



Stop smoking for love  
or money: user guide

# About The NSMC

## **We are The NSMC, the international centre of behaviour change expertise.**

We're dedicated to making change happen that improves people's lives.

We do this by supporting organisations to design cost-effective programmes that help people adopt and sustain positive behaviours – those that improve their lives. Eating healthily, being more active and saving energy are just some of the positive changes we have helped our clients achieve.

As well as programme support and strategic advice, we also provide professionals with the skills and resources to design and deliver their own cost-effective behaviour change programmes.

Originally set up by the UK Government, we now have a global reach, applying social marketing skills, knowledge and experience from around the world to solve behavioural challenges.

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# Introduction

The NSMC has worked with leading health economists and NICE to develop a suite of online tools. These will help practitioners and commissioners to calculate the value for money of their social marketing and behaviour change programmes. The Stop Smoking tool is one of those developed.

**The tools have two important uses:**

1. To help plan for proposed social marketing and behaviour change programmes by estimating the likelihood that they will provide value for money
2. To evaluate whether social marketing and behaviour change interventions were value for money upon completion.

The tools go beyond costs to the NHS, to include wider societal costs. For example, designers of stop smoking programmes will be able to examine the money saved by individuals from stopping smoking, the cost to the local fire service, and the extent of gains to employers from reduced employee absences.

# Using the tool

**These notes are intended to help users and to provide links to the evidence used to prepare the tool. You may also wish to refer to the *Glossary and NICE Intervention Costing Guidelines* available on The NSMC's website.**

Most users may choose only to use the data input and results pages, but advanced users can also make use of other pages to update the tool as further evidence becomes available.

The tool is intended to help you evaluate the Value for Money (VfM) of social marketing and other behaviour change initiatives aimed at helping smokers achieve a four week quitter target. These initiatives are considered alongside cessation services, the use of patches and support aides and ongoing support for quitters.

This is intended to support other guidance and advice in this field rather than to replace it. The tool builds on expert studies from many different sources but in some fields, such as the impact on social care costs, litter and fire services the data is inconclusive. The tool therefore attempts to establish a consensus view or makes reasonable assumptions where evidence is weak. Where these have been made, they are detailed clearly in the tool.

The tool shows a range of values reflecting uncertainty in estimates of achieving behaviour change by examining the impact of up to ten per cent more or less favourable assumptions about behaviour following quitting. It does not reflect the underlying uncertainty of health gain or NHS cost estimates and health outcomes.

You can repeat the evaluation for a range of data to reflect your uncertainty in these regards. This will provide a sensitivity analysis around the central case. It is more appropriate to report a range of possible values than to give an overly-precise single estimate.

## Data input

### Completing the data input sheet

The following section provides details of what data should be included in each section of the tool, and also what evidence has been used in the development of the tool.

### Intervention costs

The tool can be used to evaluate costs and outcomes over one year or over a shorter period. For longer term projects it will allocate one-off planning and start-up costs over the lifetime of the intervention project.

Detailed advice on what costs should be included is provided in the NICE costing guidelines, available on The NSMC website ([www.thensmc.com/resources/vfm/guidelines](http://www.thensmc.com/resources/vfm/guidelines)).

Below are further details of what should be included in each field.

#### 1. In Table 1 please enter the:

##### a) Cost of planning and developing the intervention

The separation between intervention costs and NHS costs assumes that behaviour change support may be funded by a PCT, Clinical Commissioning Group or Local Authority separately from the provision of services such as smoking cessation or prescription of patches. Furthermore, aspects of the intervention might be funded by employers or give rise to costs to clients.

However, throughout this analysis all costs are mutually exclusive, so avoid any double-counting except for incentives which are both a cost to the intervention and a negative cost (in other words, a payment) to clients.

Development and capital costs will be spread over the life of the intervention. These should include costs relating to the design and application of a specific behaviour change project for target clients.

## “Capital costs and project development costs will be spread over the life of the intervention project”

General needs assessment, such as a JSNA, should be excluded. However, research conducted during the scoping phase for the specific project should be included.

### **b) Annual revenue costs per year of supporting the intervention**

Annual costs include management, monitoring and operating expenses. If the project or elements of it are contracted to private sector providers, VAT should be excluded. Full public sector staff costs and on costs should be included, but not unavoidable overheads, e.g. management and premises costs that are not changed by the project.

