- Is evaluation planned at reasonable intervals (e.g. six months, one year, or two years)?

**Background reading**


Kunze M. Implementing smoking cessation in the medical system. XIIth Congress of the European Society of Cardiology, Stockholm, 16–20 September 1990.
EVALUATING TOBACCO CONTROL ACTIVITIES


Mattick RP, Baulie A. An outline for approaches to smoking cessation: quality assurance in the treatment of drug dependence project. Canberra, National Campaign Against Drug Abuse, 1992 (Monograph Series No. 19).


Chapter 17

Involvement of health personnel in tobacco control

The role of health personnel in preventing tobacco use

The level of specialization within the health sector varies from country to country. In some countries, there are over 100 categories of health personnel representing all strata of society. These health workers, whatever their discipline, are united by a common purpose — to alleviate the suffering of their patients, to improve their state of physical and mental health, and to prevent avoidable deterioration in health. Tobacco use has been recognized as one of the most important avoidable causes of ill-health, and this fact should motivate all health personnel to stop smoking and to use their position and working environment to promote a tobacco-free society. Health personnel should be involved in tobacco control, not only as non-smoking role models, but also by making every effort to reduce the tobacco consumption of their patients and of society in general (see Box 3, p. 195).

Interventions by health care providers, such as general practitioners, nurses, primary health care workers and dentists, have the potential to reach the majority of smokers because of the high contact rate these professionals have with the general public. For example, in the USA, each smoker visits a physician on average 4.3 times and physicians have contact with at least 70% of all smokers each year. In other developed countries it has been estimated that 70-80% of smokers visit their family doctor at least once a year.

In a number of countries, nurses and primary health care workers provide most of the preventive care, including asking and advising about smoking as part of health checks. However, these workers have expressed a lack of confidence in the effectiveness of their role in this setting, and in some countries high smoking rates can be observed among nurses. Several studies indicate that health professionals who smoke are less likely to advise patients to stop smoking. In a study of hospital ward nurses in the USA, only 7% of those who smoked advised smoking patients to quit, whereas 44% of the non-smoking

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1 The contribution of Robyn Richmond, Associate Professor, School of Community Medicine and National Drug and Alcohol Research Centre, University of New South Wales, Sydney, New South Wales, Australia, to the drafting of this chapter is gratefully acknowledged.
nurses did so. Yet the hospital nurse appears to be an ideal person to advise and counsel inpatients about smoking.

Health personnel frequently find themselves in a position where they can present the patient with objective evidence of damage caused by smoking at a time when the patient is most likely to be receptive to the “stop smoking” message. In many cases, a health worker and a patient may build a rapport over several years and the health worker is then viewed as a trusted confidant who is respected for having training and knowledge in health matters. As smokers suffer more ill-health and use health care facilities more than non-smokers, there is an opportunity to deliver preventive services and to follow them up. This point is important as smokers generally make three or four serious attempts to quit before they stop smoking, and the smoking problem can be treated as part of routine medical practice. The high level of contact of health personnel with the general community shows that general practice is a vehicle with great opportunities for reducing smoking prevalence.

Dental staff, because of the very nature of their function, have a role in counselling patients about their smoking behaviour. They can identify smokers easily and have an opportunity to counsel systematically about overall preventive health. Dental visits are in general not popular, except in some developed countries, such as the USA where more than half the population visits a dentist every year. It is estimated that dentists are likely to influence only 1–2% of people who smoke, with higher contact in countries where tobacco is chewed, but the cumulative effect of such contact is likely to have an impact over time. The growing involvement of dental staff has evolved from the knowledge that chewing tobacco and snuff cause oral disease. Use of smokeless tobacco, such as chewing tobacco and snuff, is a major cause of oral cancer in countries — mostly on the Indian subcontinent — where the practice is widespread.

Examples

Three groups of health professionals are looked at here — namely general practitioners, nurses and dentists.

Studies in general practice in the United Kingdom

Russell and colleagues have conducted four studies in general practice since 1979. In their first study they allocated 2136 cigarette smokers who attended the surgeries of 28 general practitioners in five group practices in London to four study groups. Smokers in the first group were advised to stop smoking, were given a leaflet to assist them and were told that they would be followed up. Those in a second group were advised by their general practitioner to stop

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A third group was the non-intervention control, and the fourth group was given a questionnaire only.

Changes in motivation and intention to stop smoking were evident immediately after advice was given. The proportions of patients who stopped during the first month and were still not smoking one year later were 5.1%, 3.3%, 1.6% and 0.3% in the four groups (P < 0.001).

In their second study, 1938 patients who attended the surgeries of 34 general practitioners in six group practices were assigned to one of three groups. One group received advice plus a booklet plus the offer of nicotine gum, the second received advice plus the booklet, and the third was the non-intervention control group. After adjusting for biochemical validation, the proportions who were abstinent at four months and were still abstinent at one year were 8.8%, 4.1% and 3.9% in the three groups. The offer and prescription of gum motivated more smokers to try to stop, increased the success rate among those who tried, and reduced the relapse rate. The self-selected subgroups of 8% who used more than one box of gum achieved a success rate of 24%. The authors claim that it is feasible and effective for general practitioners to offer the gum to smokers with minimal instructions as an intervention procedure.

In the third study in general practice, 4445 smokers visiting 101 general practitioners from 27 practices were allocated to three study groups. One group received a brief intervention with the support of a smokers' clinic, the second received a brief intervention only, and the third received the general practitioner's usual care. Adjusting for biochemical validation, the respective one-year success rates were 8%, 5% and 5%. General practitioners who gave supported brief interventions encouraged more smokers to use the gum correctly. Among this group, gum users reported a success rate of 27% at one year. Less than half of the general practitioners (45%) recorded the patients' smoking status and success rates were higher among patients of this compliant group of doctors.

The researchers concluded that brief intervention by general practitioners with the support of a smokers' clinic gave significantly higher success rates. Better results might be attained if general practitioners recorded smoking status and encouraged more patients to use nicotine replacements. Finally, collaboration between a smokers' clinic and the local general practitioner is effective in helping many more smokers to quit than is possible if the two work separately. This result was confirmed in a series of six cross-sectional surveys conducted over a three-year period. The decline in self-reported smoking prevalence over the 30-month period was 5.5% (from 36.4% to 30.9%) in the group that received

Studies in general practice in Australia

Richmond and co-workers carried out three studies in general practice over a period of about 10 years. In their first study in Sydney, they randomly assigned 200 smoking patients to two study groups. One group received a structured intervention consisting of a health education consultation to personalize the effects of smoking, a manual and a day diary, patients were encouraged to attend four follow-up visits over six months. The second group served as the non-intervention control group. A second control group of non-smokers provided baseline data for comparison. Follow-up was conducted at six months and three years and self-reports of abstinence were biochemically validated. At the three-year follow-up, there was 36% abstinence in the treated group compared with 8% in the control group. The proportion who had been continuously abstinent at three years was 23% in the treated group compared with 2% in the control group. Among the 37 patients who attended all the follow-up visits, 57% were abstinent at three years compared with 23% among those who attended only some of the visits. This study showed that moderately brief intervention is substantially better than none, and that full attendance is more than twice as likely than partial attendance to lead to abstinence. Of those who had stopped smoking by the first follow-up visit, 51% resumed smoking, and two-thirds of the relapses occurred in the first six months.

