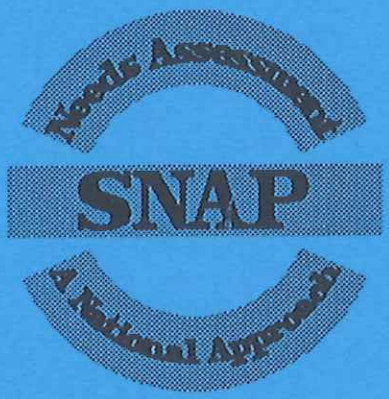
Scottish Needs Assessment Programme



Tobacco

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Health Promotion Network

Tobacco

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This Report has been distributed to the General Managers and Directors of Public Health of Scottish Health Boards and further copies are obtainable from Jacqueline Gregan, Scottish Forum for Public Health Medicine, 69 Oakfield Avenue, Glasgow G12 8QQ, to whom the evaluation sheets should be returned.

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CONTENTS

EXECUTIVE SUMMARY

Cigarette smoking is the largest single preventable cause of illness and early death in the United Kingdom. The key aspects of a health promotion strategy relate to preventing people taking up the habit in the first place and to encouraging and enabling smoking cessation in those who already indulge.

This report outlines the adverse effects of tobacco on health and examines current methods used to tackle the problem with an assessment of effectiveness of these methods referring to the current information available. Consideration is also given to economic implications, including costs and benefits and also suggestions are made for possible outcome measures. Recommendations are made with regard to the future purchasing of services.

Gaps in present provision and priority action areas for future work are identified:

- policy development and fiscal requirements in relation to advertising, sale of cigarettes to under-age children and action to create smoke-free environments
- education and training of health professionals to support good health promotion practices
- local action to promote no smoking environments in the workplace
- recognition of the particular problems of tackling the smoking problem among low income groups and in areas of deprivation
- further research required
- improved data and information required

RECOMMENDATIONS

These recommendations are in substantial agreement with those outlined by the Health Education Board for Scotland in *Towards a non-smoking Scotland: a strategic consultation document.*

At national level Government should:

- introduce a ban on all tobacco advertising and promotion
- develop legislation for smoke-free environments
- develop a national strategy on smoking
- ensure implementation of the law regarding sale of tobacco to children
- monitor progress towards achievement of smoking targets and publish results regularly

At local level purchasing organisations should:

- develop and implement local strategies on tobacco and smoking as part of their overall health promotion strategies, set targets based on local data, monitor progress and publish regular reviews
- collaborate with local authorities, voluntary organisations and others in developing, implementing and publicising their local strategies, encouraging public participation and promoting local alliances for health
- ensure that local strategies address the needs of specific groups such as women with young children, teenagers, pregnant women who are smokers, ethnic minorities and people with low income
- ensure that they have policies on smoking for their own premises, staff, patients and visitors and that they continuously review and develop these policies
- include in contracts with provider organisations a requirement to address smoking as part of health promotion and lifestyle consideration. This should encompass both patient education and staff health promotion to ensure a healthy living and working environment and project a health promoting image to the general public through contact with the media and other organisations - that is, develop the concept of the health promoting hospital

Provider organisations should:

- establish and continuously review policies on smoking for their own premises, staff, patients and visitors
- provide appropriate patient education and support for patients wishing to stop smoking
- provide support, resources and help for staff who wish to stop smoking

General Practitioners should:

- within the new health promotion arrangements ascertain smoking status as the first step in a range of possible actions
- ensure that appropriate advice and counselling is offered to patients
- offer more intensive interventions through follow-up appointments for those smokers who wish to give up
- develop the role of the practice nurse (or other appropriate member of the primary care team) to provide more intensive follow-up for smokers
- collaborate with local health promotion departments and primary care facilitators in developing simple protocols on education and cessation which can be integrated into routine practice

1 INTRODUCTION

Cigarette smoking is the largest single preventable cause of illness and early death in the United Kingdom. The key aspects of health promotion strategy relate to preventing people taking up the habit in the first place and to encouraging and enabling smoking cessation in those who already indulge.