### **2. In the field entitled ‘What are the...’ (Table 1), the following costs should be considered and included when relevant:**

#### **a) NHS set up costs including capital, training, and reorganisation**

Capital or other one-off set up costs such as retraining and reorganising staff and services should be included. These should be spread over the life of the project.

#### **b) NHS annual revenue costs per year**

Annual costs include additional staff time required for the delivery of the intervention, e.g. advising or treating additional clients. Costs of supplies may include nicotine patches and leaflets for additional clients.

The cost of premises and equipment should be included only if they are specific to the project and would otherwise not be required, or if they are in such high demand that other valuable activities must be curtailed.

### **3. Over how many years should development and training costs be spread?**

Capital costs and project development costs will be spread over the life of the intervention project. These are assumed to be at the base year price level. This should be the same year as the year for which outcome results are reported.

If this is not the case (e.g. if the development and training costs relate to an earlier year), then they should be inflated to the same price level. All other outcomes and savings will be automatically discounted or inflated to this base year level which should be entered.

#### **4. Add in any other public sector costs, if relevant:**

##### **a) Project development and capital expenditure**

If implementation of the intervention gives rise to costs for other public sector services, the costs incurred by social workers, teachers, police, fire fighters etc. may be relevant.

Capital and set up costs, such as specialised training should be included here. The tool will apply estimates of the long term impact on social care, street cleaning and fire services as well as NHS costs.

##### **b) Annual revenue costs per year**

Annual costs to other public sector services should be included here. However, it is important to consider only additional costs above those already incurred by such services in the normal course of their work.

#### **5. Charges, costs or incentive payments to clients (if relevant)**

If clients pay for items such as nicotine patches or for services, the aggregate annual cost should be recorded. Payments to clients as a reward or incentive should be included as both an element of project cost and as a payment to clients (these are transfer costs).

If incentives are provided, a negative value should be entered here, representing total payments received by all clients per year.

#### **6. Employer, NGO or other partner costs (if relevant)**

##### **a) Project development and capital expenditure**

If employers (or other partners such as supermarkets or food producers) contributed to the cost of an

intervention, this should be recorded as a social cost reducing the public sector intervention costs. In this box enter any capital or start up costs to employers.

##### **b) Annual revenue costs per year**

Annual costs to employers should be entered here.

#### **Clients and outcomes**

Enter information on the number and characteristics of clients and outcomes planned or achieved. The tool can be used to assess planned interventions or to evaluate current projects.

##### **1) Enter the total number of clients per year – i.e. smokers contacted**

This should include all relevant targeted people contacted by the behaviour change intervention, not just those who change their behaviour. This may also include multiplier-effects, for example, where one contact also influences the behaviour of family and friends. However, note the warning below.

##### **2) Percentage of clients achieved the behaviour change target**

The percentage of people achieving the behaviour change indicator may be increased if a family or community multiplier can be shown (i.e. if those initially contacted have encouraged others to quit).

However, it seems that simply relying on reported influence on others is very unreliable, so clear evidence of this impact (such as attendance at a smoking cessation service) is desirable.

##### **3) Behaviour Change Indicator**

Record the specific indicators used. Note that four-week quitters who are CO tested have a much higher persistence than non-CO tested quitters. You can also use evidence of one-year quitter outcomes to evaluate overall progress in smoking reduction.

##### **4) Enter the persistence rate after one year**

This is the percentage of four-week quitters who are still not smoking after one year. If you do not have this data yet, research evidence from Ferguson, *et al* (2005)<sup>1</sup> suggests that 14.6 per cent is a typical persistence rate.

If four week quitter rates are verified by CO testing, research suggests it is appropriate to add ten per cent to the one year persistence rate. If self-efficacy (a belief in one's ability to change encouraged by counselling and self-help groups) can be demonstrated, our expert committee<sup>2</sup> suggests it may be appropriate to add five per cent (but there is no research evidence for this).

Use of Nicotine Patches, Gum Sprays and other aides are claimed to improve persistence but the evidence is mixed. Local experience should guide you in setting your expected rate of persistence. If the indicator used is one-year proven quitters, you may enter 100 per cent for one-year persistence.

Long-term persistence from year two to ten years is assumed to be 90 per cent, i.e. one in ten remaining quitters reverts to smoking each year for ten years. This conclusion is based on evidence by Hughes, *et al* (2008)<sup>3</sup>. One-year and long-term persistence may be improved by measures such as support groups and follow-up calls.

