The Value for Money of Behaviour Change

This web page provides a link for the community of people concerned with the value for money (VfM) of behaviour change interventions. It includes news of the current Programme led by NSMC with assistance from NICE and funding from the DH to develop tools for the evaluation of the value for money of behaviour change interventions.

For details of the programme, its Advisory Panel chaired by Fiona Adshead, its coordination by Rowena Merrit of NSMC and its support team and input from NICE click on [**The Programme**](#The_Programme) .

As a first step some 50 leading practitioners concerned with the design, commissioning and provision of behaviour change interventions intended to support people in making healthier lifestyle choices were asked to respond to a questionnaire and contribute their ideas. To see the emerging opinion of 38 people who responded click on [**Feedback**](#Feedback)**.**

They pointed out that while there are useful [**Guidelines**](#Guidelines) on this issue, there is not much support for anyone considering whether a new behaviour change intervention is likely to be good value for money or trying to evaluate a completed programme.

Practical support for a [**Consensus Approach**](#Consensus) should include the development of simple [**Evaluation Tools**](#Evaluation) based on advice from NICE as to the health and financial impact of achieving behaviour change targets and a [**NICE Costing**](#Costing) guide all supported by a common [**Glossary.**](#Glossary)

They also noted that there is a lack of expertise in the application of VfM evaluation and where this is attempted different approaches and assumptions are used in each case. They therefore suggested building a network of practitioners who could share the lessons they learn and with the support of training and advice can build better practice.

These background notes including the glossary and survey report except the NICE Costing Guide were prepared by Professor Graham Lister who accepts responsibility for any errors and omissions therein.

[**The Programme**](#The_Programme)

[**Feedback**](#Feedback)

[**Guidelines and Practice**](#Guidelines)

[**Consensus Approach**](#Consensus)

[**Evaluation Tools**](#Evaluation)

[**NICE Costing Guide**](#Costing)

[**Glossary**](#Glossary)

**The Programme**

This programme was intended to develop online tools to help practitioners and commissioners to evaluate the value for money of social marketing and other interventions intended to help people make healthier choices.

It is commissioned and directed by the National Social Marketing Centre (NSMC) of Consumer Focus, working with the National Institute for Health and Clinical Excellence (NICE) and others, with funding from the Department of Health. The work commenced in June 2010 and the tool will be available for use in March 2011.

The project is directed by John Bromley and coordinated by Dr. Rowena Merritt with technical support from Dr. Stephen Bell and Denise Ong from NSMC. Dr. Graham Lister, who is an Associate of the NSMC, will act as advisor to the project, and technical support to the project has been commissioned from NICE.

An Advisory Panel has been formed, chaired by Dr. Fiona Adshead, and includes: Prof. Julian Le Grand, LSE; Prof. Mike Kelly, NICE; Richard Little, Y&H PHO; Dr. Ian Basnett, Tower Hamlets PCT; Robert Anderson, DH.

Online tools will need to take a rather simplified approach to an extremely complex field. It should support local decision making and qualitative reviews rather than replace them and should reflect current guidelines and best practice.

To ensure our tools are practical we have demonstrated their application in 5 areas: Smoking cessation, Bowel cancer screening, Obesity reduction in children, Alcohol harm reduction, Breast feeding.

We recognise that at this stage estimates provided by NICE of the health impact and cost saving arising from the achievement of behaviour change targets in these fields, though based on the best available evidence, will need to be improved as we gather better data.

In order to ensure that the online tools will meet the needs of practitioners and commissioners, and is practical and sound, we approached some 50 leading commissioners practitioners and experts in the field, 38 responded to the questionnaire we sent and we then discussed the emerging consensus with those who volunteered further advice and information, for which we are most grateful.

To support the [**Consensus Approach**](#Consensus) , to the use of these [**Evaluation Tools**](#Evaluation) we provide an explanation of all the terms used please click on[**Glossary**](#Glossary) to see this.

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**Feedback from Users**

The message from respondents set out in [**Questionnaire Responses**](#Questionnaire)  and in detailed discussion is that, it is essential to be able to demonstrate the value for money of behaviour change interventions in a clear and consistent way. Further general guidance is not required but it would be useful to have different sources of advice brought together in a [**consensus approach**](#Consensus) with practical [tools](#Evaluation) to apply them during planning and evaluation.

At the planning stage it was recognised that the objectives of behaviour change for health include improving health and wellbeing and reducing health inequality with good value for money. Building social capital might also be an objective in some cases. The impact of proposed interventions on objectives should be set out using social impact mapping, noting potential unintended consequences.

The most crucial requirement is for clear methods of measuring these impacts and for assessing the value of achieving behaviour change targets. Respondents want to know what targets they should be using and what are the estimated health and cost impacts of achieving targets. Respondents are aware of the difficulty of providing a clear evidence base, they need broad consensus estimates recognising uncertainty for use during planning and authoritative figures to use in evaluations. Experience and research can then improve these estimates.

Behaviour change should not be viewed only as reducing NHS costs but emphasized the need for estimates of impacts on Local Authority care and wellbeing and other local services. Depending upon the nature of the intervention, it might also be useful to have the option of examining the impact upon national benefits and taxes, clients and their families and employers. This can be shown in a social impact matrix.

Views on the use of some form of weighting for impact on inequality were mixed, some welcomed this option but others saw this as a separate issue though they welcomed a link to the Health England priority setting tool.

It was felt that the skills required to conduct such value for money reviews was lacking at local levels and therefore it is important to build skills through a network and support centre and shared learning.

The main measure of value for money should be the cost of intervention net of savings to public sector expenditure per QALY. Public sector savings should at least include NHS and LA costs. Other measures e.g. employer impact might be relevant in specific cases. This should be supported by a broader social return on investment analysis.

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[**Questionnaire Responses**](#Questionnaire)

**Guidelines and Better Practice**

We found 10 helpful sources of guidance on the evaluation of the VfM of behaviour change interventions.

* **NSMC Benchmark Criteria and ShowCase studies** - these provide criteria and illustration of factors seen as essential to effectiveness.
* **Health Development Agency guidance** - available from NICE, on the appraisal of public health interventions – this calls for the application of pragmatic layered frameworks showing societal impacts.
* **NICE guidelines on behaviour change** - provide general guidelines on aspects of behaviour change.
* **Health England Leading Prioritisation (HELP)** - provides a priority setting tool for public health interventions where the cost effectiveness is known.
* **Local Government Improvement and Development: Valuing Health** – a literature review summarizing available evidence on the business case for investment in health improvement.
* **Central Office of Information: Social Return on Marketing** : **Communications and Behaviour Change -** a literature review and five steps to achieve behaviour change through communications and **Payback and Return on Marketing Investment in the Public Sector** – a description of how to conduct VfM evaluation of behavior change.
* **Cabinet Office: A Guide to Social Return on Investment** – a very useful guide to undertaking reviews of the social return on investment – see also training programmes and network support.
* **Department of Health: Measuring Social Value –** five case studies showing how social enterprises applied the Cabinet Office approach to SROI.
* **Kings Fund: commissioning and Behaviour Change: Kicking Bad Habits** - a review of methods of behaviour change to help people adopt healthier lifestyles providing guidance to commissioners.
* **Australian Assessing Cost Effectiveness – Prevention.** ACE Prevention provides consistent measures of value for money for 150 public health interventions. This is the world’s leading evidence base in this field.

Guidelines all recommend involving stakeholders, thinking through the causes of behaviour and the impact of intervention, including unintended consequences. They all recommend the identification of behaviour change indicators and estimation of the extent and duration of change, its impact on health and other outcomes and the application of social discount rates to compare costs and benefits. This provides the basis for a [**consensus approach**](#Consensus) to evaluating the value for money of behaviour change interventions and [**tools**](#Evaluation)to assist in estimating the impact of achieving the behaviour change indicators identified in each field. These tools are based on the best available current evidence but can be updated as further evidence becomes available.