For those who smoke, the most advantageous time for providing advice appears to be when a health problem results directly or indirectly from smoking (Warner 1983). It is widely known that tobacco by-products, resulting from cigarette smoke, cause serious health outcomes as well as resulting in strong addictive behaviour. Although having the knowledge about adverse effects, people continue to smoke and the process of cessation is, therefore, not just education, but the more difficult task of facilitating behaviour change.

With increasing awareness that smoking patterns are often learnt in the school years, there has been a concerted move towards enabling children to resist taking up smoking, thereby avoiding the later symptoms of addiction. The growth of movements such as "Smokebusters" is based on peer pressures not to start smoking. However, it will be some time before we are able to see the longer-term implications of this type of behavioural approach.

The issue of passive smoking provides a strong basis for implementing smoking policies to protect the non-smoker.

Approaches to extend environmental protective measures to public places such as buses, restaurants and the workplace have important public health implications in relation to "where people smoke" as well as "how often they smoke".

Ambitious national targets have been set for Scotland to reduce the prevalence of smoking - that is, - "30% reduction in number of smokers aged 12 to 24 between 1986 and the year 2000 and a 20% reduction in number of smokers aged 25 to 65 between 1986 and the year 2000" (SOHHD 1992). To achieve these targets will require a co-ordinated effort between Health Boards and other local and national agencies.

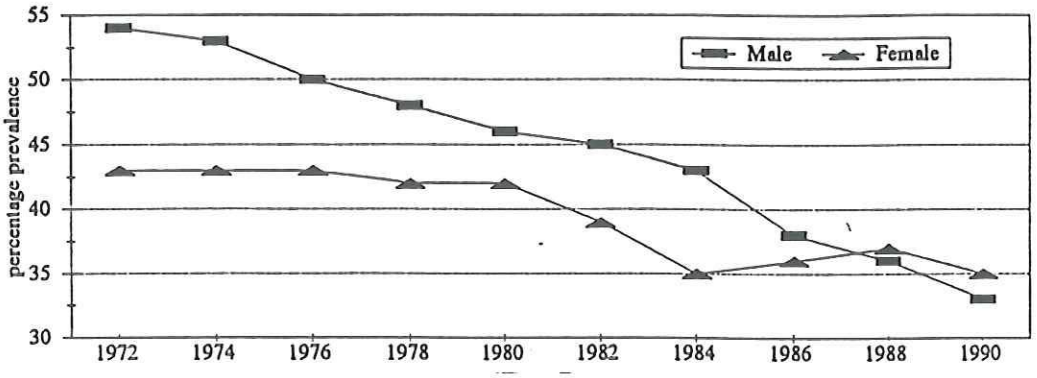
This report on Tobacco focuses on the continuing need to raise awareness throughout the population. It provides an overview of support services and the variety of delivery techniques available to facilitate cessation. Economic implications including costs and benefits and outcome measures provide a basis for recommendations for purchasing.

2 EPIDEMIOLOGY

2.1 Smoking Prevalence in Scotland

2.1.1 The most recent figures available from the General Household Survey (OPCS) refer to 1990 when 33% of adult males (over 16 years) and 35% of adult females smoked (Scottish Health Statistics 1992). In young adults (16-24 years) the corresponding figures were 28% of males and 38% of females. The level of smoking in Scottish males (over 16) has steadily declined since 1972 (see Figure 1) but in women (over 16) there was an increase between 1984 to 1988. Smoking prevalence has always been higher in Scotland than in England for both genders. The percentage of each gender described as heavy smokers (more than 20/day) has fallen between 1975 and 1990.

Figure 1
Prevalence of smoking in Scotland age 16+ by sex, 1972-1990



2.1.2 A study of health behaviours in Scottish schoolchildren in 1990 showed that the proportion of current smokers increased from 5% at 11 years to 20% at 15 years (RUHBC 1990).