In order to estimate the impact on health risk, it is also necessary to consider the rate of recovery from the health risk of smoking. The rate of recovery varies with age of the clients as shown by Doll, *et al* (2004)<sup>4</sup> and Peto *et al* (2000)<sup>5</sup>. This shows age differences in health recovery with older people recovering more slowly and achieving a lower level of health.

There appears to be a relatively sharp decline in health risk recovery after the age of 50. To match this, the following initial assumptions have been used:

- No gain is assumed in the first year, as offsetting negative health impacts are noted in the literature (see for example Hughes J.R, 2007 *Effects of abstinence from tobacco: Valid Symptoms and time course*, Nicotine & Tobacco Research Volume 9, Number 3 (March 2007) 315–327)



- For smokers quitting from age ten to 20, complete recovery from the health risk of smoking is assumed at 20 per cent per year for five years
- For smokers aged 20 to 30, recovery is assumed at 15 per cent for five years and five per cent for the following five years
- For smokers aged 30 to 40, recovery is modelled as ten per cent for five years and nine per cent for the following five years, reducing smoking related health risk to 95 per cent
- For smokers aged 40 to 50 recovery is assumed at ten per cent for five years and five per cent for five years to recover 75 per cent of smoking-related health risk
- For smokers aged 50 to 60, recovery from the health risks of smoking are assumed as eight per cent for five years and five per cent for the following five years to recover 65 per cent of health risk
- For smokers aged 60 to 70, recovery from smoking health risk is assumed as five per cent for five years and two per cent for five years to recover 35 per cent of the health risk of smoking

These are broad estimates that are intended to match the available data as far as possible, but further research is needed on this aspect.

### **5) Percentage of clients are in the most disadvantaged 20% or are in a special hard to reach group**

This provides a measure of the extent to which the intervention is targeted at disadvantaged groups. If there is no bias towards disadvantage, 20 per cent of respondents would be expected to be in this category. Disadvantage may be measured by the Index of Multiple Deprivation (IMD) scores (see *Glossary*) or other ways determined locally.

### **6) Enter the baseline comparator propensity to change**

This is the percentage of people who might be expected to have quit smoking after one year without the assistance of the intervention. This is assumed to be two per cent. You may add or

subtract one or two per cent if the population targeted were more or less likely to quit. Propensity to change without intervention depends upon the client group targeted. If clients self-select and show an intention to change, add one or two. If clients face many obstacles and peer-pressure that would otherwise make change difficult, subtract one or two.

### **7) Average age range of your clients (smokers targeted)**

As several aspects of this tool depend upon the age range of the targeted clients, it is necessary to indicate the general age range. This does not have to be exact; it is just an indication of the typical age of the people targeted.

At present, only one age range can be evaluated at a time, so if you are considering several different target groups you would need to run the analysis for each age group. In general, since younger people have a longer period to enjoy good health and recover their health more quickly, the tool will show higher levels of benefit for younger age groups.

### **8) Which year's prices are you using?**

The tool allows you to choose which year's prices you wish to work in (known as the 'base year' for the analysis). Generally, this should be the first full year of the intervention for which you have outcome data.

You have to input costs in terms of that year's prices, so you may have to adjust for inflation between the year in which the intervention was planned and developed and the base year of the intervention. This is included to prevent the tool from becoming out of date.

### **9) Enter your weight for disadvantage (optional)**

This allows you to give an extra value to impacts on disadvantaged and hard-to-reach groups.

A value between 0 and 100 per cent can be used (enter '0' if you do not wish to apply a weight) giving that percentage more value to interventions for disadvantaged people. The tool does this by simply adding an extra value to the percentage of clients

in the most disadvantaged 20 per cent using IMD scores or in some other way which you may define.

For example, this means that if you chose a weight of 50 per cent and all the clients were in the most disadvantaged group, a value of the outcomes will be shown as 50 per cent more than the outcomes for a project which did not address disadvantaged people. However, while this value is shown in the results page, it does not affect the main outcomes reported which are not weighted.

Giving an extra weight or 'utility value' to disadvantage is controversial. Department of Health (DH) policy is not to weight QALYs because everyone's health is equally valuable. However, it is arguable that addressing disadvantage is an important priority, due to the widening health inequalities gap.

The results will also show the effect of weighting for disadvantage and a priority score from the Health England Leading Prioritisation programme.

This project surveyed the way 99 public health professionals prioritised projects. It then developed a formula to model their values (Utility) as a preference curve based on cost effectiveness (Cost per QALY, C), the reach of the project (what proportion of the population could benefit, R) and impact on disadvantage (percent of clients in most disadvantaged 20 per cent, D ).