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[**NSMC ShowCase**](http://www.thensmc.com/resources/showcase)

[**Health Development Agency**](http://www.nice.org.uk/nicemedia/documents/Economic_appraisal_of_public_health_interventions.pdf)

[**NICE guidelines**](http://www.nice.org.uk/PH6)

[**HELP**](http://help.matrixknowledge.com/)

[**LGID: Valuing Health**](http://www.idea.gov.uk/idk/core/page.do?pageId=15246382)

[**COI: 5 Steps**](http://coi.gov.uk/documents/commongood/commongood-behaviourchange.pdf)

[**COI: ROMI**](http://coi.gov.uk/blogs/bigthinkers/wp-content/uploads/2009/11/coi-payback-and-romi-paper.pdf)

[**CO: SROI**](http://www.neweconomics.org/sites/neweconomics.org/files/A_guide_to_Social_Return_on_Investment_1.pdf)

[**DH: Measuring Social Value**](http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digitalasset/dh_122354.pdf)

[**Kings Fund: Kicking Bad Habits**](http://www.kingsfund.org.uk/publications/kbh_final_report.html)

[**ACE Prevention**](http://www.sph.uq.edu.au/bodce-ace-prevention)

[**Consensus Approach**](#Consensus)

**Evaluation Tools**

This programme is designed to produce evaluation tools using the outcome indicators and values of health impacts and public sector costs recommended by NICE. Initially this will apply to projects in the fields of:

• Smoking cessation.

• Bowel cancer screening.

• Obesity reduction in children.

• Alcohol harm reduction.

• Breast feeding

The evaluation tools are currently being developed and so are not yet available.

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[**NICE Costing Guide**](#Costing)

[**How the tools work**](#Work)

**Consensus Approach**

Building on existing guidelines and responses to the survey of commissioners, providers and experts we suggest the following consensus approach:

**Value for money should be considered at every stage of behaviour change:**

* + When planning a behaviour change programme the target clients and other relevant stakeholders should be identified and involved in discussing the objectives, nature and outcomes of behaviour change. The relevant stakeholders will vary depending upon the intervention but will certainly include targeted clients and usually also NHS Trusts, GPs and other providers, Local Authority care services and possibly other local services such as Criminal Justice, Fire and Education, Community Organisations and in some cases Employers.
  + Objectives for the proposed intervention to be agreed should include: health and wellbeing improvement and in some cases, reduction in health inequality and building social capital, all with good value for money. Other local wellbeing objectives may also be relevant.
  + The likely costs to and impact on each stakeholder should be identified together with indicators of behaviour change and other outcomes. The costs of behaviour change intervention should include all relevant preparation and on-going costs including staff costs as itemised in the [**NICE Costing Guide**](#Costing)plus any relevant costs to other stakeholders including clients and their families, the NHS LAs and other local national and public services. Employer costs may also be relevant in some cases.
  + It is essential to establish a clear understanding of the intended links between the intervention and its outcomes and to identify barriers or facilitators and any unintended consequences that may arise. Social Impact Mapping as described in theCabinet Office paper on Social Return on Investment **(**[**CO: SROI**](http://www.neweconomics.org/sites/neweconomics.org/files/A_guide_to_Social_Return_on_Investment_1.pdf)**)** may be used to establish the likely extent and nature of the behaviour change and its outcomes. Objectives, stakeholders and impacts can be summarised in a [**Social Impact Matrix**](#Matrix)and[**Societal Cost Analysis**](#Matrix).
  + Commissioners should prepare a **Business Case** for investment, taking into account the potential costs and benefits to all relevant stakeholders. At this stage a range of estimates of the value of likely benefits will be appropriate. This should compare the potential impact of the intervention with current trends and other influences and should take into account the uncertainty of the behaviour change process and likely extent and duration of change.
  + This will be supported by a [**Ready Reckoner**](#Evaluation) tool to calculate the health and cost savings impacts of achieving behaviour change targets by applying the best available evidence. The tool will provide several ways of demonstrating Value for Money and will show a range of values generated by sensitivity analysis.
  + During the delivery of the intervention, costs and behaviour change indicators should be monitored. On-going evaluation with stakeholders should be undertaken to assist learning and development in order to improve the effectiveness and value for money of the intervention.
  + National evaluation should bring together the lessons learnt and outcomes achieved, including the value for money of the intervention; this should be shared with commissioners, providers and researchers to improve practice in this field.

**Funding and nature of the intervention will determine the most appropriate measure of VfM:**

* For locally funded interventions value for money should be measured as the public sector cost net of any discounted long term savings to NHS, LA and other local public service savings per discounted health and well-being outcome measured as QALYs. Where interventions increase costs by improving the healthy life of clients these costs should not be considered as they are also ignored in drug interventions.
* For national projects impacts on taxes and benefit payments may be relevant. If employers support interventions the costs and benefits to them should be shown. It may also be helpful to estimate the cost and benefits to individuals and families.
* Other impacts, such as reducing inequality, improving social capital and access for hard to reach groups should be evaluated and where appropriate ascribed a value. One way of doing this is to weight outcome measures, however, some experts disagree with this.
* Social Return on Investment should also be estimated where possible based on agreed social values for health outcomes.

**To support this approach:**

* Better links should be developed between national policy and research and local evaluation.
* A common set of behaviour change outcome indicators should be built up. Plausible estimates should be established of the value of achieving these behaviour change indicators which can be improved by further research and evidence from practice.
* Evaluation tools should be improved and developed to support VfM estimates for planning and commissioning and later full evaluation by PCTs and Local Authorities.
* Recognising the shortage of skills in this field, accredited training programmes and advisory networks should be established for VfM of behaviour change and other public health steps.