Table 1
Smoking behaviour in Scottish children

Age (years)	Ever smoked	Current smokers
11	16.0%	4.9%
13	38.8%	13.1%
15	52.1%	20.1%

Table 2
Frequency of smoking tends to increase with age

Age (years)	Non-smokers	Smoke < weekly	Smoke weekly	Smoke daily
11	95.1%	2.6%	1.4%	0.9%
13	86.9%	4.7%	3.3%	5.1%
15	79.9%	3.5%	3.4%	13.2%

Smoking prevalence among secondary school children in Scotland has changed little between 1982 and 1990 and is higher than in England and Wales (Amos and Hillhouse 1992). There is concern that a large number of children who smoke will continue smoking into adult life.

2.2 Lifestyle Surveys

2.2.1 Adult lifestyle surveys (16 years and over) provide information on smoking prevalence in individual health boards. Comparative figures for four health boards are shown; in all of these prevalence in men is higher than in women in contrast to the OPCS figures.

Table 3
Smoking Prevalence in Four Health Boards

	All Scotland (OPCS)	Argyll and Clyde (18 yrs+)	Dumfries and Galloway (18 yrs+)	Forth Valley (16 to 74 years)	Lanarkshire (18 years+)
Males	33%	35%	30%	42%	37%
Females	35%	33%	25%	41%	33%

Differences between boards have to be interpreted with some caution because of lack of standardisation of questions and slightly different denominator populations used in the different surveys.

2.2.2 Several health boards have also carried out lifestyle surveys of young people in schools (under 16 years of age) and the results from three boards indicate that nearly 20 per cent of boys and approximately 25 per cent of girls aged 14 years (S3) currently smoke cigarettes.

Table 4
School pupils who admit to smoking occasionally (some days) and regularly (every day)
(figures are combined as a single percentage)

	Male			Female		
	Argyll & Clyde	Forth Valley	Grampian	Argyll & Clyde	Forth Valley	Grampian
S1	7	3	5	15	3	4
S2	-	6	10	-	10	13
S3	20	17	17	30	20	27
S4	-	24	24	-	29	33

2.3 Health Implications of Smoking

2.3.1 Smoking has been identified as the single most common preventable cause of morbidity and mortality in Scotland and throughout the developed world.

2.3.2 The relationship between cause and effect is most clear-cut in the pathogenesis of lung cancer; smoking is known to be responsible for more than 80% of deaths from this condition. Scottish women have the world's highest mortality rate from lung cancer; the rate in men is second only to Belgium. Other

major causes of morbidity and mortality where smoking is implicated are chronic bronchitis, emphysema, coronary heart disease (particularly in populations such as Scotland's where the mean level of serum cholesterol is high), hypertension, cerebro-vascular disease and peripheral vascular disease. Smoking is a major aetiological factor in cancers of the mouth, larynx and oesophagus. The incidence of a number of other cancers eg of uterine cervix, bladder, pancreas and kidney is greater in smokers. Smokers are more prone to develop peptic ulcers, aortic aneurysms and osteoporosis. Smoking also constitutes a fire hazard and is responsible for 25% of domestic fires.

2.3.3 Women who smoke are less likely to conceive than non-smokers and if smoking is continued during pregnancy there is increased chance of fetal and neo-natal death. Babies of smoking mothers are more likely to be of low birth weight and to remain of small stature throughout childhood. Twenty five to forty per cent of female smokers do not stop smoking during pregnancy and the re-uptake following pregnancy is up to 70%.

2.3.4 Recently, there has been increased awareness of the dangers of passive smoking, including the effects on children of smoking parents. Several hundred deaths from lung cancer each year can be attributed to inhalation of environmental tobacco smoke which also contributes to exacerbations of asthma and respiratory infections. Children of smoking parents are twice as likely to be admitted to hospital with respiratory infections during the first year of life and more than 25% of the risk of Sudden Infant Death Syndrome is attributable to maternal smoking.