The second study compared three smoking cessation interventions administered by 26 general practitioners in Sydney. A total of 450 smokers were allocated to three study groups. The first group received the same structured behavioural change programme as in the first study, plus nicotine replacements, the second group received the programme alone, and the third received advice from general practitioners, with nicotine replacements. The abstinence rates at one year were 19%, 18% and 12%, respectively. Continuous abstinence during the first year was seen in 9%, 9% and 6% of patients. 48% of patients made an attempt to stop smoking and 89% reduced their cigarette consumption at some point during the study. Among the 132 patients who attended all scheduled visits, larger proportions were abstinent at one year (34%, 33%, 15%) than among the partial attenders (13%, 13%, 11%).

In the third trial - a field study in general practice - Richmond evaluated the extent to which general practitioners were using the structured programme for behaviour change, called Smokescreen, six months after attending a training

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workshop of two hours' duration. After the workshop, 168 general practitioners were randomly allocated to either follow-up contact or no contact. Reinforcement contact was conducted by a medical practitioner who visited the practice three weeks after the workshop to discuss use of the programme, and made follow-up telephone calls at five weeks and three months. A second medical practitioner conducted the evaluation. The reinforcement contact produced greater use of the programme among general practitioners at six months compared to those with no follow-up contact (84% vs 52%).

**Nurse-managed intervention in a hospital in the USA**

In a trial of nurse-managed intervention for smoking cessation in hospital patients who had had a myocardial infarction, a total of 173 patients were randomly assigned to either intervention or control group. The intervention by the nurse, which focused on preventing relapse to smoking, was initiated in hospital and maintained afterwards primarily through telephone contact. Patients were given a manual on identifying and coping with high-risk situations for smoking relapse. One year after myocardial infarction, the abstinence rate, verified biochemically, was 61% in the intervention group and 32% in the group given usual care. The authors concluded that the intervention significantly reduced smoking rates in patients who had had a myocardial infarction.

**Interventions by dentists in the USA**

In this study, 50 dentists in private practice in the USA were randomly assigned to four groups. All groups received a protocol for dealing with smoking patients and a lecture on the use of tobacco. One group of dentists received only the protocol and the lecture, a second group received the protocol and lecture and had nicotine gum freely available to give to their patients; a third group received the protocol and lecture and had counselling reminder stickers attached to their patients' cards; and the fourth group had the protocol, lecture, free nicotine gum, and reminder stickers. Only year later, the abstinence rates of patients treated by dentists in the four groups were 7.7%, 16.3%, 8.6% and 16.9%, respectively. Nicotine replacement therapy was associated with a significant difference between groups. However, dentists in these groups also spent longer in providing advice on stopping smoking.

**Comments**

**Generalizability of the results**

In most of the studies described here, the participating health care providers (general practitioners, nurses, dentists) delivered all intervention and control

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A question may be raised about the appropriateness of extrapolating results to the entire general practice population from a study conducted over a defined short time or with a small segment of the target population. One of the studies reported a 65% recruitment rate among eligible patients. The non-participants were similar to the recruited patients with respect to age, sex and cigarette consumption, thus reducing the possible selection bias and increasing the representativeness of the results.

There are many practical difficulties in conducting research in general practice and dentistry settings. Some general practitioners extended the stipulated time of brief interventions because they believed the patient required additional advice. Repeated failures and a low success rate led general practitioners to lose interest.

Patients' compliance

Patients also may not comply with study protocols. For example, Richmond et al. reported that less than one-third of patients attended all visits. Further, Russell et al. (footnote 2, page 186) reported that only 25% of smokers in the supported brief intervention group attended the smokers' clinic, although this low attendance rate could also be due to the general practitioner not handing patients the clinic referral cards.

There is no doubt that it is easier to change a person's smoking behaviour if the person is being treated in hospital for a smoking-related disease. The nurse-managers in hospitals achieved significantly higher abstinence rates among inpatients after myocardial infarction than was achieved in general practice.

What to consider in evaluation

To evaluate the role of health personnel in preventing tobacco use, the process outlined in Chapter 2 should generally be followed, and the information in Chapters 2 and 3 used whenever necessary. The following methodological and practical advice is specific to this chapter.

Expected outcomes of the programmes

The ideal outcome of programmes involving health personnel will be complete abstinence from smoking by former smokers from then onwards. Relapse, however, is frequent and other measures of intermediate outcomes may be needed.

Two important points should be considered:

- Follow-up intervals. A comparison of outcomes of different programmes involving health care personnel is difficult for a number of reasons. Different end-points are used for trials of smoking cessation programmes, although accepted practice in scientific journals is follow-
up for at least one year. Longer-term follow-up is rare, mainly because of the costs involved. One exception was a smoking cessation programme delivered by general practitioners in Australia which was assessed three years after the intervention.

• **Definition of abstinence.** Studies of smoking cessation programmes delivered by health personnel present abstinence rates in two ways. Most studies present data in terms of point abstinence, i.e. the rate of abstinence at a specific point in time. This rate does not account for duration of abstinence and does not indicate whether there have been lapses since the intervention. Long-term continuous abstinence rates are used by very few researchers. The continuous abstinence rate is always lower than the point rate. Presenting abstinence data in this way allows an understanding of the proportion of subjects who successfully maintain non-smoking over a period of time. Subjects lost to follow-up should not be discounted but should generally be considered as treatment failures. Reduction in consumption can be taken as a step towards cessation.

**Information required for evaluation**

Three basic research questions can be used in assessing the applicability of interventions by health personnel. These questions relate to evaluation of efficacy, effectiveness, adoption rates and penetration rates. Studies can be designed to answer one research question at a time.

• How are programmes evaluated among different health personnel in a field trial?
• What is the rate of adoption of programmes by health personnel and what is the role of reinforcement feedback after training?
• How can the cumulative effect of the intervention over time be evaluated within the context of general health activities?

**Evaluation of the programme**

Tobacco control interventions by health personnel are relatively costly, as a result of the expense of training and of the interventions themselves. Thus it is important that interventions are well evaluated, even if this requires a certain amount of effort. The evaluation should be integrated into the programme to ensure quality and to minimize its cost.

The relevance of the programme will depend on:

— how well it is tailored to the needs and behaviour of smokers;

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1 General information for evaluation and its sources are described in Chapters 2 and 3.
— how well the health personnel are trained in promoting smoking cessation;
— the costs involved (including staff time).

For example, relevance will depend on the type of personnel, their willingness, and the amount of time available for them to spend with patients. Consequently, a first step will consist of evaluating the attitude of the health personnel to counselling patients against tobacco use and how the programme is changing clinicians' behaviour towards patients who use tobacco. Clinicians' behaviour can be measured by observation in the clinical setting, chart reviews, exit interviews with patients, or special surveys.