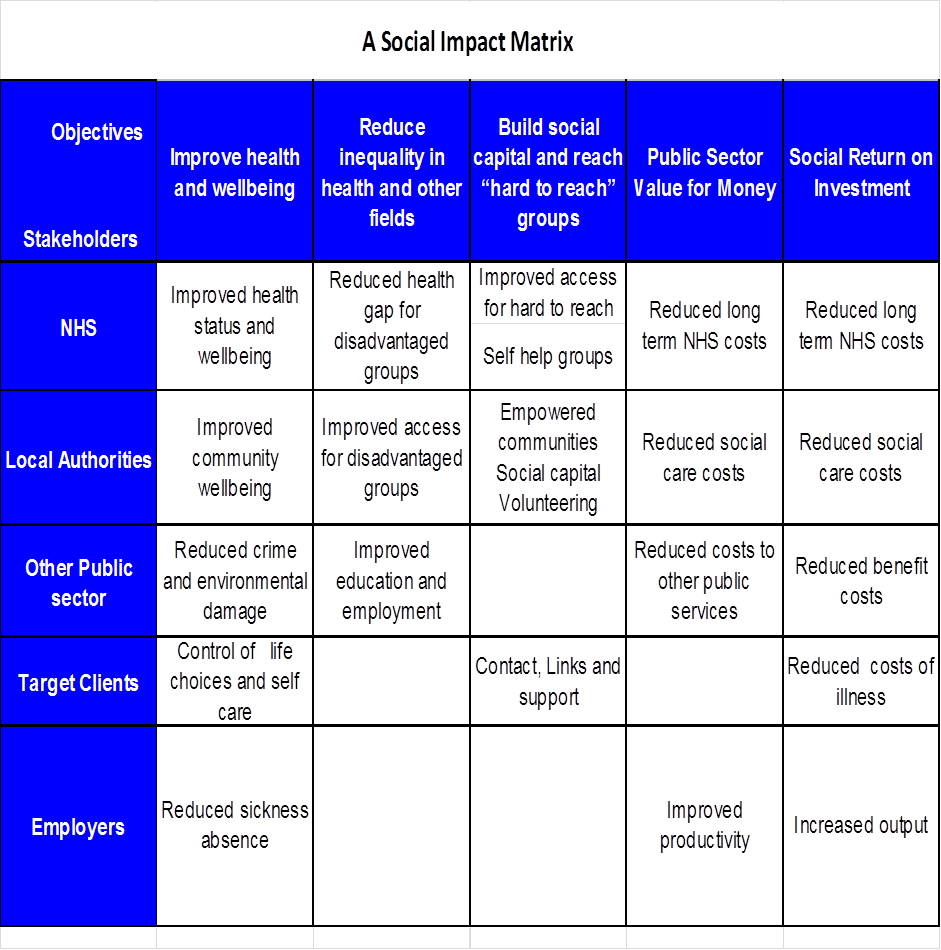
**How this can be done:**

* Public Health England, which is currently being established to provide support and advice for Directors of Public Health, should oversee the development of this approach alongside other aspects of public health planning and evaluation.
* Public Health England should work with NICE, NHS Evidence: QIPP, and lead teams from DH to draw plausible conclusions as to the best available evidence drawn from Benchmark studies providing indicators of behaviour change and the value of achieving them for health outcomes and financial impacts. These consensus estimates should be applied in evaluation tools.
* This will provide a systematic indication of areas for further research in order to improve the evidence base and support continuous improvement of evaluation tools. It will draw on case studies demonstrating better practice and better link national studies to local practice.
* Current training in related areas provided through the Cabinet Office Social Return on Investment Network and Local Government Improvement and Development should be drawn into an accreditation framework together with training in evaluation of behaviour change interventions and other aspects of health improvement.
* Evaluation tools, training and advice in this and related fields of behaviour change should be supported by a social enterprise formed as the successor body to the National Social Marketing Centre, commissioned by Public Health England, Directors of Public Health and other agencies providing social marketing and other behaviour change interventions.
  + The English Burden of Disease Study should be renewed to provide better evidence of the behavioural causes of health risk and outcomes. It should be linked to the NHS Programme Budget to produce consistent estimate of cost impacts. A framework should be agreed for societal cost impact analysis. Estimates of costs and benefits should be continuously improved.

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**A Social Impact** **Matrix and Societal Cost Analysis**

Note these are examples that can be used as a starting point for evaluation but it should be developed and adapted to reflect the specific behaviour change intervention planned.

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**Societal Cost Analysis**



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**How the Tools** **Work**

The ready reckoner tools have been developed to support the planning and evaluation of behaviour change interventions. As far as possible they are based on the estimates provided by the NICE team of the indicators of behaviour change and their impacts in terms of health outcomes and costs to the public sector. However, it is important to recognise that the evidence base is weak or lacking in many areas, where this was the case best estimates are included based on international research. The results produced by these tools should therefore be treated as broad estimates rather than precise measures and are best referred to in terms of the range of outcomes indicated by the sensitivity analysis. These estimates can be improved by further research and evidence from practice, your input is therefore welcome.

The tools require **Data Input** concerning the start up and running costs for all stakeholders and indicators of the behaviour change achieved plus the number and nature of the clients. It calculates **Results** in terms of the cost per health gain achieved in QALYs before and after taking into account the long term projected savings to the NHS, Local Authority and other services. It also reports estimates of the cost impact on each of the stakeholder groups: Clients, Employers, Government Services and the wider social impact including the Social Return on Investment.

Where Benchmark studies were identified by NICE to show the impact of achieving indicators on health outcomes and costs, users can select the benchmark most similar to their case, the outcome will be generated on this basis. Benchmark studies are used to estimate the impact of brief interventions for alcohol harm reduction, response to Bowel Cancer screening and persistence in Breast Feeding. As no Benchmark studies were identified for smoking or action on obesity at school impacts were estimated from Burden of Disease studies. In the case of Bowel Cancer screening and Breast Feeding the tool provides an estimate of the expected behaviour based on the nature of the clients affected – estimating Bowel Cancer screening response according to the socio economic group and ethnicity of people affected and breast screening rates at 6-8 weeks according to the age and education level of mothers.

Estimates of the **Impacts** of achieving the behaviour indicators are based on best available evidence of short term and long term persistence and the rate of health recovery. This recognises that in most cases behaviour change only has a short term impact and that even after a year people will fall back into prior behaviour habits. It also recognises that the effects of behaviour are not overturned for some years and may leave long term damage to health. These impacts are estimated over the remaining life of clients discounted at the relevant discount rate. The impact estimates are varied to show better and worse impacts on health as a basis for generating a sensitivity analysis showing a range of plausible outcomes for health.

**National Data** provides estimates of the outcomes and costs attributable to the total impact of the behaviour. This is drawn from the best available estimates of the extent of health risk outcomes and cost impacts for the NHS, Local Authority and Criminal Justice services. It compares current outcomes with estimates of the number of people at risk over the past 30 years, since health impacts are long term in nature. The tool multiplies the estimates of **Impact** per indicator by the outcomes calculated in this way to provide an estimated outcome per indicator. This is then multiplied by the number of indicators achieved to arrive at the total outcome measures for the intervention.

The tool also draws on best available evidence of the **Social** impacts of the behaviour change in terms of costs to clients: including expenditure on cigarettes and alcohol, the cost of informal care estimated on the basis of the leisure time values, loss of employment less benefits and increased pension income. Costs to government are estimated including: reduced income from taxes and duty, reduced costs of benefits and increased personal and corporation tax. Costs to employers include estimates of costs of absence and loss of productivity less corporation tax. Wider societal values are estimated from various sources for items such as passive smoking and the cost of fires attributable to cigarette smoking other than the provision of fire services themselves, which are included as local service costs. Such costs are added to the value of QALYs produced by the intervention.

The **Value of a QALY** sometimes called the Human Valuecan be regarded as the value of pain and grief caused by death and illness. This value is used to estimate the wider social value of the intervention. The DH official position is that a QALY can be valued at £60,000 as derived from Department of Transport willingness to pay survey of 1991/2 (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 4 QALYs per £100,000 and for this reason a value of £25,000 can be applied. An estimate of the human value of a QALY gain, could also be based on the upper estimate of the non fatal injury value derived by from the same survey which gives an estimate of £27,000. This is close to the threshold used by NICE of £30,000.

The tool provides a facility to **Weight the QALY** impacts on disadvantaged clients either using a user defined weight or by reference to a weight derived from the Health England Leading Prioritisation programme. However this is controversial official DH advice is that it is inappropriate to weight such outcomes to reflect their value or priority.

The **Social Return on Investment** is calculated as the product of social benefits including cost savings to NHS and other local benefits divided by the total social cost of the intervention all discounted to base year values.

The tools are thus relatively simple in their basic operation but the need to ensure that all cost figures are inflated to the same base year price levels and that benefits are discounted to current values at the **Social Discount Rate** as estimated in the **Look Up Tables** adds a level of complexity.

It is clear that tools such as these can only be as good as the evidence on which they are based and there are a number of areas in which the evidence is weak. It is therefore worthwhile repeating that these tools provide broad estimates of costs and benefits not precise measures. While sensitivity analysis is provided for the main VfM measures, estimates of social impacts and Social Return on Investment should be treated as general indicators of the probable level of impact. It seems that there are many estimates of the cost impacts of behaviour change but relatively few estimates of the value of health risk reduction. Perhaps we know the cost of many things but the value of few.

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**NICE** **Costing Guide for Behaviour Change Interventions**

This note provides guidance from the National Institute for Health and Clinical Excellence on how the costs of interventions to support behaviour change should be calculated. It was produced by Dr Lesley Owen following a review of 22 UK based case studies which found that where information on costs was provided, in most cases it was aggregated at a high level and insufficient to ensure that the cost information was comprehensive and relevant.

**Step 1 Perspective** (whose costs are counted)

The perspective of the analysis determines which costs to count; this could be the individual, provider, employer or society. The complex, multifaceted nature of social marketing interventions calls for a comprehensive inter-sectoral assessment of the costs of the intervention from the perspective of all stakeholders necessary to deliver the intervention. All costs should be reported in a disaggregated format so that the cost of the intervention can be calculated from a variety of different perspectives.