2.3.5 Smoking-related diseases cause over 10 500 deaths each year in Scotland, representing 17.1% of approximately 62 000 total deaths. About 33 500 Scottish residents are admitted to National Health Service hospitals annually because of illness caused by smoking. This leads to average bed usage of 1333 per day with costs estimated at £69 million per year (ASH/HEBS 1992). In addition to this account must be taken of general practitioner costs, costs related to lost production and costs in terms of human suffering.

Table 5
Deaths from smoking-related diseases, Scotland 1988

Disease	Deaths Caused by Smoking			All Deaths
	Males	Females	All	
Coronary heart disease	2343	907	3250	17963
Cerebrovascular disease	566	366	932	8150
Lung cancer	2370	947	3317	4144
Other cancers linked to smoking	754	380	1134	2507
Chronic obstructive pulmonary disease	1159	575	1734	2288
Other smoking-related	184	67	251	1317
Total smoking-attributable	7375	3242	10617	36369

Table 6
Hospital care in a year, 1990/91 prices - Scotland

Disease	Due to Smoking		
	Annual Admissions	Daily Bed Use	Annual Cost (£000s)
Coronary heart disease	7282	225	11417
Cerebrovascular	2039	356	13201
Lung cancer	8606	248	1683
Other cancers linked to smoking	6825	187	12601
Chronic obstructive pulmonary disease	6459	274	12356
Other smoking-related	2286	43	2328
Total smoking-attributable	33498	1333	68786

3 WHAT IS EFFECTIVE INTERVENTION ?

3.1 Primary Prevention

A recent document prepared by the Health Education Board for Scotland (HEBS 1993) outlined the key components of a strategy to eradicate smoking as a major public health problem in Scotland by the year 2020. The action required involves health education, preventive services and health protection policies. Recommendations are made for action at various levels including: the Scottish Office at national level; purchaser and provider organisations in the National Health Service; general practitioners; local authorities (education and community education departments); voluntary sector; employers; trades unions and professional organisations and the general public.

"Smokebusters" is a good example of a primary prevention initiative which can be undertaken by health boards in conjunction with schools and other agencies to prevent children taking up the smoking habit. It aims to develop personal skills which will help children resist the social and marketing pressures on them to start smoking; to build a strong peer group of non-smoking children and to assist young people to see non-smoking as the norm and essential in achieving a healthy lifestyle.

3.2 Restrictions on Smoking

3.2.1 *Population Strategy*

A growing awareness of the rights of non-smokers to breathe smoke-free air has been largely instrumental in carrying forward the tide of change in attitude to smoking in public places.

3.2.2 *Smoking Policies*

The growth in restrictions on smoking in public places, including the workplace, over the last decade has resulted in large numbers of people reviewing their smoking habits. The exemplar role of the National Health Service has been encouraging and continued monitoring is leading to even tighter restrictions on smoking. Many Local Authorities are adopting similar controls on smoking along with Industry. Within these approaches, there has been co-operation of the Health and Safety Executive, Trade Unions, Occupational Health and Personnel Managers. A further major development of public policy has been the restrictions placed on smoking in public transport.

3.2.3 *Advertising and Promotion*

Health warnings on cigarette packets have had limited impact on smoking patterns. The promotion of smoking through advertising and "voluntary" agreement codes of practice with tobacco companies has highlighted the deficiencies in the approach of limiting rather than banning tobacco advertising. The particular concern is advertising targeted at young people and especially young women and teenagers.

3.2.4 *Restriction of Tobacco Sales*

The impact of restricting sale of tobacco products in public places is difficult to gauge. The recent tighter enforcement of sale of cigarettes to young people under the age of 16 is a welcome development, particularly in relation to shops in the vicinity of schools.

3.2.5 *Taxation and Tobacco Sales*

Budget price increases on tobacco products do not seem to produce sustained changes in smoking behaviour. The results of empirical studies suggest that the adult demand for tobacco is not very responsive to changes in price (Cohen and Henderson 1991). There are few studies looking at younger age groups and there is no consensus regarding the similarity of teenage demand responses with adult demand (Wasserman et al 1991).