A next step is to find out whether the programme will work in health care practice under the best conditions possible. Such a trial is referred to as an efficacy study. A related type of study is concerned to find out whether the programme works in practice and is used by many health care providers. This is referred to as an effectiveness trial. The results of an efficacy trial are likely to reflect internal validity since close control can be kept on the research protocols and the intervention delivered. An effectiveness trial, on the other hand, is more likely to have higher external validity as the results will be representative of the group under study. It has been suggested that, when conducting research in general practice, a small select group of general practitioners who are interested in research and prepared to keep to the study protocols is more likely to yield information about whether interventions actually work. The results of these trials can then be used to encourage others to take up the programmes.

A third step is to analyse the rate of uptake and adoption of programmes. This requires an implementation study, possibly also analysing the role of reinforcement after training. This sort of study follows logically from evaluation of the programme. It examines how the programme can best be disseminated to the particular target group that will provide the intervention.

Implementation evaluation will include measurement of the penetration rate. This is the extent to which the programme reaches and influences smokers in the health care setting. The concept of penetration is derived from the public health model and contrasts with approaches that evaluate only patients who choose to participate. The approach is based on the assumption that there is a group at risk within the population and that the intervention can be

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1 It has also been suggested that efficiency trials are those that randomize patients and effectiveness trials are those that randomize entire practices.

2 The penetration rate is calculated by dividing the number of smokers who participate or quit smoking as a result of a programme conducted in a general medical or dental practice by the number of smokers in the whole practice. An example of a study that has examined the penetration rate of a programme is that of Russell et al. (1988) (see footnote 3, page 186) who conducted six cross-sectional surveys over a 30-month period to estimate self-reported smoking prevalence.
regarded as successful if it penetrates and influences this group. Success is a function of the outreach of the programme within the study setting.

If effective programmes continue to be used, even with moderate success rates, there will be a cumulative effect over time in settings like general medical and dental practice. This approach also allows an estimate to be made of the participation rate of patients, which is missing from most studies in this area.

The outcome will be measured by the extent of participation in a programme, the extent to which patients who participate are representative (the possible effects on non-participants are also important consequences), and the number of patients who quit smoking.

**Indicators to support the evaluation**

**Background on health personnel**
- Have all health staff been encouraged to stop smoking themselves? Do working conditions for health personnel encourage abstention from tobacco use?
- Is tobacco control part of the normal training curriculum of all health personnel?
- Have skills for health promotion programmes been taught to undergraduate medical, nursing and dental students, as well as primary health care workers, in lectures and tutorials, and to health care providers in training workshops as part of continuing education? (See course programme in Box 3.)
- Are general practitioners, nurses, primary health care workers and dentists systematically encouraged to advise patients who smoke to stop?

**Planning the programme**
- Have programmes and materials been pre-tested in real situations? Has their uptake by health professionals been measured as a first step to assessing their relevance and adequacy?
- Have interventions delivered by doctors, nurses and dentists been studied in a variety of contexts, e.g. rural and urban? The focus of such studies may be to compare success rates when programmes are delivered by different health care providers, or to compare different techniques, e.g. nicotine replacement therapy.
- As patients seem to respond better to behaviour change programmes delivered when they are ill, are doctors and nurses encouraged to deliver routinely brief advice on stopping smoking?
- Have programmes been tailored to the specific needs of the local population of smokers and has financing been ensured in the medium term or even long term? Researchers should be encouraged to cost programmes delivered by health care providers. There is a need to provide
advice on how to calculate costs and benefits using standardized formulas so that programmes can be compared.

• Has the government considered offering financial incentives to health care personnel involved in interventions to stop smoking?

**Implementation of the programme**

• Does the government or private insurance ensure financial support to such initiatives? Does the system allow doctors to be financially rewarded for their involvement?

• Do the programmes developed for smokers take into account the time available to health care professionals? Evaluation should consider the appropriateness of programmes for health professionals, as well as the outcome. If there is limited time available, programmes should be brief and consist of few components.

• Have a policy and plan of action been developed by the employees of each surgery and health care clinic to provide a smoke-free work environment?

• Does the plan for a smoke-free workplace include posters promoting the policy of the clinic or surgery, relevant no-smoking signs, pamphlets on smoking cessation and help with quitting?

• Have incentives been developed to reward non-smoking and to enforce the policy of non-smoking?

• Have the population and the medical services been informed of the existence of the smoke-free environment?

• Does the plan include an honour board of names of patients who have successfully ceased smoking and have agreed to be named as an incentive to encourage patients to seek advice and help from their doctor to stop smoking?

• Does the plan include an evaluative component in which the smoking status of the patient population over a defined period of time (say six weeks) is ascertained before implementation of the non-smoking policy and plan? Is a follow-up evaluation planned of the success of the plan six months and one year later?

**Do health personnel have time to give advice on stopping smoking?**

(The following criteria may be used by health personnel in planning and giving advice on stopping smoking.)

*No time*

• Have I identified all the smokers in my practice?
• Have I given each smoker half a minute of advice on the dangers of smoking and the importance of quitting?
• Have I provided smokers with a self-help booklet that encourages quitting and offers advice and strategies?
• Have I made my surgery a smoke-free environment by displaying posters, by not allowing smoking on the premises, and by having self-help materials on stopping smoking readily available in the waiting-room?
• Have I encouraged smokers to return for more advice whenever they require it?

Ten minutes or less

• Have I ascertained the smoking status of each of my patients and recorded it in the patient's notes?
• Have I provided firm advice to stop smoking to all identified smokers?
• Have I personalized the health effects of smoking at clinically relevant opportunities such as with persons with smoking-related diseases and with pregnant women?
• Have I negotiated with each smoker a firm date to quit (within three weeks)?
• Have I encouraged smokers to seek alternatives and substitutes for smoking?
• Have I encouraged smokers to use the social network of family, friends and colleagues at work as support for quitting?
• Have I provided smokers with self-help materials (booklet, manual)?
• Have I invited patients back for a follow-up visit to discuss successes and problems in quitting?

Over one hour in multiple sessions

• Have I attended a training programme to learn about smoking cessation techniques?
• Am I aware of the motivational interviewing techniques to use with smokers who are ambivalent about stopping smoking?
• Have I asked smokers about their concerns about smoking and have I discussed individual reasons for change?
• Have I personalized the health effects of smoking as they relate to the smoker's own health risks so that they are powerful motivators for change?
• Have I negotiated with each smoker a definite date for quitting and encouraged non-smoking behaviour?
• Have I encouraged smokers to use the social network of family, friends or work colleagues as support during the process of quitting and in the maintenance of a non-smoking lifestyle?
Box 3. An outline for a course in “tobacco or health” for health care providers

Tobacco control: empowering the health professions

All over the world, the health professions often feel unprepared to take action to control tobacco. The following is an outline programme for a course that provides knowledge and motivation. Such a course will have to be adapted to suit individual situations and countries.