This tool derives a weight for disadvantage by substituting values from the current project in this formula. It also replicates the utility score that would be given by the HELP formula.

$$Utility = e^{(-0.0000586 \times C + 0.0435987 \times R + 0.119895 \times D)}$$

For a detailed explanation of this see: <http://help.matrixknowledge.com>

You may choose to ignore these methods of weighting outcomes and treat disadvantage as a separate issue, as DH suggest. To do this, you may

wish to make use of the Health Inequalities Intervention toolkit, available from the London Health Observatory at

[www.lho.org.uk/LHO\\_Topics/Analytic\\_Tools/Health-InequalitiesInterventionToolkit.aspx](http://www.lho.org.uk/LHO_Topics/Analytic_Tools/Health-InequalitiesInterventionToolkit.aspx)

### **10) Percentage of people employed**

The percentage of people who are employed is used to generate estimates of benefits to local employers. It can also be used to explore the benefits to one employer engaged in a workplace smoking cessation programme.

For young clients, employment prospects, rather than current employment, can be used to generate lifetime employment benefits.

### **11) Enter the Reach (optional)**

The *Reach* of the project is a term used in the HELP system. If you want to apply their measure of the value placed on addressing equity and the priority of this project, you need to include a value for Reach to represent the percentage of people who could be eligible for the intervention if it were extended nationwide. This might be all smokers or it might refer to a specifically targeted group, for example, older women smokers.

You need to estimate what proportion of the population they make up. Some experts suggest that such weights and priority scores are not relevant to local decisions. For more information on the Health England Leading Prioritisation, visit: <http://help.matrixknowledge.com>

**“It can also be used to explore the benefits to one employer engaged in a workplace smoking cessation programme”**

# Interpreting the results

**The results page reports a wide range of outcome measures that were requested by various local and national users during the piloting of these tools.**

You may decide that some of these are not relevant to your needs; it is up to you to choose which measures are most useful for your purposes. You need to take into account the decision-makers priorities and the strength of the available evidence which varies for different outcome measures.

## Sensitivity analysis

In general it is more reasonable to report a range of possible outcomes rather than just reporting a single central estimate. The sensitivity analysis shows a high and low value range arising from different assumptions about behaviour, the extent of persistence and the rate of health recovery (see *Glossary*).

Sensitivity analysis in this tool does not consider the uncertainty in underlying estimates of health gain and costs which are treated as consensus estimates. Users can also vary the input data and other factors to generate other sensitivity analyses and to examine 'what if?' questions.

## Table 1: Net Local Public Sector Cost per Lifetime Health Gain

### Health impact

The value shown represents the estimated current value of the lifetime reduction in health risk arising from the project. This is based on the attributable health burden due to smoking taken from the WHO National Burden of Disease Tool of 2009 applied to the UK and then adjusted for England (this was provided by NICE and WHO). This uses UK health outcome figures and Population Attributable Fractions (how much of each outcome is due to each cause) for High Income countries in the European Region in 2004<sup>6</sup>.

It is important to note that the model estimates health impacts in terms of lifetime health risks. It is not possible to provide a timescale for resulting impacts on health or costs but because these factors are discounted to the base year the equivalent health impact and cost burden can be estimated.

## QALYs impacts

Quality Adjusted Life Years (QALYs) are the most commonly used measure of health gain in the UK. Outcomes are reported in these terms by converting from Disability Life Years (DALYs) to QALYs using a conversion factor of 1/0.754 assuming disease onset at the age of 65 and duration of five years. This is taken from Sassi (2006)<sup>7</sup>.

While not perfect, this is the best available estimate. Further research could improve this conversion factor.

## Net cost to the public sector

This is simply the summary of public sector costs per year shown in the data page resulting from the costs you reported.

## Cost per QALY

This is derived by dividing QALY gain by public sector cost. This is shown as a central estimate and high and low values.

## Cost Savings to the NHS

These cost savings are derived from figures provided by NICE<sup>8</sup>. This assumes that reducing health risks and hence outcomes from smoking will have a proportionate impact on NHS costs in the long term. This implies that the long run marginal costs of NHS services vary directly with demand. This is a common convention used by some health economists. The tool includes a mechanism to change this assumption if required.