3.2.6 *No Smoking Days*

The philosophy behind the annual "No Smoking Day" is to create a high profile, anti-smoking campaign across the United Kingdom. The media provide a supportive back drop to this annual event and it does appear to influence some people to "kick the habit" for good.

3.3 Intervention by Health Service Staff

General practitioners are in an ideal position to stop patients taking up the habit and assist those who are smoking to stop because of their high contact rate with the community, continuity of patient care, and a public perception that they are a trustworthy source of advice (Budd and McCron 1982). The effectiveness of general practitioner advice against smoking has been shown (Russell et al 1979) and this potential should be enhanced under the new contractual arrangements for general practice. The cost of opportunistic advice from a general practitioner to a smoker in Britain has been calculated at £270 per life year saved (1990 value) which compares with £2000 for a coronary artery bypass graft or £8000 for a heart transplant (Maynard 1991). In the light of this information, general practitioner advice appears to be cost effective.

Other health professionals, in primary care and hospital settings, can also play a key part in helping smokers to give up (Clark et al 1990, Chapman 1993, Sanders et al 1989).

Studies have shown that support for smokers is maximised when a range of interventions is offered. This may include: simple, consistent advice together with a leaflet; a combination of advice, information and nicotine replacement; and the organisation of specialised smoking cessation clinics (Chapman 1993, Kottke et al 1988, Richmond et al 1983, Russell 1979).

The new health promotion arrangements for general practice which came into effect from 1st. July 1993 focus on individual contact with patients rather than the clinic-based approach to health promotion. The transtheoretical model is a behavioural model used by health professionals in the treatment of addiction and is used, implicitly, in the NHS Management Executive resource manual (1992) to help primary care personnel implement the new arrangements. Work is to be undertaken shortly in Aberdeen to consider the effectiveness and cost-effectiveness of training primary health care workers in the use of the model.

3.4 Personal Strategies and Smoking Cessation methods

There is a growing number of smoking cessation methods, all based on modifying behaviour. The criteria for their success, however, rests with the smoker who must be motivated to give up the habit or to see the method as a means of gradually reducing tobacco consumption with eventual cessation being the ultimate aim. Whatever the method, the process must take account of the individual's needs, emphasising the positive advantages of not smoking such as feeling healthier, enjoying food more, having more "ready" cash and feeling cleaner.

3.4.1 *One to One Cessation and No Smoking Support Groups*

There are a range of one to one smoking cessation packs used either individually or with a counsellor. Such packs rely on self analysis of smoking habits with ideas on how these can be modified.

Group courses are normally led by a facilitator who takes the members through a regime of quitting smoking. Continued support beyond the course duration often proves worthwhile, as does linking the quit-smoking course with other healthy lifestyle issues including healthy eating and physical activity.

An American study (Cummings et al 1989) considered the cost-effectiveness of counselling smokers to quit by different age groups and found that the most cost-effective groups to counsel were aged 45-60 years for men and 50-65 years for women. Another American study (Altman et al 1987) analysed the cost-effectiveness of three smoking cessation programmes: a smoking cessation class; an incentive based quit smoking contest; and a self-help quit smoking kit. The results showed the self-help kit to be the cheapest and the least effective approach but overall the most cost-effective. The smoking cessation classes on the other hand were the most effective and the most costly with the least favourable cost-effectiveness ratio. These results do not give a clear message to the potential purchaser of these services and what requires to be clarified is whether the extra benefits from the "classes" programme over the "self-help kit" programme are worth the extra costs. The extra costs are what has to be given up elsewhere to implement the programme.

3.4.2 *Therapies*

A number of therapies rely on product use, while others use methods which are more widely used for treating a range of medical and behavioural problems. Some of the therapies used to date have been carefully evaluated, while others remain shrouded in scepticism.