**Step 2 Defining the Intervention**

Once the perspective is identified the next step is to identify any and all activities that comprise the intervention and the delivery of that intervention. These include labour resources (e.g. time from paid staff or volunteers to deliver the intervention, staff training) and non-labour resources (e.g. materials, equipment, building space). Activities related to research and development of the intervention should not be included.

In defining the intervention it is important to consider whether it differs from or overlaps with other existing services. The percent of labour time and proportion of non-labour resources devoted the intervention as opposed to existing services should also be considered. If free and/or subsidized resources are used the proportion devoted to the intervention as opposed to existing services should be determined.

NICE asks a series of questions to identify baseline costs which are helpful to consider here: ‘what?’, ‘who’?, ‘where’?, ‘for how long’?.

*What? The intervention*

As noted above, the intervention should be clearly defined. If it can be performed in several different ways additional questions will be required to understand how the intervention is implemented. For example, when trying to assess the resource implications of training, it will be necessary to address several questions including:

How the trainers are trained?

How often is training offered to staff?

Is backfill for participating staff required or is training time built into rotas?

Is the training accredited and does this incur costs?

Does initial training vary from refresher training?

*Who? The person responsible for the intervention*

Where there are different professionals providing the intervention, it is important to note whether there are any limitations to the way the intervention can be performed by particular professional groups (e.g. provision of prescription only medicines) and to note the typical grade(s) for each relevant staff group. The relative proportion of each professional delivering the intervention and their pay banding should be noted to calculate a weighted staff cost if required.

*Where? The location of the intervention*

An intervention may be delivered in a variety of settings with each resulting in a slightly different unit cost because of different overheads and travel requirements.

*How? For how long?*

Determining the length of the intervention is an important part of the costing process. For complex multi-component public health interventions, the length may vary for the different components making up the intervention. For example, a smoking cessation intervention might include weekly face-to-face contacts over a period of 2 months, 4 weeks pharmacotherapy, access to a free telephone helpline on an ‘as needs’ basis and follow up contacts at six months and one year.

**Step 3 Costing the intervention**

*Direct and indirect costs*

The costs of an intervention fall into two main categories: direct and indirect. Direct costs represent the value of all the resources consumed in providing the intervention. Examples include staff time, materials such as drugs and booklets and capital costs arising from equipment and buildings. Indirect costs may be tangible or intangible. Tangible costs include the costs of lost work due to absenteeism or early retirement and impaired productivity at work. Intangible costs include lost or impaired leisure activity, pain, suffering, and grief and because they are very difficult to measure they are often omitted from cost analyses. As indirect costs do not have a market value, costs allocated to them are known as ‘shadow prices’.

*Fixed and variable costs*

It is also important to distinguish between fixed and variable costs. Variable costs are the costs incurred associated with the intervention and vary proportionally with a change in activity. For example, the cost of telephone calls and individually tailored newsletters will increase with higher levels of participants. Fixed costs remain unchanged as activity increases or decreases. For example, the cost of renting an office is a fixed cost. Another type of cost is a stepped cost, whereby changes can be absorbed to a certain point, after which they change to a different level. For example, beyond a certain increase in smokers attending a smoking cessation service, additional staff and/or larger premises may be needed.

*Recurrent and non-recurrent costs*

Recurrent costs are usually the annual costs of implementing an intervention. It is important to determine the recurrent costs for financial planning purposes. Examples include the annual costs of salaries, utilities, materials, maintenance and replacement of worn out capital. Non-recurrent costs are costs that are unlikely to be incurred again. Examples include write offs such as the initial costs to set up equipment or to get ready to implement the intervention. There might be a need for training to deliver the intervention. Note some training may need to be considered as a recurrent cost because of the need to offer refreshers or train new staff.

**Step 4** **Method and sourcing data on costs**

Schengler et al (1999) identify 3 key considerations in collecting cost information. The first is to ensure that sources of cost data are identified for each of the resources identified in Step 2 (identifying the intervention). The second is to ensure that the cost estimates are from the same perspective as the outcomes. The third is to ensure comparability to other cost estimates by standardising the data collection process.

How costs are defined and combined should be clearly identified. Sources and assumptions regarding the cost of the intervention should be clarified as far as possible. The aim is to enable end users to adapt the information and substitute better information where or when it is available, and whenever possible ranges of estimates should be provided.

Data should be presented on both the unit cost of resources and the quantities of those units used. Care must be taken to include all relevant costs. For example, the provision of smoking cessation services must include not only advisor costs, pharmacotherapies and equipment but also service administrative and managerial staff as well as the costs to the attending smokers. There could be a difference in unit cost depending on whether the cost to provide activity or to commission activity is used. Where both costs are available, the cost to commission activity is generally the one used in NICE costing tools.

*Data sources*

Deriving costs is not straightforward and in many cases national sources will be unavailable. Care must be exercised when using local prices which may not be typical of those across the whole sector.

One of the major cost components across every phase of most interventions is labour input. For consistency, tasks should be captured in hours or full-time equivalent spent by each individual contributor. Industry specific wages and benefits data may provide estimates for national average labour costs. Actual salaries and benefit data associated with the intervention staff may be used where it is important to understand the actual cost of the intervention locally. Sensitivity analyses using national average wage rates can be used to help decision makers determine whether or not to disseminate the intervention to other localities.

**Step 5 Sensitivity analysis** (allowing for uncertainty)

Given the difficulties associated with estimating costs, it is important to identify all sources and assumptions when reporting costs. Where ever possible, sensitivity analyses should be undertaken to reflect possible cost variations that depend on factors such as intervention setting, methods of recruitment and delivery conditions and their associated labour inputs. For example, intervention costs could be re-estimated by varying the profession of the person who delivers it (physician versus practice nurse), the size and characteristics of the target population (adults versus adolescents) and purchase versus production of materials (manuals, CDs, websites).

**Organising cost data**

The table below is an extract from a guide for costing HIV/AIDs activities (Phillips & Huff-Rousselle, 2001). It provides an illustration of a standardised approach to organising data relating to the direct costs of the intervention.

Costing an intervention - extract from costing an HIV intervention

|  |  |  |  |
| --- | --- | --- | --- |
| Category | Basic | Intermediate | Detailed |
| Input types | Recurrent costs | Personal/labour | Practitioner staff |
| Managerial staff |
| Materials and supplies | Drugs |
| Training materials |
| Operating costs of buildings, vehicles, equipment | Fuel, Utilities |
| Contracted supplies | Laundry |
| Capital costs | Vehicles | Cars |
| Motorbikes |
| Buildings | Health centres |
| Hospitals |
| Equipment | Diagnostic equipment |
|  | Furniture |
| Activities | Primary | Prevention and treatment of HIV/AIDs | Determined by site or programme specific |
| Secondary | Media campaigning  Training material and development | Determined by site or programme specific |
| Ancillary | Research, personnel services,  accounting, logistics support, reviews | Determined by site or programme specific |

**Case example one: Analysis of an obesity prevention programme** (Wang et al., 2003)

In this example, the costs associated with a school-based intervention designed to reduce obesity in middle-school age children are presented. The intervention is curriculum based and delivered across four subject areas (language arts, maths, science and social studies) and in physical education. Sessions focussed on decreasing television, decreasing consumption of high fat foods, increasing fruit and vegetable intake and increasing physical activity.

Wang and colleagues (2003) undertook a retrospective analysis to estimate the intervention costs. All costs associated with programme delivery were included including teacher training workshops, wellness sessions, and fitness funds. They did not consider that the interdisciplinary curriculum approach required additional time relative to existing practice so the cost of classrooms lessons was not included but they did include the cost of the curriculum book. Costs of teacher training included salaries for a trainer and an assistant trainer for delivering the training, teachers’ stipends for attending the training, and cost of food provided during the training. Based on teacher interest an average of six teacher/staff wellness sessions were offered per school, provided at low cost by outside organisations. In addition, monetary incentives were provided to intervention schools in response to submitted proposals consistent with the themes of the intervention.