The basics
- The harmful components of tobacco smoke: nicotine, tar, potential carcinogens, carbon monoxide, irritants, asphyxiants, smoke particles
- Tobacco as an addiction: physical addiction (nicotine), and social/psychological addiction
- Smokeless tobacco (in countries where used): addictive aspects and harmful components
- Why people take up smoking: influence of family, peers, public, commercial promotion

Tobacco-related diseases
These should be emphasized in the teaching of the relevant departments and are briefly summarized below:
- Major killers: lung cancer, ischaemic heart disease, chronic obstructive pulmonary diseases (COPD) including emphysema
- Other cancers: larynx, pharynx, oral cavity, oesophagus, kidney, bladder, pancreas, cervix, and some forms of leukaemia
- Other cardiovascular diseases: stroke, peripheral vascular disease, aneurysm, cumulative effects with oral contraceptives
- Other respiratory diseases: predisposing factor for lower respiratory tract infections (all ages) and exacerbation of asthma
- Alimentary tract: peptic ulcer
- Reproductive system: reduced fertility, risk to fetus, low birth weight, increased perinatal mortality
- Smokeless tobacco and its effects: mouth cancer, mouth ulcers, gum disease, tooth loss
- Children and young people: chronic cough and sputum, acute respiratory illnesses, social consequences, passive smoking

Passive smoking
- Effects on children: increased rate of lower respiratory infections in infants, increased eczema and asthma in children, increased cot deaths, decrease in lung function, glue ear
- Effects on adults: lung cancer, increased severity of asthma, major vascular diseases

Benefits of quitting smoking
- Benefits of quitting smoking in reducing the risk of acquiring a disease, and benefits of quitting in patients who already have a disease
**Box 3. continued**

**The role of health professionals in ending the tobacco pandemic**

- At the national level: policy/legislation — history of local tobacco policy, advertising restrictions/bans, effectiveness of product/advertising warning labels, price policy, restriction of sales to minors, regulation of public smoking/clean indoor air, other legislation (fire safety, child protection, disability protection), enforcement of existing laws.
- In primary health care centres: positive health messages, messages countering tobacco use and promotion, involvement of ancillary personnel, cessation, behavioural treatments — sympathy, group therapy, behaviour modification, focus on sociocultural influences, pharmacological treatments.
- In the classroom (school-based education): health professionals' role in schools.
- In the community mass media — media corporations/advertising agencies, public service campaigns, media advocacy/news clippings, cessation campaigns.
- Research into smoking-related diseases and smoking prevalence, community-based research, monitoring of tobacco industry strategies, sociocultural research, consumer research.
- Workplace: health insurance coverage, voluntary versus legislated smoke-free policies, litigation against employers, employee incentive programmes, cessation services.
- Other community action: coalition building/networking, proactive, multilevel strategies.

- Have I provided the patient with specific strategies to identify and cope with high-risk smoking situations in order to reduce the likelihood of relapse?
- Have I dealt with the modification of other high-risk behaviour related to smoking — such as weight management, nutrition, exercise and stress management?
- Have I encouraged the patient with self-help manuals that provide additional strategies for cessation?
- Have I encouraged the patient to come for follow-up after cessation?

**Evaluating the programme**

- Have evaluation plans for the programme taken into account the possibility of relapse within the first year of abstinence? After delivery of health promotion programmes, it is important to measure the rate of relapse over time.
- Has evaluation been planned so that:
  — follow-up will be conducted no less than 12 months after the programme is delivered;
— abstinence will be presented as both point and continuous abstinence figures;
— whenever feasible, biochemical validation of self-reported abstinence can be carried out?

### Background reading


EVALUATING TOBACCO CONTROL ACTIVITIES


Kirstein MM. How much can business expect to profit from smoking cessation? Preventive medicine, 1983, 12:358-381.


Mattick RP, Baillie A. An outcome for approaches to smoking cessation: quality assurance in the treatment of drug dependence project. Canberra, National Campaign Against Drug Abuse, 1992 (Monograph Series No. 19).


Part 4

The use and effects of legislation

The measures described in Parts 2 and 3 can be implemented through legislation, regulations, voluntary agreements with the tobacco industry, or institutional policies. They can also be the result of contractual agreements. Strategies that use public funds — such as public information campaigns — are undertaken in accordance with a decision taken by a government, local authority or administrative agency and should therefore be considered as equivalent to a government policy decision.

In evaluating a law contributing to tobacco control, it is necessary to distinguish the effect of the substantive measures promulgated through the legislation from the effect of the use of legislation as a means of control. Some laws may be unsuccessful because they promulgate potentially ineffective tobacco control measures or because they do not suit the country or the circumstances. Others fail because they have been badly prepared, drafted, decreed or enforced. Enforcement and measures for the evaluation of enforcement should be an integral part of plans to enact and implement legislation. The present section deals with the “added value” given to tobacco control measures when they are promulgated through legislation. The focus is on evaluation of both the accuracy of the process that leads to adoption and application of the legislation and the effectiveness of the legislative provisions themselves.

The importance of tobacco control has led in the past few years to the enactment of national legislation on essential tobacco control measures. National legislation has been adopted on key issues such as tar and nicotine content, health warnings, and bans on advertising and promotion. In addition, state or provincial legislation and local ordinances have been enacted, notably on smoking in public places and in the workplace. Regional regulations have also been adopted. For example, the Council of Ministers of the European Union has provided a model for cooperative action by governments in approving provisions on tar content of cigarettes, labelling of tobacco products, prohibition of all forms of tobacco advertising and restriction of smoking in public places. Yet throughout the world there is still active debate on the need for legislation on tobacco use. In some cases governments have even been accused of trying to limit freedom by restricting the possibility of smoking.
Unfortunately, the empassioned argument about tobacco issues, often fuelled by the stupendous profits generated by tobacco trade and marketing, has led to a number of lawsuits challenging the validity of laws aimed at controlling tobacco use. The visibility these lawsuits receive, as much as their outcome, and the way in which they help define future concepts of tobacco control are further elements to consider in determining the effectiveness of legislation.
Adopting and evaluating legislation to control tobacco

Legislation, voluntary agreements and regulations

Government action to institute tobacco control programmes takes different forms. At national level the most common form consists of laws dealing with one or more aspects of smoking control. A few countries have also included protection of the population in their public health codes. At national level, decrees, ministerial orders and administrative regulations have the same force as the law. A growing number of subnational and local legislative measures are also enacted at state, provincial or municipal levels.

Legislation

In the national context, legislation may be essential to establish and promulgate public policy. Legislation can enlist the resources of all government departments for its implementation and mobilize means for its enforcement. It can strengthen the activities of voluntary organizations and citizens' groups, and can contribute to the development of a non-smoking environment. Important as legislation has proved to be in combating the tobacco epidemic, it should nevertheless be emphasized that the enactment of legislation is often a necessary but not sufficient condition for effective control of smoking and eventual reduction in tobacco-related diseases. Legislation is just one component of a comprehensive attack on the tobacco epidemic; others include preventive action, public information, educational programmes, smoking cessation interventions, outreach to high-risk populations, a tax and price policy based on health needs, economic strategies to decrease tobacco production, research on biological, behavioural, economic and social aspects of tobacco use, and monitoring of the effects of tobacco control strategies. For these important components of an anti-tobacco campaign, legislation is often an essential foundation.