Nicotine containing products. Of these, nicotine chewing gum, lozenges and tablets have been available for many years now. They contain small amounts of nicotine and are particularly useful when combined with either one to one support or counselling groups. However, the efficacy of these products has been shown to be limited and other forms of nicotine replacement therapy have been developed. The most widely used currently are the transdermal nicotine patches. A recent study (Silagy et al 1994) has drawn together the results of a range of studies which examined the relative effectiveness of nicotine replacement therapies (NRT) with placebos or no NRT. The study included gum, patch, nasal spray and inhaler treatments and considered the effect of setting and the intensity of the counselling which accompanied the treatment. The authors concluded that offering NRT to smokers is more effective in helping them to stop smoking than when not offered or when a placebo is given. For users of nicotine gum combined with high-intensity additional support, the rate of abstinence at 6-12 months was not significantly different from the rate when the treatment was combined with low-intensity additional support. There was insufficient information about the additional costs and additional benefits of the more intensive support to make a realistic assessment of cost-effectiveness.

Non-nicotine containing products. A range of products is available designed to provide a similar influence on withdrawal symptoms to the nicotine containing substances. Examples are Nicobrevin gelatine capsules, aniseed flavoured tablets and a range of herbal remedies usually containing a product from the plant Lobelia.

3.4.3 *Alternative Therapies*

Hypnosis and acupuncture have both been widely used over the years with varying success. The efficacy regarding long term cessation is questionable. A very new treatment known as laser therapy has recently become available. It claims to influence endorphin levels in the body and is administered using light energy of a specific colour to acupuncture points. Its aim is to limit the addiction for nicotine. Dummy cigarettes and herbal cigarettes act to break the addiction to nicotine but the latter still produce tar and carbon monoxide and should therefore not be considered as a safe alternative to tobacco smoking.

Whatever method is adopted as a preference, it must be remembered that 90% of smokers in the United Kingdom who stop smoking give up without any special form of support. However, the smoker must be ready to accept the challenge and it is awareness raising through health promotion that is paramount in this first step to quitting the habit.

4 FRAMEWORK FOR CONSULTATION

Purchasers are being encouraged to consider the views of local people in the purchase of services, to promote informed local debate about health issues and to involve the consumer in the process of assessing need (Department of Health 1992).

A broad framework for consultation might include the following:

- developing a strategy for communicating with local people
- establishing arrangements for listening, discussing and reporting decisions to local people (public meetings, information leaflets, newsletters and so on)
- directing consumer surveys which may be incorporated into regular adult and young people's lifestyle surveys to gauge opinion about services as well as determining lifestyle and behaviour
- establishing focus groups and consumer groups to contribute to needs assessment
- consulting with general practitioners to get their own views and views on behalf of their patients (the consumers)
- working closely with the Local Health Council on health promotion issues
- establishing arrangements for working with local communities and their representatives (Community Development approach)

5 GAPS IN PROVISION AND PRIORITY ACTION AREAS FOR FUTURE WORK

5.1 Policy development and fiscal requirements

Reduction in smoking levels and achievement of targets will depend on well devised and implemented health protection policies as well as the other components of health promotion (Bostock 1991). Advertising controls, preventing sale of cigarettes to under-age children and action to create smoke-free environments are of fundamental importance (Maynard 1991) and must be supported by appropriate fiscal policies; education and training of health professionals to support good health promotion practices; and continuing research to devise innovative forms of action against smoking as well as providing sound methodology for evaluating and monitoring outcomes.

5.2 Community and Workplace Interventions

Reduction in smoking levels also requires an infrastructure to support policies on smoking (Fielding 1991, Townsend 1993). The recognition by the public that all Health Boards, District and Regional Authorities promote no smoking environments is crucial to providing not only an exemplar model but also to reflect the rights of the non-smoker. Employees across the whole workplace sector should be encourged to support and create smoke-free environments as part of more holistic health care in the workplace. Instrumental in the success of these initiatives are the Trade Unions and Professional Organisations.

5.3 Local Health Interventions

The major emphasis at local level should be to provide co-ordinated activity across a broad front using existing agencies, settings and the mass media. Smoking has to be brought high on the agenda as a health issue and should be considered as part of a holistic lifestyle package. The particular problems of tackling the smoking problem among low income groups and in areas of deprivation need to be considered.