**Table: Two year intervention costs of obesity intervention (source: Wang et al. 2003)**

|  |  |  |  |
| --- | --- | --- | --- |
| Item | Quantity | Unit cost | Total cost in 1996 $ |
| Training workshop |  |  |  |
| Trainer | 1 day each year x 5 schools | Annual salary $38,000 | 1462 |
| Assistant trainer | 1 day each year x 5 schools | Annual salary $29,000 | 1115 |
| Teacher reimbursement |  |  |  |
| Subject teachers | 3 hours training x 101 teachers in each of the 2 years | $25/h | 15150 |
| PE teachers | 5 hours training x 9 teachers in 1st year, and 3 hours in 2nd year | $25/h | 1800 |
| Food | 110 teachers each year | $10/each | 2200 |
| Teacher wellness activities |  |  |  |
| Trainer | 6 1-hr sessions x 5 schools | $30/h | 900 |
| Fitness funds | 5 schools | $500/school/yr | 5000 |
| Curriculum book | 1 copy x 110 teachers | $55/book | 6050 |
| Total |  |  | 33677 |

**Case example two: Smoking reduction intervention (Ritzwoller et al. 2009)**

This example presents the approach taken by Ritzwoller and colleagues (2009) to cost a smoking reduction intervention which was designed to be integrated into a large managed care organisation. Potential participants were identified using electronic medical records. Those eligible were notified about the intervention by a personalised introductory letter, a descriptive flyer, an informed consent form, an accountability statement and an opt-out post card. Participants who did not decline were contacted by trained telephone interviewers. After eligibility criteria were confirmed, potential participants received a detailed description of the study.

The intervention took was delivered over 6 months and consisted of four telephone counselling sessions, four tailored newsletters and one targeted newsletter. Participants completed an assessment at baseline, 3 months and 12 months. At the same time intervals, biochemical assessments using expired carbon monoxide readings and saliva cotinine assays were conducted in person by study staff. In determining what resources would be needed to implement or replicate the intervention, Ritzwoller et al (2009) highlight the importance of separating research and development costs from clinical replication or implementation costs because only the latter would be required by others who might adopt the programme.

The analysis includes an example of a cost template that was used to capture the activities of the study project manager. Activities related to the study that were to be costed included meetings (e.g. team, recruitment, protocol related, conference calls and meeting preparation), hiring and training staff, administering the budget, project related tasks (e.g. recruitment scripts and materials, baseline assessments, travel to patient sample collections, mailing and/or administering follow up assessments, monitoring), email correspondence, data management (data collection, database development, data entry, data pulls) and “other” (e.g. travel, scientific conferences and mail outs). The distribution of costs across the intervention components for the first three intensive months of the intervention is shown in the table below.

**Table: Intervention and recruitment cost components for the first 3 months** (source Rizwoller et al. 2009)

|  |  |  |  |
| --- | --- | --- | --- |
| Cost Element | Variable ($) | Fixed ($) | Total ($) |
| **Recruitment** |  |  |  |
| Project staff |  |  |  |
| Mailings | 1,908 |  | 1,908 |
| Email | 3,990 |  | 3,990 |
| Overhead\* |  | 24,912 | 24,912 |
| Subject identification |  | 1,470 | 1,470 |
| Telephone interviewers |  |  |  |
| Training |  | 3,046 | 3,046 |
| Enrolment/eligibility calls | 8,104 |  | 8,104 |
| Supplies | 776 |  | 776 |
| Total recruitment | 14,778 | 29,428 | 44,206 |
| **Intervention components** |  |  |  |
| Tailored newsletters | 10,102 |  | 10,102 |
| Interviewers training and supervision |  | 23,865 | 23,865 |
| Phone counselling/data management |  | 11,872 | 11,872 |
| Project meetings and email |  | 5,667 | 5,667 |
| Equipment and materials |  | 2,890 | 2,890 |
| Personnel management |  | 9,643 | 9,643 |
| Overhead\* |  | 4,603 | 4,603 |
| 3-month intervention | 21,974 | 46,668 | 68,642 |
| Total recruitment plus 3-month intervention |  |  | 112,848 |

[**Back**](#Value)

**Questionnaire Responses**

**Input Received**

In order to ensure that the online tool offered by NSMC will meet the needs of practitioners and commissioners, and is practical and sound, we sought to consult potential users and experts to understand the consensus of opinions in this field.

An online tool will need to take a rather simplified approach to what is an extremely complex field. It should support local decision making and qualitative reviews rather than replace them and should reflect current guidelines and best practice.

This questionnaire was sent to 50 leading commissioners, providers and experts in evaluation 38 replies were received. Respondents were invited to provide detailed comments and examples in response to each question which was done by most respondents for most questions. These detailed responses were considered by the advisory panel and 10 of these were followed up in further in depth interviews. Thus the process produced a reflection on the emerging consensus rather than a simple statistical abstract of people’s answers.

[**Back**](#Value)

**Assessing Value for Money in Behaviour Change**

While an understanding of value for money is important to guide investment decisions, we are well aware of the difficulties of assessing value for money (VfM) in this sphere. Behaviour choices for health are influenced by many factors including personal circumstances and self perception, family and peer influence, social norms, the marketing and price of relevant goods, as well as public understanding of health and other outcomes. Social marketing, brief interventions and other behaviour change interventions (see glossary) may be only one of many influences on such choices.

Thus, while it is possible to survey people’s intentions and reports of actual behaviour change it is difficult to assess the extent and persistence of change or to know what difference an intervention made compared to normal trends for the population at risk. Moreover even when behaviour change is known, it may be difficult to estimate the impact on health risks and other outcomes that may occur many years in the future.

Outcomes may affect future health and hence NHS costs, but may also impact on individuals and their families, employers, communities and other public services such as local authorities, criminal justice and education as well as government cash benefit payments and tax income. It is therefore difficult to assess potential impacts on social costs and where they fall on the many different stakeholders involved.

In many cases social marketing interventions will be multi faceted, including steps to influence professional behaviour, where and how services are delivered, as well as public perceptions and behaviour. Thus the costs of an intervention may be difficult to estimate.

| **1. In view of these difficulties please indicate whether you think that it is essential, desirable, not necessary or not possible to evaluate the value for money, in quantitative terms as opposed to broad qualitative terms, of interventions to influence peoples’ behaviour choices that affect health and other outcomes?** | | | |
| --- | --- | --- | --- |
|  | **answered question** | | **36** |
|  | **skipped question** | | **2** |
|  | | **Response Percent** | **Response Count** |
| **Essential** | http://www.surveymonkey.com/i/t.gif | **58.3%** | **21** |
| **Desirable** | http://www.surveymonkey.com/i/t.gif | 36.1% | 13 |
| **Not necessary** |  | 0.0% | 0 |
| **Not possible** | http://www.surveymonkey.com/i/t.gif | 5.6% | 2 |
|  | | |  |

**Building on Current Guidelines**

There are a number of guidelines on which we hope to build, including:

* NSMC Benchmark Criteria and ShowCase studies - these provide criteria and illustration of factors seen as essential to effective intervention but do not cover value for money:
* Health Development Agency guidance, available from NICE, on the appraisal of public health interventions – this calls for the application of pragmatic layered frameworks showing societal impacts, but provide no examples of this:
* NICE guidelines on behaviour change - these provide general guidelines on aspects of behaviour change and call for training of practitioners in qualitative and economic evaluation:
* Health England Leading Prioritisation - this develops and applies a system for setting priorities for public health interventions but assumes the cost effectiveness of the intervention is already known:

| **2. We are interested in gaining your views about the usefulness of existing guidance and tools to support the evaluation of the value for money of behaviour change interventions. Which of the following statements explains how you feel?** | | | |
| --- | --- | --- | --- |
|  | **answered question** | | **33** |
|  | **skipped question** | | **5** |
|  | | **Response Percent** | **Response Count** |
| **We already have sufficient guidance and support and no more is needed.** | http://www.surveymonkey.com/i/t.gif | 3.0% | 1 |
| **The existing guidelines already provide a useful base for the development of practical tools such as an online tool.** | http://www.surveymonkey.com/i/t.gif | 33.3% | 11 |
| **Guidelines need further development to support local decision makers.** | http://www.surveymonkey.com/i/t.gif | **60.6%** | **20** |
| **Current guidelines are not a useful basis for further development and need to be reconsidered.** | http://www.surveymonkey.com/i/t.gif | 3.0% | 1 |

**Building on best practice**

We are also considering a number of examples of best practice in evaluating the value for money of such interventions. We hope to learn from this work, but we are seeking to develop simple, practical, low cost methods of evaluation that can be applied during the planning, commissioning and evaluation stages of intervention.