1 Parts of this chapter are taken from: Roemer R. Legislative action to combat the world tobacco epidemic, 2nd ed. Geneva, World Health Organization, 1993.
Voluntary agreements

Despite the advantages of legislation, and particularly the advantage of putting government weight behind a non-smoking policy, some countries continue to rely on voluntary agreements with the tobacco industry. These agreements, sometimes referred to as codes of practice, establish principles by which the industry agrees, for instance, to certain restrictions on advertising or to placing health warnings on cigarette packages. Countries that still have agreements with the tobacco industry on one or more aspects of smoking control include Australia (at state level), Austria, Denmark, Sweden, Germany and the United Kingdom. A number of countries that once relied on voluntary agreements with the industry have rejected this arrangement and have substituted legislation as a more effective method of control. The most recent action of this kind was by New Zealand, which terminated its voluntary agreement with the tobacco industry and in 1990 passed the Smoke-free Environments Act.

Voluntary agreements are generally informal and, even if formalized, are easy to amend by a simple procedure of mutual agreement without involving legislators. Civil servants are often more involved in developing and adopting voluntary agreements than are politicians; amendments to voluntary agreements do not entail the same visibility as changes in legislation.

However, voluntary agreements are weak measures for controlling tobacco promotion. Agreements are complex and difficult to monitor. They are subject to differences of interpretation which hinder implementation. They take years to negotiate and leave the tobacco industry free to find loopholes in the agreement and to avoid the intent of the restrictions by sponsoring sports and cultural events, by introducing indirect advertising on television, and by putting brand names of cigarettes on other products.1

Regulations and voluntary policies

Regulations (prescribed rules in a given place and context) and voluntary policies are increasingly adopted by companies to enforce smoke-free workplaces and to protect themselves from potential litigation. Regulations are also used by airlines and transport authorities to ensure smoke-free travel and by private owners of public places such as restaurants to protect their clientele from passive smoking.

Regulations and voluntary policies assume an important role in the progressive development of smoke-free societies for two reasons. First, they promote non-use of tobacco as a social norm. Secondly, they are often easy to

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enforce because of the limited area to which they apply and because of personal contact between the policy-makers and the public.

Crucial to all forms of tobacco control — whether in the form of legislation, voluntary agreement, government regulation or private policy — is the extent to which the control is implemented. A country may have on its statute books a law that restricts smoking in public places but if it is not enforced, if the people do not obey it, the law is meaningless. Closing the gap between the letter of the law and its implementation in real life is essential if effective smoking control is to be achieved.

The position of WHO

Since 1976 the World Health Assembly has recommended that governments of its Member States give serious consideration to legislative measures (resolution WHA29.55). More recently, resolution WHA43.16 (1990) specified some of these measures. Other resolutions have addressed the issue of legislation on tobacco control and have been used by Member States to justify the adoption of such legislation.

The WHO Expert Committee on Smoking Control published its report *Controlling the smoking epidemic* in 1979. The Expert Committee described the main categories of smoking control measures as:

1. those leading to changes in practice among those engaged in the manufacture, promotion, or sale of cigarettes (e.g., restrictions on tobacco promotion, reduction in tar, nicotine, and carbon monoxide yields);
2. those leading to changes in practice among smokers (e.g., restrictions on smoking in public places).

The measures in the first category will almost invariably require legislation if they are to be satisfactorily implemented, while those in the second category may well be achieved through voluntary controls as public opinion comes increasingly to recognize smoking as a socially undesirable activity. They may, however, also require regulatory action — through by-laws, for example.

In 1983, the WHO Expert Committee on Smoking Control Strategies in Developing Countries went even further and emphasized that:

It may be tempting to try introducing smoking control programmes without a legislative component, in the hope that relatively inoffensive activity of this nature will placate those concerned with public health, while generating no real opposition from cigarette manufacturers. This approach, however, is not likely to succeed. A genuine broadly defined education programme aimed at reducing smoking must be complemented by legislation and restrictive measures.
Political action and legislation

Popular support

Within a democratic legal system, the passing of legislation on tobacco control requires widespread public support. Prerequisites for this support are appropriate public information and education and a good knowledge by most people of the health risks associated with tobacco use. However, this in itself is not enough as the public has to be motivated to put pressure on government and legislators who, in turn, may be lobbied by the economically powerful tobacco companies or by other business groups with a vested interest in the legislation. Churches, charities and individual celebrities will also have a role to play in increasing pressure for the adoption of legislation.

The level of popular support for a law will strongly determine the nature of the law. It is for this reason that advocacy should be used at all levels. National governments and provincial administrations are most often approached, but in certain cases (and for certain measures) advocacy at the municipal level may prove most effective. Municipal approaches to tobacco control can build on the climate of acceptability. Smoking control by-laws, licensing of tobacco retailers, and the elimination of tobacco vending machines and point-of-sale advertising should be elements of municipal public health regulations.

Popular support will have to be organized to apply additional pressure for new legislation or for strengthening existing laws. In a number of countries, the activities of anti-tobacco coalitions lobbying for specific laws or comprehensive legislation have been a key element in getting the legislation passed. Furthermore, an active executive branch, and particularly an aggressive approach by official agencies, places additional political pressure on the legislature to act and often provides the necessary ammunition for legislators to sponsor the legislation. Strong local regulations also contribute to a new tobacco-free social norm that facilitates the enactment of statewide tobacco control legislation.

National political will to pass laws on such a politically and economically controversial issue as tobacco control is considerably strengthened by the commitment of international agencies such as WHO. During the past few years, expert WHO opinion and WHO policy recommendations have been used to justify action on health grounds and to support legislation.

Most of the above factors can be observed in the multifaceted campaigns that preceded the enactment of the New Zealand Smoke-free Environments Act. The essential components of the New Zealand campaign were: the international scientific evidence and the estimates of mortality in New Zealand caused by active and passive smoking; advocacy groups supported by established health charities and the health professions; conscientious and dedicated health department officials; a committed Minister of Health; and a relative lack of reaction from the tobacco industry.
Practical examples

Evaluation prior to introducing legislation in South Africa

Evaluation may be necessary not only for assessing the impact of legislative changes but also to lay the groundwork for appropriate and politically acceptable legislation.

The purpose of the survey carried out in South Africa in 1992 was to elicit the opinions of a representative sample of adults about the effects of smoking on health and their attitudes towards tobacco control. A national representative sample of adults was selected using a multistage cluster sampling method of 2006 households. The final sample adequately represented all sectors of South African society: 75% of the respondents were black and 55% were women. While 61.1% of blacks and 58.2% of Asians were non-smokers, 52.1% of people of mixed race were current smokers and 73.8% of whites were ex-smokers. The majority (69.5% of smokers, 79.7% of non-smokers and 77% of ex-smokers) acknowledged the harmful effects of direct smoking. Attitudes to passive smoking were similar.