Potential costs savings per person at risk per year are derived by dividing the total cost of smoking to the NHS by the number of people at risk in 1990. Using an estimate from 20 years ago provides a better way of relating current health outcomes to their cause

because most smoking health outcomes result from 20 to 40 years of smoking. This provides an estimate of the cost to the NHS per smoker year.

### **Cost Savings to Local Authorities**

These costs include adult social care and wellbeing, street cleaning and fire and emergency services.

#### **Adult social care and wellbeing**

Cost savings are estimated on the basis that these costs will vary with Years Lived with Disability (weighted for disability).

This is a reasonable basis for estimation but there has been insufficient research evidence to support the current estimate. National Statistics for the Department of Communities and Local Government report total expenditure on Social Care in England for 2008/2009 was £20.1 billion. Of this, some £7.8 billion relates to adult social care and other adult services for adults with health related problems. Because long term costs relate closely to the number of people requiring support, 85 per cent of the full costs (the long run marginal costs) are taken into account in estimating potential savings. These savings are allocated on the basis of weighted years lived with disability.

#### **Street Cleaning**

Total expenditure on Street Cleaning for England in 2008/2009 is reported by National Statistics as £858 million.

Estimates quoted by Robert Nash and Henry Featherstone in Policy Exchange Research Note of March 2010 ("Cough Up") show £342,000,000 as the cost of cigarette litter for the UK<sup>9</sup>. Potential savings are calculated on the basis of 12.5 per cent of this figure, recognising that only the long run marginal costs of street cleaning costs vary with the extent of cigarette litter. This is allocated on the basis of reductions in smoking years. There is little further evidence for this view.

It is also fair to assume that expenditure on street cleaning represents the value placed by society

on reducing litter. If this view were taken it would be reasonable to include full costs associated with cigarette litter rather than long run marginal costs as used here (see *National Data* page).

### Fire and Emergency Services

Total expenditure on these services for England in 2008/2009 is reported by National Statistics as £2.2 billion. The estimated total cost of fires in 2004 was £7 billion for England and Wales, of this £507 million was attributed to smoking in domestic buildings.

Allocating fire service costs on the same basis as overall fire costs suggests a cost relating to smoking of £160 million. In the long-term, 25 per cent of fire service costs are assumed to relate to incidence of fires. This is reduced in line with the reduction in smoking years. This is a broad estimate, as it can be assumed that fire fighting and emergency costs represent societal values in these respects.

### Individual Outcome

Per four-week quitter, shows the health risk reduction for each person achieving the target outcome. For a four-week quitter, this will be one-seventh of the outcome for a one-year quitter and will be far less than someone who has managed to stay cigarette free for ten years or more.

The outcome for someone who succeeds in quitting and does not return to smoking depends on their age. Typical values for people in each age range would be:

- 10-20 = 2.5 QALYs
- 20-30 = 2.25 QALYs
- 30-40 = 1.9 QALYs
- 40-50 = 1.4 QALYs
- 50-60 = 1 QALY
- 60-70 = 0.5 QALYs

This appears to be in line with the available evidence on people who have quit smoking<sup>10</sup>.

The analysis also provides an estimate of the cost saving to the public sector for each person achieving

the target outcome. Assuming that someone quits for life, this varies with the age of the quitter. Typical values would be:

- 10-20 = £9,300
- 20-30 = £8,600
- 30-40 = £7,200
- 40-50 = £5,500
- 50-60 = £4,100
- 60-70 = £1,900

Again, this seems to be in line with available evidence. In reality, most people who try to quit smoking only succeed for a short period. While this may only reduce health risks to a limited extent, interventions that support this can nevertheless represent good value for money.

### Total Deaths Averted

The tool also estimates the total numbers of deaths averted as a result of the intervention, based on figures from the WHO National Burden of Disease Tool.

While the overall impact on health risks and hence likely future outcomes and costs can be assessed, it is not possible to estimate when these will occur with any accuracy. Most deaths avoided will be for people over 74, and since we all have to die some time, death is not a very useful way of assessing the value of an intervention – though it does have emotional impact.

### Total Years of Life Added

This provides a more reasonable measure of value. If this figure is divided by deaths, it shows the average loss of years of life.

### Total Years Lived with Disability

Weighting for disability provides an indication of health and care needs that can be reduced by smoking cessation.

### Odds Ratio

This is a commonly used measure of the effectiveness of an intervention. It compares the number of

people changing their behaviour as a result of the intervention to the number who would have changed without intervention.