5.4 Further Research Required

Further research is required in relation to:

i) social and environmental factors which perpetuate acceptance of smoking at individual level

ii) behavioural and social factors which influence young people to start smoking and to continue

iii) particular risk factors for girls

iv) particular problems for low income groups

v) factors which influence giving up smoking

and

vi) factors which support permanent cessation of smoking.

5.5 Data and Information Required

For good assessment of need we require better Scottish data regarding smoking rates and social class and smoking rates in young people. In Scotland, the sample sizes for the General Household Survey are small and these problems need to be considered in relation to the Scottish Health Survey.

The Scottish targets for reduction in cigarette smoking have been referred to previously (SOHHD 1992) but there is a discrepency between the age groups for targets and those for some of the major sources of data collection. The age groups for targets are given as 12 to 24 and 25 to 65 years whereas the OPCS survey of secondary school children includes ages 12 to 15 years and the General Household Adult survey includes ages 16 years and over. The appropriateness of the SOHHD targets need to be considered and it would be appropriate to have sub targets for pregnant women, young females and so on. We do not have information about smoking levels in children under 12 years of age at the present time and this may also have to be addressed.

In relation to Health Board lifestyle surveys perhaps we need to standardise questions on smoking to enable easier comparison of information between Boards.

6 ECONOMICS OF SMOKING CESSATION

6.1 Information for decision making

While the figures regarding the costs to society attributable to smoking are impressive, the appropriate information for decision making relates to the costs and benefits of various means of reducing this burden: which option gives the best return per pound invested?

6.2 Costs and health gains

One way of assessing this is to compare results in terms of costs and health gains for different procedures. The only tool currently available for comparing very different types of health gain is the Quality-Adjusted Life-Year or QUALY. Thus, a commonly quoted version of the "league table" of cost-to-benefit ratios is as follows (Mason et al 1993)

£/QUALY	Treatment
240	Neurosurgery for head injury
270	***GP advice to stop smoking***
1100	Pacemaker implantation
1180	Hip replacement
2090	CABG for left main vessel disease, severe angina
4710	Kidney transplant
5780	Breast cancer screening
7840	Heart transplantation
17 260	Home haemodialysis
18 830	CABG for one vessel disease, moderate angina
107 780	Neurosurgery for malignant intra-cranial tumour

6.3 GP advice to stop smoking

GP advice to stop smoking seems to represent good value for money compared to the other interventions cited. There are two problems with this figure, however:

- the original study used a number of assumptions based on the conventional wisdom of the time, but these can be amended in the light of more recent evidence (Williams 1987)

- the single result quoted provides no guide for targeting efforts - for example, is it best to concentrate on counselling young people who have the greatest potential to benefit from giving up, or are older people more likely to heed advice as the health consequences of smoking start to be incurred by their contemporaries?

In order to address this question, the costs and benefits of counselling different age/gender groups was assessed in an American evaluation (Cummings et al 1989). Clearly, there are doubts about the applicability of such data to Scotland and, therefore, we have reworked the calculation using the best available data to reflect the position in this country.

The assumptions made, as modified from the original work, are as follows:

- GP advice takes four minutes on average.
- GP time costs £23.90 per hour (updated from Hughes (1991) at 5% per annum).
- Advice is accompanied by a booklet costing £1 to produce.
- Since the advice is provided on an opportunistic basis, there are no other costs.
- When counselled, 2.7% of people give up ***over and above those who would have given up even in the absence of specific advice*** (based on a literature review).
- Of those who give up, 10% relapse within one year and gain no health benefit.
- Based on data from an American Cancer Society study, the health gains of giving up smoking were estimated by age and gender (figures in terms of average life-years gained as a result).