In particular we are seeking to test methods of evaluation by attempting to apply them to social marketing and other interventions in the fields of:

* Smoking cessation.
* Bowel cancer screening.
* Obesity reduction in children.
* Alcohol harm reduction.
* Breast feeding.

| **4. We would be very interested to hear your views on what you consider to be best practice in the evaluation of the value for money of behaviour change support interventions in these and similar fields. To what extent do you think there are examples of best/good practice of evaluations of VfM in these fields?** | | | | | |
| --- | --- | --- | --- | --- | --- |
|  | **answered question** | | | | **27** |
|  | **skipped question** | | | | **11** |
|  | **None known** | **Rare (usually international)** | **Sufficient** | **Many** | **Response Count** |
| **Smoking cessation** | 7.7% (2) | 11.5% (3) | 38.5% (10) | **42.3% (11)** | 26 |
| **Bowel cancer screening** | 25.0% (6) | **41.7% (10)** | 29.2% (7) | 4.2% (1) | 24 |
| **Obesity reduction in children** | 20.0% (5) | **60.0% (15)** | 16.0% (4) | 4.0% (1) | 25 |
| **Alcohol harm reduction** | 12.5% (3) | **45.8% (11)** | 25.0% (6) | 16.7% (4) | 24 |
| **Breast feeding** | **33.3% (8)** | **33.3% (8)** | 29.2% (7) | 4.2% (1) | 24 |
|  | | | | |  |

**A possible approach**

In considering possible approaches to the evaluation of VfM for behaviour change support interventions we have put forward the following outline of a seven step approach for discussion:

1. Identify stakeholders to clarify their objectives and how impacts will be measured, applying a pragmatic layered framework.
2. Estimate the potential for health and other gains from the behaviour change by the target stakeholder group.
3. Estimate potential impact on all relevant stakeholder groups including estimates of potential cost impacts.
4. Estimate the intended and reported actual changes in behaviour of the target stakeholders from survey data and/or observation if possible, if not, based on clear, testable assumptions.
5. Estimate extent and persistence of health risk reduction, from surveys if possible, if not, based on clear, testable assumptions.
6. Calculate the current value of costs of intervention and health and other outcomes using an appropriate social discount rate
7. Apply priority scoring including weights for impact on inequality, impact on “hard to reach groups” or on other dimensions of social concern based on the HELP formula or on other local factors.

This will provide an estimate of the VfM, or the net cost to the NHS and the public sector, per unit of health gain, for particular interventions that can be used as an input to priority setting.

| **5. Do you consider this to be a viable approach? Do you know of a better way of doing this?** | | | |
| --- | --- | --- | --- |
|  | **answered question** | | **31** |
|  | **skipped question** | | **7** |
|  | | **Response Percent** | **Response Count** |
| **Yes it is broadly viable** | http://www.surveymonkey.com/i/t.gif | **61.3%** | **19** |
| **Yes, it is viable but with some adjustment** | http://www.surveymonkey.com/i/t.gif | 32.3% | 10 |
| **There is a better way** | http://www.surveymonkey.com/i/t.gif | 6.5% | 2 |
| **It can't be done** |  | 0.0% | 0 |
|  | | |  |

**Applying a pragmatic layered framework**

As a starting point for both qualitative and quantitative evaluation it may be useful to draw up a social impact matrix to identify the objectives of the intervention, the stakeholders to be engaged and the intended impacts on each. This is an example of the use of a pragmatic layered framework for analysis that can provide a basis for identifying the factors to be measured or assessed in relation to each stakeholder group. We find that it can help to discuss objectives and impacts with stakeholder representatives. For example:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Stakeholder | **OBJECTIVES** | | | | |
| **Health Improvement / Disease Risk Reduction** | **Reduction in Health Inequality** | **Other** | **Other** | **Value for Money** |
| Target group |  |  |  |  |  |
| NHS |  |  |  |  |  |
| Other public services |  |  |  |  |  |
| Employers |  |  |  |  |  |
| Community |  |  |  |  |  |

| **6. Reduction of health risks and health inequality and improved value for money will be common objectives. While stakeholders will vary, the target group, the NHS, other public services such as local authority care and well being, criminal justice and education may be relevant. Employers and communities may or may not be stakeholders. Do you consider this to be a useful approach? Do you know of a better way of doing this?** | | | |
| --- | --- | --- | --- |
|  | **answered question** | | **32** |
|  | **skipped question** | | **6** |
|  | | **Response Percent** | **Response Count** |
| **Yes, it is broadly useful** | http://www.surveymonkey.com/i/t.gif | **68.8%** | **22** |
| **Yes, it is useful but with some adjustment** | http://www.surveymonkey.com/i/t.gif | 31.3% | 10 |
| **There is a better way** |  | 0.0% | 0 |
| **It can't be done** |  | 0.0% | 0 |

**Estimating potential health gains**

Potential health gains can be thought of as the health gain that would arise if people always made healthy choices, i.e. they never smoked or abused alcohol or became overweight and so on. These are theoretical gains; in practice people do not return to perfect health by changing their behaviour. Nevertheless they provide useful benchmarks.

Potential health gains can be estimated as improvements in Quality Adjusted Life Years (QALYs) or reductions in the Burden of Disease as measured by Disability Adjusted Life Years (DALYs). Essentially these measure similar concepts of health gain (see Glossary).

QALYs are widely used in this country by NICE and other bodies. They reflect patients’ perception of the quality of their life combined with estimates of longevity. This depends on how and when respondents are asked. There are different ways of assessing QALYs, but the emerging common practice is the EuroQol (EQ5D) which uses simple questions about five aspects of health and a visual analogue scale of perceived health.

DALYs were developed by WHO and are mainly used in low income countries. They apply the judgment of an international panel of the value of lives and longevity for various conditions and causes of poor health compared with healthy life up to age 81. While there are theoretical objections to the use of DALYs, it is possible to derive a measure of the total impact of behaviour choices on health using data published by WHO for high income countries, combined with English morbidity and population at risk data.

It might be possible to derive similar measures based on QALYs and amenable morbidity, but this has not yet been done.. Using case by case QALY estimates is also possible, but can lead to inconsistency and double counting: it is also a lot more time consuming but this would have the advantage of making estimates more compatible with other evaluations.

| **7. Please indicate the approach you feel is most suitable below:** | | | |
| --- | --- | --- | --- |
|  | **answered question** | | **26** |
|  | **skipped question** | | **12** |
|  | | **Response Percent** | **Response Count** |
| **Use DALYs** | http://www.surveymonkey.com/i/t.gif | 7.7% | 2 |
| **Use either DALYs or QALYs** | http://www.surveymonkey.com/i/t.gif | **42.3%** | **11** |
| **Develop QALY estimates** | http://www.surveymonkey.com/i/t.gif | 30.8% | 8 |
| **Use a different approach** | http://www.surveymonkey.com/i/t.gif | 19.2% | 5 |
|  | | |  |

**Estimating NHS costs**

The costs incurred by the NHS that are attributable to causes such as smoking, alcohol misuse and overweight are available from various studies, but these can be inconsistent in their attribution of costs. It would be better to derive all such costs in a consistent way, by linking NHS Programme Budgets to English estimates of the Burden of Diseases attributable to behaviour choices or to an equivalent estimate using QALYs, but this has not yet been done.