### **Numbers Needed to Treat**

This is a measure used in primary care to assess the effectiveness of interventions, such as treatment with Statins. It is provided because users asked for it.

In this case, it has been applied to provide a measure of the number of people who would need to be contacted in order to avert one smoking related death.

### **Table 2a: Societal Impacts: Lifetime Benefits to Quitters and other members of the public**

The benefits to quitters include:

- Less expenditure on cigarettes,
- Reduced informal care, and
- Employment and benefit impacts.

For the wider public, there are benefits arising from reduction in passive smoking harm and reduction in indirect costs of fires such as insurance. Much of the benefit to clients (ex-smokers) is a transfer from government.

In order to estimate the impact of the intervention, the relevant cost items are attributed to total smoking outcomes in terms of reducing smoking years, health risk, death or disability. The impact of the intervention on smoking outcomes is also forecast for the remaining life of the quitter, assuming a life expectancy of 81 and a working life up to age 67. Hence the estimated impact on each item can be discounted to the baseline year.

### **Expenditure on cigarettes**

The annual cost of cigarettes per smoker is from the Tobacco Manufacturers Association Report of 2008/2009. This gives a cost per smoker of £1600.

### **Reduced Informal Care**

The highest costs of care are incurred by families and other informal carers. An estimate of the total

**“The impact of the intervention on smoking outcomes is also forecast for the remaining life of the quitter”**



extent of care is provided by Buckner and Yeandle (2007)<sup>11</sup>.

While this analysis is based on the cost of replacing informal carers with paid staff, it is also possible to derive a value. This is based on the hours of informal care worked in England valued at a leisure time rate of £5.50 per hour in 2007 terms, which has then been inflated to current values.

It is reasonable to assume these costs are reduced in proportion to the reduction in Years Lived with Disability weighted for disability as estimated by the tool, but there is no more detailed evidence available.

### **Increased Employment Income and Pension Less Benefits and Tax**

The estimate of increased employment income is a conservative estimate based on loss of income as a result of deaths reported in Policy Exchange Research Note March 2010 Cough Up by Robert Nash and Henry Featherstone.

Pension payment impacts are based on years of life lost at £5000 per year in 2007/2008 updated for inflation, assuming all are pensionable years. Tax income is estimated on the basis of an effective tax rate of 12.5 per cent of estimated increased income. Sickness and incapacity benefits payments are taken from Dame Carol Black's 2008 report, *Working for a Healthier Tomorrow*, which estimates the total cost of sickness benefits at £29 billion allocated to Years Lived with Disability weighted for disability.

### **Costs to Clients**

This is taken from the Data Input page and shows costs incurred by quitters and incentives provided (this would be a negative cost). If there are specific costs to or incentives for clients these only apply during the intervention.

Passive Smoking and Fire other than services costs  
These are derived from Robert Nash and Henry Featherstone in Policy Exchange Research Note of March 2010, *Cough Up*.

### **Table 2b: Societal Impacts: Working Life Benefits to Employers**

Benefits to employers include: reduced absenteeism, improved productivity at work, reduced fire risks less any costs incurred in supporting the smoking cessation intervention. The impact of reduction in smoking is only considered up to the assumed end of working life at 67. Benefits have been reduced to reflect an effective corporate tax rate of ten per cent.

#### **Reduced Absenteeism**

There are widely differing estimates of the total impact of smoking on absenteeism costs. Nash and Featherstone (*op cit*) identify estimates in losses of between £1.1 billion and £2.5. A midpoint estimate has been used for this tool. The resulting cost is then allocated to employed smokers who quit as a result of the intervention.

#### **Improved Productivity**

Nash and Featherstone (*op cit*) identify the cost of smoking related loss of productivity at between £915 million and £3.2 billion. As a starting point a midpoint estimates has been used for this tool.

#### **Fire Risks**

Smoking related fire costs at work have in the past been estimated at about £100 million. However, smoke-free workplace legislation is assumed to reduce this to £75 million.

### **Table 2c: Societal Impacts: Lifetime Impacts on Government and Public Sector Costs**

Impacts on Government include reduced excise duty and VAT, reduced sickness payments, increased pension payments less tax and any increase or decrease in NHS, Local Authority or other public sector cost. Since a large element of the price of tobacco is tax, smoking cessation involves a transfer from government to quitters.

#### **Excise Duty and VAT**

As reported by the Tobacco Manufacturers Association (*op cit*).