Seventy-five per cent of participants felt that tobacco sales to minors should be banned and 55.8% felt that taxes on tobacco products should be increased. There was substantial opposition to measures prohibiting tobacco companies from sponsoring sporting events. This was at a time when South Africa's international isolation was starting to be broken and sport was a leading point of contact with other countries. Most respondents felt that tobacco advertising should be banned on television (59.7%), on radio (60.1%), in newspapers (58.4%), on billboards (58.7%) and in cinemas (59.3%). A majority of both smokers and non-smokers supported these measures. The results indicated wide public support for the introduction of more extensive tobacco control measures than were actually introduced in March 1993. It may thus be possible to strengthen the legislative basis for tobacco control in coming years. Evaluation will be carried out later to assess the impact of this legislation.

Strengthening existing legislation in England, Wales and Scotland

Since 1904, an Act of Parliament has made it illegal to sell cigarettes to anyone under 16 years in the United Kingdom. This Act was revised in 1933, 1963 and 1986 but throughout its existence cigarettes were being sold to children. In 1988, although there were only 29 prosecutions, some 250,000 children were illegally sold cigarettes each week. Numerous surveys have showed that, for about three-quarters of smokers under the age of 16 years, shops were the main source of cigarettes. Enforcement was a problem because:

- it was not clear who should enforce the legislation (police or local authorities).

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- the fines for vendors were very low;
- young people who appeared to be over 16 years could be sold cigarettes and there was no means of proving age.

In December 1989, Parents Against Tobacco (PAT) was created and for one year lobbied for substantive revisions to the Act. PAT was launched by 100 famous parents as founding members. They represented the arts, health, business, sports, education and the media. PAT included all vice presidents of political parties, a campaign team from Citizen Action, an advisory group, and local committees. It raised funds and was launched with a large press conference. It campaigned for action on a series of issues, such as: illegal sales to minors; a ban on vending machines accessible to children; higher maximum fines for selling cigarettes to people under 16; elimination of the practice of selling single cigarettes; financial support from industry for the prevention of smoking by young people; and further controls on advertising, promotion and sponsorship by tobacco companies.

The outcome was a parliamentary Private Member’s Bill which resulted in substantive revision of the Children and Young Persons (Protection from Tobacco) Act. The main provisions of this revision were as follows:

- It clarified who was responsible for enforcement of the law by placing a duty on local authorities. One tier — the county council or its equivalent — must review the supply of cigarettes to under-16s at least once a year and consider how and when to enforce the law. This review process must be referred to in the annual reports of the county council. Local authorities now have the power to act in enforcing the law; the decision to enforce the law or not remains discretionary.
- It raised fines on vendors making illegal sales from a maximum of £400 to a maximum of £2500.
- Selling cigarettes to any young person under 16 was made illegal, closing the loophole of “apparent” age.
- The sale of single cigarettes to anyone, including adults, was made illegal. The maximum fine for selling single cigarettes to a child is now £3500.
- It established controls on sales from cigarette vending machines. If evidence can be produced that anyone under 16 years old has bought cigarettes from a vending machine, the magistrate can order removal of the machine.
- It made it compulsory for notices to be displayed at point of sale stating that it is illegal to sell cigarettes to under-16s. These notices also apply to vending machines.

Comment

The PAT action was effective in getting the Act revised and in creating awareness of the need to enforce it and abide by it. Opposition to the revision was neutralized by designing the legislation as an enabling act, making implementation discretionary for the local authorities. It is an example of the development of action by a specific interest group — parents in this case.
Assessing the “added value” of legislation

Legislation is crucial in establishing official policies. It is also indispensable to clarify policy for all groups concerned with tobacco control, governmental or not. Legislative and restrictive measures to control smoking entail some costs though those are relatively low — the cost of the education and information programmes that usually accompany legislative measures, or the cost of campaigns. In contrast, the savings in terms of mortality, morbidity and long-term economic cost to the community can be immense.

Legislation will be effective only if it has appropriate popular and political support, and if it is correctly drafted, strictly enforced and continually monitored. The three main focuses for evaluation of legislation to control tobacco use are:

— the issues raised during preparation for legislation and while it is being discussed by the legislative assembly;
— the implementation and immediate impact of the legislation (and concomitant publicity);
— the long-term effect of legislation as part of a smoking control programme.

Analysing the alternatives

Assessment of the value added to tobacco control measures by the use of legislation should start with a general comparison of the legislative mechanism with other potential means of control (at national or local level). A number of such comparisons have already been done with one of the most common alternatives — the voluntary agreement.

The first argument offered in favour of the voluntary agreement is its simplicity. However, this very simplicity does not give enough publicity or visibility either to the negotiators or to the process of negotiation so that the agreement risks being ignored not only by the public but also by sectors of the government. For example, in the United Kingdom, the Department of Health and Social Security negotiated an agreement with the tobacco industry which provided, among other things, that advertisements should not imply that smoking is associated with success in sports. Yet another agreement of the tobacco industry with the Department of the Environment provides for sponsorship of sports by the industry.

Secondly, the benefits of self-regulation will only be realized if the procedures adopted are effective. This depends to a great extent on the degree to which the tobacco industry cooperates with the government in carrying out both the letter and the spirit of the agreement. Because of loopholes, the spirit and even the letter of the agreement may often not be observed.

Again in the United Kingdom, agreements are negotiated in private, so that the public does not know how the tobacco industry resists proposals
for meaningful restrictions but sees only the final agreement. The length of time required for negotiating with different government departments may give the industry the opportunity to erect billboards or to install shop advertising before new restrictions take effect. Most importantly, the agreements are not enforceable. Spending more than 100 million pounds a year in the United Kingdom on tobacco advertising, the tobacco industry obtains two advantages from voluntary agreements — the agreements stave off the enactment of legislative restrictions that are enforceable, and they create the impression that the industry is cooperating with government as a responsible partner in addressing public concerns. Yet monitoring and evaluation studies during recent years have shown breaches of the agreement and defects in its application.

The question that needs to be asked is: why have a voluntary agreement for tobacco control when there is legislation for other similarly important lifestyle (or life-saving) concerns such as the wearing of seat-belts in cars or the age limit for the consumption of alcohol? Tobacco is the only product that, used as intended, kills one-third of its consumers; negotiating with an industry on a matter of life and death may give the government a poor image.

Conversely, national legislation may not be necessary for the implementation of local measures. Municipal ordinances, for example, may combine the advantages of rapidity, simplicity and efficacy. If well planned, they may have as much impact as more cumbersome national measures.

**Evaluating the preparation and adoption of a tobacco control law**

The stage of preparation, lobbying and publicity for the introduction of a tobacco law is important for a number of reasons. During this stage, information on tobacco or health issues is disseminated and efforts are made to muster wide popular and political support. This preparatory stage stimulates consultation and negotiation between interested parties (often of diverging opinions) and thus helps to ensure that the law is complete. It may even facilitate implementation of the law by informing the public of the issues involved.