	Men		Women	
Age	**Crude**	**Discounted**	**Crude**	**Discounted**
35-39	5.1	0.99	3.2	0.54
40-44	4.6	1.07	2.9	0.60
45-49	4.0	1.10	2.6	0.64
50-54	3.3	1.07	2.3	0.65
55-59	2.6	0.97	1.9	0.63
60-64	1.9	0.83	1.4	0.56
65-69	1.3	0.66	1.0	0.45

Source: Oster et al (1986)

Health gains occurring in the future are discounted at a rate of 5% to reflect society's preference for gains occurring sooner rather than later (akin to the net present value idea in a revenue cost stream). Thus, while younger people have the largest absolute gain in life expectancy as a result of giving up smoking, this occurs 40 years on and the discounted rate is similar to the smaller gain that 65-year olds will experience within a decade.

- The knock-on effects of smoking cessation in terms of extra costs and extra savings cancel each other out (the original article quotes three supporting references).

On the basis of these assumptions, the results in terms of the cost per life-year gained from GP counselling to give up smoking are as follows:

	Men		Women	
Age	**£/LY**	**Rank**	**£/LY**	**Rank**
35-39	108	4	198	13
40-44	100	2=	178	11
45-49	97	1	167	9
50-54	100	2=	164	8
55-59	110	5	169	10
60-64	129	6	191	12
65-69	162	7	237	14

6.4 Shortcomings of this approach

There are a number of shortcomings of which the user should be aware.

- Life-year gains do not capture the full health impact of smoking cessation - for example, the quality-of-life effects in terms of reduced respiratory disease may be considerable. Inclusion of this factor would work in favour of smoking advice.

- Only GP advice is considered, whereas a whole range of staff including practice nurses and psychologists may take on this role. Since the GP is likely to be the highest paid member of staff concerned any transfer of responsibilities will reduce costs but may also reduce the ultimate quit rate.

- The assumption that the costs and savings from smoking cessation cancel each other out is based on American evidence alone. In this country, smokers pay more in taxes than the cost of treating smoking-related disease to the National Health Service by a factor of two (Cohen 1984). While this would work to the advantage of the National Health Service in the short term, the reduction in Treasury revenue may reduce spending in the future.

- The original study assumes that proportions of each age/gender group who will give up smoking and who will relapse is equal, yet no supporting evidence is offered. In Wales, the variable most closely associated with quit rates is socio-economic group, although people aged 35-44 years are more likely to give up rather than other age/gender groups (Phillips and Prowle 1993).

- The benefits of quitting depend only on age and gender - while these may proxy a person's smoking history, existence of co-morbidity and so on, this is not inevitably the case.

6.5 Implications for potential users

Possibly the most important consideration for potential users is that the results may vary from area to area within Scotland. A Board that has already invested heavily in anti-smoking education, for example, may have persuaded everyone who can be persuaded to give up; a neighbouring Board which has previously had different priorities may find it easier to persuade people to quit. Other things being equal, the cost per extra life-year saved would be higher in the first Board. Propensity to give up smoking is also likely to be influenced by factors other than age and gender, so the above figures represent the overall picture and not the situation in any given practice.

Readers must judge whether a decision based on these assumptions is better than one based on no information at all. If the evaluation above is acceptable, then the conclusions to be drawn are as follows.

- GP advice to give up smoking offers excellent value for money relative to other health services.

- Research should concentrate on producing better estimates of the effectiveness of counselling particular groups of the population.

The analysis above is quite simple but gives clear conclusions for reducing the burden of smoking. Further work could be undertaken in the future to consider alternative ways of reducing smoking prevalence and incidence and to evaluate them in a similar manner.

7 OUTCOME MEASURES

The following outcome measures could be considered:

- Tobacco related knowledge and attitudes among different age groups 12-15, 16-19, 20-24 year olds.

- Levels of consumption of cigarettes. Frequency and quantity of cigarette smoking for different age groups 12-15, 16-19, 20-24 year olds.

- Impact on health status

  - decrease in tobacco related mortality
  - decrease in incidence of conditions related to tobacco coronary heart disease, peripheral vascular disease, carcinoma lung

- Service Initiatives

  - provision of training for stop smoking techniques
  - number and type of smoking cessation techniques and interventions
  - smoking at work policies

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