### **Sickness and Disability Benefits**

These are taken from *Working for a Healthier Tomorrow*, which estimates the total cost of sickness benefits at £29 billion allocated according to Years Lived with Disability weighted for disability.

### **Pensions**

Payment impacts are based on years of life lost at £5,000 per year in 2007/2008 updated for inflation, assuming all are pensionable years.

### **Income Tax**

This is estimated on the basis of an effective tax rate of 12.5 per cent of estimated increased income (see above) plus corporate tax income at an effective rate of ten per cent.

### **Table 2d: Societal Impacts: In terms of the Human Value of QALY gain**

#### **The Human value of a QALY**

This can be regarded as the cost of pain and grief caused by death and illness.

In discussion with Robert Anderson, Economic Adviser to Department of Health in 2011, it has been pointed out that the Department of Health's official position is that a QALY can be valued at £60,000 as derived from Department of Transport willingness to pay survey of 1991/1992 (Highways Economics Note 1) in respect of fatal accidents updated to 2007 values.

However, as NHS expenditure is limited it is accepted that the marginal productivity of the NHS is four QALYs per £100,000. For this reason a value of £25,000 can be applied.

While the Department of Health continue to refer to a survey carried out in 1991/1992 for the Department of Transport, it should be noted that this willingness to pay survey focused on traffic accident outcomes, these include early death, which has a particular emotional value.

Another estimate of the value of a QALY gain can

be based on the upper estimate of the value placed on non fatal injury derived from the same survey which gives an estimate of £27,000. This is close to the figure used by the NICE of £30,000. Thus for this purpose a value of £25,000 in 2007/2008 has been used updated for inflation in incomes but this can be varied if required.

### **Weighting for Disadvantage, Your Weights or Health England Leading Prioritisation (HELP)**

The tool permits you to add an extra value to the percentage of clients in the most disadvantaged 20 per cent using IMD scores or in some other way you may define or to apply a weight derived from the HELP project (see *Data input* section of this guide). It also provides a HELP utility score.

### **Table 2e: Societal Impact: Social Return on Investment**

The calculation of Social Return on Investment (SROI) does not take into consideration any weighting applied to QALYs as above. SROI is calculated in two ways as the net impact on all stakeholders divided by the total cost to stakeholders and as the value of the QALYs increased by the intervention valued at £25,000 in 2007.

For more details of the SROI approach see the *Glossary* and related links from The NSMC website.

**“The tool permits you to add an extra value to the percentage of clients in the most disadvantaged 20 per cent”**

# Other pages of the tool

The other pages of the tool can be explored by users but these are basically working sheets. All references have been referred to in the Data input and Results sections of this guide.

## Impacts

The *Impacts* page of the tool provides a mechanism for projecting future smoking behaviour and the resulting impact on health. It is based on estimates of short-term persistence – how many four-week quitters will still not be smoking after a year and estimates of the persistence over the first ten years. It also takes into account estimates of the rate at which people recover their health after quitting, which varies with the age at which they quit.

Behaviour and health risk impacts are projected over the life of the quitter and discounted back to the base year resulting in the so-called *Discounted Lifelong Impact Multiplier*. This is used to assess the impact on health risks and costs over the life of the quitters. The *Impact* page also provides high and low scenarios based on changes in behaviour outcomes. The variable in this part of the tool can be changed at the data entry page or by a more detailed updating of the tool. We suggest this only for advanced users.

## National Data

The National Data page of the Tool is based on the WHO National Burden of Disease Tool. It provides estimates of the health impacts of smoking in terms of DALYs and QALYs and Years Lived with Disability, Years of Life Lost and Deaths. It also includes estimates of smoking behaviour in 1990 and 2008, NHS and Local Authority Costs.

While this page can be updated, we suggest this should be done by advanced users as further evidence becomes available.

## Social

The Social Page provides the detailed working necessary to generate social impacts. It includes an analysis of the cost savings to quitters in undiscounted terms and also an evaluation of the additional cost to the NHS of averting early deaths as this was requested by a user.

However, for ethical reasons and because such estimates are not brought into other evaluations, it has not been applied in the *Results* page.

## Look Up Tables

This page provides details of the inflation factors and discount rates used in the tool. It can be updated but it is suggested that this should only be attempted by advanced users.

Inflation estimates for NHS costs are taken from official projections, tobacco prices are assumed to increase at six per cent, wage inflation at four per cent, and the social discount rate is set at 3.5 per cent.