To evaluate this preparatory phase, the following questions may be asked:

- Have all aspects of the tobacco control policy been worked out so as to support the future law with appropriate information and education measures? Have the key determinants of successful tobacco control laws in other countries been analysed?
- Is the proposed law relevant in view of the needs of the country (socio-economic background, customs, etc.)?
- Have all concerned parties (health departments, other government agencies, major voluntary health associations, medical societies, consumer associations, churches) been involved in preparing the ground for the law? Have professional lobbyists been involved? Has a coalition been formed?
PART 4. THE USE AND EFFECTS OF LEGISLATION

• Has the national legislation been preceded by local measures to create wide acceptance among the population?
• Is the action for the adoption of the legislation led by legislators who are committed to the cause at sufficiently high levels of authority?
• Are the risks to health related to tobacco use the centre of the debate? Is there sufficient focus on these risks to avoid the tobacco industry shifting the debate from public health to other issues such as personal freedom?
• Are the media involved?
• Have efforts been made to try to work out a national consensus?

Evaluating the implementation of the law and its enforcement

Laws are normally implemented in one of two ways: spontaneous compliance (which requires popular support) and appropriate coercion (including surveillance and enforcement). Since tobacco use is still socially acceptable in most societies, although less so than in the past, educational measures will probably be needed to improve compliance. If voluntary compliance fails, then enforcement, with civil or criminal penalties, will be needed. To evaluate the adequacy of overall implementation and specific enforcement measures, the following questions may be asked:

• Has the law been well publicized through the press? How have those concerned been informed? Has the support of major NGOs or voluntary organizations been ascertained?
• Have implementing instruments been issued for all the provisions of the law?
• How is enforcement planned? Who is responsible for enforcement? Have resources been put at the disposal of those in charge of enforcement for that purpose?
• Are the penalties sufficiently dissuasive?
• Is compliance generally readily obtained? Is the law generally respected?
• How many cases of violation have been reported? Are these cases prosecuted? Are civil or criminal penalties imposed?
• Would the same results be obtained without legislation?

Background reading


Health or tobacco. *An end to tobacco advertising and promotion*. Wellington, Toxic Substances Board, 1989.


Litigation, the invocation of judicial action, may be based on laws, regulations or the need to redress the wrong done to the health of an individual. A variety of lawsuits have been brought on behalf of smokers, smokers' families or smoking-afflicted non-smokers. These lawsuits have involved governments, private citizens, NGOs and tobacco companies. The main interest of this litigation is the publicity generated through the media and the opportunity created to advertise the ill-effects of tobacco use and the strategies of tobacco companies. Such publicity may often be achieved at international level even though judicial systems differ and the results of litigation in one country are not transferable to another.

A first wave of product liability litigation against tobacco companies in the USA began in the late 1950s and petered out by the early 1970s. The conventional wisdom among attorneys was that lawsuits brought against tobacco companies could not succeed. Lawyers and plaintiffs could not match the resources expended by tobacco companies. In France in the late 1970s some NGOs endeavoured to force the application of the advertising ban foreseen by the *Loi Veil* of 1976; however, the resources of the tobacco control advocates were once again soon exhausted and the legislation was not properly enforced.

Since the late 1980s the situation has varied in different countries. A clearer picture has emerged of the legal issues, public perception and tobacco industry tactics. Legislative development worldwide has drawn the attention both of justice officials and of the public to the dangers of tobacco use which have been repeatedly confirmed by scientific evidence. Consequently the number of litigation cases has increased and they are usually based on concern for health.

The question of legal costs remains. The high cost of legal proceedings often proves to be the ultimate barrier when some form of public interest litigation is being considered. The cost of litigation is generally beyond the means of most individuals or community organizations (even with legal aid

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1 Certain elements of this chapter have been taken from material prepared by Richard A. Daynard, Professor of Law, Northeastern University School of Law, Boston, MA, USA, and Chairman, Tobacco Products Liability Project.
schemes that take account of the special features of public interest litigation). In the USA, contingent fees are permitted, which may even prove profitable for attorneys when, and if, product liability suits begin to be successful. Even when the legal costs of successful litigants are reimbursed, these usually fall short of the expenses actually incurred. In certain circumstances, public collections, often organized or supported by tobacco control advocacy groups, are made to contribute to the costs of private litigation. This has been made possible by the increase in anti-smoking sentiment in most societies.

What types of litigation?

Different circumstances have given rise to different types of litigation. The purpose of briefly enumerating some of them is to show how to make the best use of these painful circumstances to further the case for a tobacco-free society.

Cases involving tobacco companies against government decisions

One of the most famous cases is the effort of the Canadian tobacco industry to have Canada’s tobacco advertising ban declared to be in violation of the free speech provisions of the Canadian Charter of Rights and Freedoms.

One measure of the likely effectiveness of the Tobacco Products Control Act may be seen in the strenuous efforts employed by the tobacco industry in opposing it and in seeking to minimize its impact. Even before the Act had come into effect, the three largest tobacco companies had launched separate legal actions to have the law revoked.

The Government made the defence of this case a high priority. The core of the Government’s position was that banning tobacco product advertising represented a “reasonable limitation” on freedom of speech, as provided for in the Canadian Charter.

Despite the presentation of considerable evidence to the contrary, the judge in the court of first instance concluded that the control of tobacco advertising and labelling was not a public health measure but an unfair restraint of trade. At a higher level, however, a panel of three more senior judges, in January 1993, ruled that the law was valid.

The legal proceedings commanded widespread press coverage, bringing to light previously confidential tobacco company marketing documents that the government had obtained and presented as evidence.

The tobacco companies asked for permission to appeal against the decision before the Canadian Supreme Court, which is the highest court in the land. In 1995 the Supreme Court ruled the law to be invalid. However, the law was in force and was effective for several years while the matter was under appeal. The Canadian Government is now considering new legislation to replace the former Tobacco Products Control Act.
Cases involving tobacco companies and NGOs

Such cases have been brought by both parties. Tobacco companies have brought lawsuits against NGOs in various circumstances in an attempt to prevent anti-tobacco campaigns or publication of health evidence. For example, a tobacco company's beer subsidiary brought a trade infringement suit against Doctors Ought to Care for selling T-shirts ridiculing a promotional event; the Swedish tobacco industry tried to get the legal ombudsman to suppress the clever and effective "Smart promotion" booklets distributed by private and government agencies; and the Dutch tobacco industry tried to force health groups to apologize for suggesting that second-hand smoke is dangerous.

NGOs, on the other hand, have been instrumental in trying to protect the provisions of legislation in a number of countries. The French anti-smoking body, the Comité national contre le Tabagisme, has played this role with regard to indirect tobacco advertising.

Cases involving private individuals against tobacco companies

These cases are generally product liability suits. Lawsuits are being actively pursued against cigarette manufacturers in the United States, Canada, the United Kingdom and Finland, seeking compensation for ailing smokers or their surviving relatives. Smoking control groups in several Asian and Pacific countries, as well as in Europe, are also considering bringing such actions. The suits allege that tobacco products are unreasonably dangerous in that their risks exceed any possible benefits, that the manufacturers have failed to give full and undiluted warnings, that they have lied about the dangers and that they have failed to pursue safer product designs.

As soon as one smoker receives compensation from a tobacco company, every other victim becomes a potential claimant. As soon as one plaintiff's attorney in one country proves money can be made by suing tobacco companies, all plaintiffs' attorneys within that country and in other countries will also be encouraged to try. Indeed, developments in individual cases have resulted in 5-10% increases or decreases in the value of tobacco stocks in the USA.