In conventional analyses the fact that people dying prematurely thereby also reduce treatment and care costs to the NHS is usually ignored, but, if it were considered appropriate, it would be quite feasible to calculate these offsetting cost savings, by applying age weighted NHS costs

| **8. Please indicate your preference for estimating NHS costs below:** | | | |
| --- | --- | --- | --- |
|  | **answered question** | | **28** |
|  | **skipped question** | | **10** |
|  | | **Response Percent** | **Response Count** |
| **It is important to improve consistency of estimates of NHS costs and offsetting cost savings should be taken into account** | http://www.surveymonkey.com/i/t.gif | **64.3%** | **18** |
| **It is important to improve consistency of estimates of NHS costs BUT offsetting cost savings should NOT be taken into account** | http://www.surveymonkey.com/i/t.gif | 28.6% | 8 |
| **It is NOT important to improve consistency of estimates of NHS costs BUT offsetting cost savings should be taken into account** |  | 0.0% | 0 |
| **Neither improving consistency of estimates of NHS costs nor offsetting cost savings matter** | http://www.surveymonkey.com/i/t.gif | 7.1% | 2 |
|  | | |  |

**Estimating other Public Sector costs**

Cost to other public sector services arising from behaviour choices have been explored sporadically by various studies but are usually ignored. It would be possible to establish some initial guidelines for estimating the costs attributable to local authority care and wellbeing services, criminal justice and education. This would be in line with the government’s proposal for public health to be located within local authorities.

It might also be possible to evaluate the cost implications for government cash benefits (including pension payments) and tax implications though there is a question as to whether they should be included in a VfM calculation since these are transfer costs, (sometimes called cross sector flows) within the economy.

| **9. Please indicate your preference for estimating other public sector costs below:** | | | |
| --- | --- | --- | --- |
|  | **answered question** | | **27** |
|  | **skipped question** | | **11** |
|  | | **Response Percent** | **Response Count** |
| **It is important to extend the analysis of cost impacts to other public services and national government cash benefits and taxes** | http://www.surveymonkey.com/i/t.gif | **63.0%** | **17** |
| **It is important to extend the analysis of cost impacts to other public services BUT NOT to national government cash benefits and taxes** | http://www.surveymonkey.com/i/t.gif | 33.3% | 9 |
| **It is important to extend the analysis of cost impacts to other national government cash benefits and taxes BUT NOT to other public services** |  | 0.0% | 0 |
| **Neither other public services costs nor government cash benefits and taxes need to be taken into account** | http://www.surveymonkey.com/i/t.gif | 3.7% | 1 |
|  | | |  |

**Estimating costs to individuals**

The costs of poor health to the targeted individuals and their families include the cost of consumption of addictive substances such as alcohol, cigarettes and perhaps junk food, the costs of informal care due to illness and disability and loss of income due to lower employment rates and early death. These costs are often ignored by evaluations. One reason sometimes given is that such costs are both offset by the pleasure (value) derived from the consumption of products such as junk food, alcohol, cigarettes and drugs and are transfer payments (other people derive jobs and profit from their provision). While they may not be regarded as costs to the economy, such costs are relevant to many poor household; they often exceed the costs to the NHS and could be estimated in broad terms. Local decision makers and indeed the targeted individuals may therefore consider them relevant.

| **10. Do you think it is important to extend the analysis of cost impacts to such costs to individuals and their families?** | | | |
| --- | --- | --- | --- |
|  | **answered question** | | **30** |
|  | **skipped question** | | **8** |
|  | | **Response Percent** | **Response Count** |
| **Yes** | http://www.surveymonkey.com/i/t.gif | **63.3%** | **19** |
| **In most cases** | http://www.surveymonkey.com/i/t.gif | 16.7% | 5 |
| **Only rarely** | http://www.surveymonkey.com/i/t.gif | 10.0% | 3 |
| **No** | http://www.surveymonkey.com/i/t.gif | 10.0% | 3 |
|  | | |  |

**Estimating costs to employers**

Similarly costs arise to employers from absence and lost productivity as a result of employee behaviour choices and attributable ill health. While there are conflicting views on how such costs are estimated and it is important to avoid double counting of the costs of unemployment to individuals and households, it would be possible to develop some broad estimates of the costs to employers. Again these costs might be considered relevant to local decisions, particularly if employers are partners in the intervention.

| **11. Do you think it is important to extend the analysis of cost impacts to such costs to employers?** | | | |
| --- | --- | --- | --- |
|  | **answered question** | | **30** |
|  | **skipped question** | | **8** |
|  | | **Response Percent** | **Response Count** |
| **Yes** | http://www.surveymonkey.com/i/t.gif | **63.3%** | **19** |
| **In most cases** | http://www.surveymonkey.com/i/t.gif | 20.0% | 6 |
| **Only rarely** | http://www.surveymonkey.com/i/t.gif | 16.7% | 5 |
| **No** |  | 0.0% | 0 |

**Costing the intervention**

It can be difficult to identify all the costs attributable to a specific intervention to support a specific aspect of behaviour change where the scope of the project is unclear. Costs may include reorganisation, retraining and staff time from NHS, LA and other organisations, as well as capital costs, the cost of using premises and central support and overhead costs. Most organisations have their own standards for estimating such costs and NICE publishes guidelines on how to estimate the cost of Public Health Interventions.

| **12. To what extent do you think it is useful to provide further guidance on the costing of social marketing and other interventions to support behaviour change?** | | | |
| --- | --- | --- | --- |
|  | **answered question** | | **29** |
|  | **skipped question** | | **9** |
|  | | **Response Percent** | **Response Count** |
| **Essential** | http://www.surveymonkey.com/i/t.gif | 41.4% | 12 |
| **Desirable** | http://www.surveymonkey.com/i/t.gif | **44.8%** | **13** |
| **Not necessary** | http://www.surveymonkey.com/i/t.gif | 13.8% | 4 |

**Intended and reported behaviour changes**

Any evaluation will require some form of survey of the behaviour changes arising from the intervention. Such changes may in some cases be focused on a single aspect of behaviour choice such as smoking or attending a screening service but in many cases this also infers the ability and confidence to take control of a range of other life choices (sometimes called self efficacy). Clearly the observation of consequential behavior changes will depend upon the nature of the intervention; it may include recording of behaviour, attendance or registration, test outcomes or surveys of intended and reports of actual behaviour. Current practice appears very varied in this field. For example some projects follow up respondents over the course of a year some ask if respondents will or have influenced the behaviour of others, some extend the observed outcomes to several aspect of behaviour and some use various forms of general health scale to measure perceived health.

| **14. What do you think would be the best way of improving practice in this field? Please indicate whether you agree or disagree with the following. Should we:** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  | **answered question** | | | | | **27** |
|  | **skipped question** | | | | | **11** |
|  | **Strongly agree** | **Agree** | **No opinion** | **Disagree** | **Strongly disagree** | **Response Count** |
| **Publish further guidance** | 22.2% (6) | **59.3% (16)** | 18.5% (5) | 0.0% (0) | 0.0% (0) | 27 |
| **Establish a network for sharing good practice** | **40.7% (11)** | 33.3% (9) | 22.2% (6) | 0.0% (0) | 3.7% (1) | 27 |
| **Provide training for trainers** | 11.1% (3) | **48.1% (13)** | 33.3% (9) | 7.4% (2) | 0.0% (0) | 27 |
| **Provide an advisory service** | 25.9% (7) | **44.4% (12)** | 22.2% (6) | 7.4% (2) | 0.0% (0) | 27 |
|  | | | | | |  |

**Impact on health risk**

In many cases behaviour that give rise to health risk both result in physical deterioration, such as lung scaring, liver damage or joint wear, and increasing dependence or habituation and poor self image. Thus people who smoke or abuse alcohol or have a poor diet and limited activity both suffer increasing health risks and feel trapped by their addiction or habituation. When people begin to change their behaviour they may experience a growing sense of control (or self-efficacy) and, step by step, they may address health and other behavioural issues. For many people the chance to take control depends upon a variety of factors in their life, which may present a moment of opportunity when the right stimulus can nudge them towards a healthy choice. But addiction, poor self image and peer pressure are powerful factors, and many will not succeed in maintaining behaviour changes. Those that do persist may reduce but not eliminate their specific health risks. And many people may need repeated impetus and support as is found in most consumer marketing.