## Other sources of help and guidance

This tool is intended to support evaluation alongside the application of qualitative guidance. It also attempts to translate the consensus on the costs and benefits of smoking cessation programmes developed by experts into useable mechanisms. These will help local social marketing teams evaluate support programmes that encourage better long term outcomes. Research teams are invited to develop improved versions of such tools as more evidence becomes available.

Current guidance includes:

- Department of Health 2011 *Local Stop Smoking Services, Service Delivery and Monitoring Guidance 2011/12* available at [www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/documents/digitalasset/dh\\_125939.pdf](http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_125939.pdf)

- NICE Guidelines 2008 *Smoking Cessation Services: Smoking cessation services in primary care, pharmacies, local authorities and workplaces, particularly for manual working groups, pregnant women and hard to reach communities*, available at [www.nice.org.uk/PH010](http://www.nice.org.uk/PH010)
- Association of Public Health Observatories 2010 *Technical Briefing 7: Measuring Smoking Prevalence in Local Populations* available at [www.apho.org.uk/resource/item.aspx?RID=87192](http://www.apho.org.uk/resource/item.aspx?RID=87192)
- John Stapleton 2001 *Cost Effectiveness of NHS Smoking Cessation Services*, ASH, available at [www.ash.org.uk/files/documents/ASH\\_temp\\_9cc4.pdf](http://www.ash.org.uk/files/documents/ASH_temp_9cc4.pdf)

There are a great many more sources of excellent research in specific field of smoking harm reduction such as the National Forum on Smoking and Pregnancy. It is hoped that the many experts in this field will be able to build a clear consensus view of the full social benefits of smoking cessation and improved measures of its value for money.

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Any remaining errors and omissions remain the responsibility of the author.

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# Further support from The NSMC

## Practical advice and support

If you need some fresh thinking to improve your results, we'll carry out an **expert review** of your current approach to behaviour change. Practical recommendations on how to plan, manage, implement and evaluate your projects will ensure you're able to make progress.

Need help taking a behaviour change approach forward? We can develop a **behaviour change strategy** for your organisation – ensuring you're better placed to deliver effective future programmes.

We'll **support you through developing and managing** your project, with **mentoring** offered as and when you need it. Using our 'learning by doing' approach, we bring our tried and tested behaviour change planning process to your behavioural challenge.

To help make your project happen, we can also **bring your stakeholders together** and secure their involvement in achieving your objectives.

Our **tailored, interactive workshops**, delivered by The NSMC's expert behaviour change professionals, will explore how to take an audience-led approach to your challenge – using the latest thinking in behaviour change from your sector.

## Implementing an effective behaviour change project

Whatever your behavioural

challenge, our experts' unrivalled experience in **delivering behaviour change programmes** will ensure it is addressed cost-effectively. Our network of consultants and suppliers means the **best specialists** will take your project forward.

## Training and resources

To give you and your team the skills you need to run your own behaviour change projects, we provide both **classroom and e-learning training courses**. Devised and delivered by expert professionals, they draw on real experience of what works.

To help ensure your staff have the right tools and support when they need them, our **online planning guide and toolbox** provides everything they need to plan and implement a behaviour change programme. Tried and tested by a range of professionals and organisations, we can develop specialised versions, tailored to meet your organisational needs.

## Supporting your organisation to keep your audiences at the heart of everything you do

We'll help you **develop and conduct research** that will give you a firm foundation for a behaviour change intervention. Our experts will help ensure you get the most from your research budget.

Our **One Stop Shop** database of unpublished market research gives you the means to quickly get to grips with your audience and behavioural challenge. It will

enable you to focus your research and make the best use of your resources.

If you're pushed for time, our **data synthesis** service will package up the most relevant research into your challenge held on the One Stop Shop for you.

## Providing best practice in behaviour change

ShowCase is our **online case study database** of behaviour change initiatives. From smoking to active travel, young people to health professionals, it highlights honest learning and success from the real world on a wide range of issues and audiences.

You can follow the journey project teams took and find detailed information on the 'how' of delivering a behaviour change intervention. Capitalise on others' achievements and learn from their mistakes and barriers, without having to commission expensive research.

## Independent evaluation

We have specialist experience of **evaluating behaviour change programmes** of all kinds. We'll help you demonstrate the impact of your projects to your stakeholders and capture lessons to improve future work

We'll also help you put together an **evaluation plan** that will ensure you collect the right information to effectively measure success and avoid knowledge gaps from the outset

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