Also worth noting is the action suit brought in the Philippines in 1987 by five attorneys and their families, seeking to force the domestic licensees of foreign tobacco companies to put the same labelling on the cigarettes in the Philippines as they do in the USA, and to remove their advertising from radio and television as has been done in the United States.

Workplace and compensation cases

Compelling evidence that environmental tobacco smoke causes lung cancer and other diseases, as well as increasing sentiment in many countries that cigarette smoking imposes an unreasonable risk on non-smokers, have given impetus to passive smokers to bring claims before the appropriate jurisdiction.
Lawsuits have been brought by non-smokers, either to obtain recognition of their right to a smoke-free workplace or to obtain compensation from their employers and their insurance companies for injuries done to them by second-hand smoke.

Cases ordering employers to provide smoke-free workplaces for non-smoking employees are now generally successful, despite some recent setbacks in Japan.

Litigation brought by adversely affected non-smokers seeking financial compensation from their employers has been based on a wide variety of legal premises, including negligence and compensation statutes. Court decisions have also protected people who complain about second-hand smoke from retaliation by their employers.

Evaluating the use of litigation

There has been no scientific evaluation of the use of litigation in furthering tobacco control in different societies, nor has any method been developed to do this. Yet, in reading the newspapers, in looking at the increasing prevalence of tobacco-free public places, and in reviewing the evolution of other tobacco control measures, it is evident that litigation has contributed to improving the situation.

It would be simplistic to consider the amounts received in compensation and the minimization of legal expenses as the main positive outcomes of litigation. Some cases that have yielded no financial rewards have enabled tobacco control to progress one step further.

While no formal evaluation methods can be suggested, the following issues can be reviewed when considering the usefulness of litigation for tobacco control.

Public information and health promotion

Litigation focusing on tobacco use and its consequences has provided tremendous opportunities to publicize information on tobacco-related diseases, dependence on nicotine, smoking cessation advice and the strategies of the tobacco industry.

The media may prove to be more interested in and ready to publicize litigation cases with a touch of scandal, or those full of revelations, than the sometimes dull messages of public health. Litigation has provided an opportunity for public information — for instance by releasing tobacco industry documents revealing how their marketing devices are sometimes aimed at children and how they have undermined smoking control efforts, or revealing the full extent of the advertising efforts of the tobacco industry (US$700 000 spent per hour, 24 hours a day, 7 days a week, 365 days a year on cigarette advertising in the USA alone). Compensation cases receive local coverage while cases such as...
those on sales to minors can receive substantial national news coverage and may also be covered in the retail trade press.

**Workplace effects**

While cases brought by private individuals against employers have resulted in substantial financial settlements and practical advantages for afflicted non-smokers in many countries, at least equally important is the fear of such litigation which has helped influence employers to ban or limit smoking in the workplace.

Most countries have legislation protecting the health of workers and making it a duty of the employer to provide a safe working environment. It is under such laws that workers have begun to sue their employers with claims relating to passive smoking. In addition to gaining visibility in the press, such lawsuits are increasingly perceived by employers as a push to ensure tobacco-free workplaces and to help employees who smoke to change their behaviour. Considering that many people spend a large proportion of their time in the workplace, the banning of smoking there has tremendous potential for preventing tobacco-related diseases.

**Improving the effectiveness of the laws**

Litigation may point to a lack of legislation on essential issues or to loopholes in the law, or to practical ways of developing legislation further and enforcing it more effectively.

A case in Finland, filed in 1988 by a person with cancer of the throat against the Finnish affiliates of international tobacco companies, has led to the passage of the first legislation anywhere in the world that explicitly recognizes the right of people with a tobacco-related disease to sue cigarette companies.

Lawsuits on indirect advertising under the 1976 French law have led to improvement in the text of the 1992 Loi Evin. Other measures have been strengthened, such as stricter controls on sales to minors. Cases such as that in the Philippines may bring tobacco product manufacturers to make health warnings and statements of tar and nicotine levels in all countries consistent with those in the USA and western Europe.

**Reactions of the tobacco industry**

The energy and resources expended by the tobacco industry in defending lawsuits (or in taking legal action against others) are an important evaluation indicator of the significance of lawsuits, as are the attempts to settle out of court.

Tobacco companies are now having to set aside millions of dollars for potential litigation. While the tobacco industry can currently sustain a few
hundred legal cases and pay a few million dollars in damages, the situation could be quite different if the number of lawsuits were to increase to thousands. Even more modest scenarios could adversely affect the industry's operations. Substantial expenses have to be passed on to consumers. In the USA, one round of price increases for both cigarettes and smokeless tobacco has already been attributed to the companies' attorneys' fees.

The tobacco industry has shown an extraordinary ability to deflect, neutralize or at least blunt the most pointed and promising public health campaigns directed against it and its products. However, since the stakes in human life, health and freedom from tobacco dependence are so high, every promising avenue for reducing smoking and protecting potential victims must be used.

While the cost of lawsuits may represent an obstacle for many pro-health organizations, the recent trends in financial support by governments or government agencies and the extraordinary international solidarity shown by tobacco control advocates throughout the world brings tobacco litigation within reach. A more specific evaluation of the role of litigation may show that it is a cost-effective measure for tobacco control.

**Background reading**

*Aho v. Rettig Oy and Suomen Tupakka Oy*, 5.1 TPLR 2.4, 5.3 TPLR 2.119, 1990.


### SELECTED WHO PUBLICATIONS OF RELATED INTEREST

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<th>Title</th>
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<td>Smoking control strategies in developing countries. Report of a WHO</td>
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<td>It can be done: a smoke-free Europe. Report of the First European</td>
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<td>Report Series, No. 792, 1990 (105 pages)</td>
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<td>The health of young people: a challenge and a promise. 1993 (119</td>
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Further information on these and other WHO publications can be obtained from Distribution and Sales, World Health Organization, 1211 Geneva 27, Switzerland.

* Prices in developing countries are 70% of those listed here.
The global toll of death and disability related to smoking is enormous. Use of tobacco contributes to lung cancer, chronic bronchitis, emphysema, heart disease, stroke and many other conditions. Because of the distress and suffering tobacco use causes, many countries have made efforts to limit the availability of tobacco and reduce its use. Just how effective have those efforts been and what does experience teach us regarding control of tobacco use in the future?

This book faces up to the difficult issue of tobacco control, how best it can be achieved and what its effects are likely to be. The book describes various approaches to control, illustrating them with examples from a wide range of countries, and focuses specifically on how these approaches can be evaluated. This is not an attempt to identify an approach that will succeed everywhere. Different approaches work best in different places. Rather, it is a guide to finding out just how well a tobacco control approach works in a particular situation, how it can be improved and how other approaches can complement it.

This guide to evaluation cuts through the complexities of national and international economics, trade, advocacy and legislation to lay bare the core issues that need our attention. It is a valuable resource for all who are concerned to prevent the damage that results from tobacco use.

Price: Sw. fr. 60.—
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