Evaluation requires an estimate of aggregate health risk reduction for those targeted by social marketing or other interventions relative to the underlying propensity of people to achieve change without such input taking into account the achievable population impacts.

One way of doing this is to consider the theoretical total potential gain and then to estimate the extent and expected duration of change and its likely impact in reducing health risk. In the absence of long term cohort studies for every type of intervention this can never be precise. However, sharing good practice may help to establish clearer assumptions and norms about health risk reduction and the underlying propensity to change. For example, many studies assume a very low underlying rate of change based on population trends, whilst others assume that people who respond to social marketing are self selecting and therefore more likely to have achieved change without support. Equally, some studies include family and sometimes community multipliers (to reflect the impact on other people). It may be that in many instances it would only be appropriate to assume short term impacts on health risk reduction and/or continued behaviour change support may be required.

| **15. What do you think would be the best way of improving practice in this field? Please indicate whether you agree or disagree with the following.** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  | **answered question** | | | | | **28** |
|  | **skipped question** | | | | | **10** |
|  | **Strongly agree** | **Agree** | **No opinion** | **Disagree** | **Strongly disagree** | **Response Count** |
| **Publish further guidance** | 17.9% (5) | **57.1% (16)** | 21.4% (6) | 3.6% (1) | 0.0% (0) | 28 |
| **Establish a network for sharing good practice** | **35.7% (10)** | 28.6% (8) | 25.0% (7) | 10.7% (3) | 0.0% (0) | 28 |
| **Provide training for trainers** | 25.0% (7) | 25.0% (7) | **35.7% (10)** | 14.3% (4) | 0.0% (0) | 28 |
| **Provide an advisory service** | 21.4% (6) | **35.7% (10)** | **35.7% (10)** | 7.1% (2) | 0.0% (0) | 28 |

**Impact on inequality**

While there is considerable emphasis on overcoming inequity and reducing inequality in health and social policy there is little guidance on how this should be valued. The only source for such values is the Health England Leading Priorities review of public health priority setting. This review conducted a “Discrete Choice” survey of 99 health Commissioners asking them to consider the priority of projects with different outcome in terms of cost effectiveness, reach and impact on disadvantage, where:

* Cost effectiveness was measured as the net costs to the NHS of the project, after discounting projected savings for each QALY gained - £ cost per QALY,
* Reach of the project was measured as the proportion of the population affected by the intervention
* Disadvantage impact was measured as the percentage of those affected in the most disadvantaged 20% of the population compared to percentage of overall population affected (derived from Index of Multiple Deprivation scores for areas of residence).

From this survey they derived weights reflecting the value or “utility” that Commissioners gave to these factors. This produces a mathematical equation relating perceived utility to the measures of cost effectiveness (C), reach (R) and impact on disadvantaged groups (D). The formula is given as follows:

**Utility = e(-0.0000586x C + 0.0435987 x R + 0.119895x D)**

This could be applied to generate a weight for the impact of interventions on disadvantage or alternatively the value for money estimate generated for each intervention could be used as an input to the HELP guide to priority setting.

| **17. Do you think it would be useful to include a weighting for disadvantage in the value for money review or should this be left as a separate step?** | | | |
| --- | --- | --- | --- |
|  | **answered question** | | **28** |
|  | **skipped question** | | **10** |
|  | | **Response Percent** | **Response Count** |
| **Yes** | http://www.surveymonkey.com/i/t.gif | 25.0% | 7 |
| **Yes, but only include it as an option** | http://www.surveymonkey.com/i/t.gif | **57.1%** | **16** |
| **Provide link to HELP** | http://www.surveymonkey.com/i/t.gif | 3.6% | 1 |
| **No, not useful** | http://www.surveymonkey.com/i/t.gif | 14.3% | 4 |

**Putting this into practice**

We hope that it will be possible to build an online tool that local commissioners and practitioners can use to evaluate the value for money of interventions to help people change their behaviour for better health.

Users would be able to select a field of behaviour and input the costs of the intervention and the outcomes in terms of the numbers of people making healthier choices and the extent and persistence of change expected or demonstrated by surveys. They will also need to record the age and sex of participants their social disadvantage and underlying rates of change amongst the target group.

These data could be used to calculate the health and cost impacts of the intervention by applying common estimates of the behavioural causes and cost of illness in England and the relationship between behaviour change and health risk reduction. This would be evaluated in current values applying social time preference rate discount factors.

This would provide a consistent set of estimates of value for money of behaviour change interventions and would make it possible to undertake such evaluations routinely at low cost. While initial estimates would be uncertain due to the lack of evidence in this field it is hoped that this would encourage sharing of experience and further research in areas of greatest uncertainty. It would also be possible to test possible intervention strategies and generate sensitivity analyses to see what would happen if initial assumptions prove incorrect.

The online tool should enable local users to apply their own values and assumptions and should be a support for local evaluation and qualitative analysis, not a replacement for local judgement. It is likely that training for trainers would be required in order to ensure that local users had a thorough understanding of this tool.

| **18. To what extent do you think such an online tool would be useful?** | | | |
| --- | --- | --- | --- |
|  | **answered question** | | **30** |
|  | **skipped question** | | **8** |
|  | | **Response Percent** | **Response Count** |
| **A lot** | http://www.surveymonkey.com/i/t.gif | **50.0%** | **15** |
| **A fair amount** | http://www.surveymonkey.com/i/t.gif | 13.3% | 4 |
| **A little** | http://www.surveymonkey.com/i/t.gif | 20.0% | 6 |
| **Not at all** | http://www.surveymonkey.com/i/t.gif | 3.3% | 1 |
| **Don't know yet** | http://www.surveymonkey.com/i/t.gif | 13.3% | 4 |

**Thank you!**

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**Glossary of Terms**

**Behaviour Change Intervention**: any form of intervention intended to help people change their behaviour. This may include: regulation, financial incentives and information provision but also applies to social marketing (see later), brief interventions and 1 to 1 support based on psychological concepts to optimise motivation and support behaviour change such as Health Trainer Services.

**Benchmark studies:** reputable, well evidenced studies accepted as the basis for plausible evidence are called benchmark studies and used as a basis for evaluating health and cost impacts. Unfortunately the Review by NICE demonstrated that, while there were some studies showing the cost impact of behaviour choices there were few that provided reliable evidence of the health or other impacts. In other words we know the price of many interventions but the value of very few.

Where no benchmark studies were identified by NICE we used Burden of Disease studies (see DALYs) to estimate health impacts and the population at risk as a starting point. In future it should be possible to develop better measures of the health risk impact of behaviour choices both from benchmark and Burden of Disease studies, they should point towards the same answer for the health and other impacts of health risks and other outcomes.

**Brief Intervention:** usually refers to short (5-25 minutes) motivational interviews to support positive health choices including provision of literature and referral to specialist support services this may be supported screening to assess behavioural problems and social marketing (see later) to direct clients to services and to persuade and encourage professionals to deliver brief interventions .

**Burden of Disease:** is a measure of the loss of potential health including years of life lost due to deaths before 81 – based on life expectancy in Japan being the highest comparator at the time (this is now comparable to Life Expectancy at birth in the UK) and Years Lived with Disability weighted from 0 to 1 according to disability 1 being equivalent to death in this scale.

The WHO and World Bank produce estimates of the causes of the Burden of Disease, including behaviour choices for different types of country e.g. high income European. These can be applied to English morbidity data using the WHO National Burden of Disease tool to produce broad estimates of the impact of different behaviours on health outcomes. The disadvantages of using DALY estimates are that they may not be up to date (the Global Health Risk report published in 2009 refers to 2004 data), and the estimates of how much of each type of disease outcome is caused by each factor -known as Population Attributable Fractions (PAFs)) are not specific to England. A study in 1996 produced PAFs for England but this may now be less accurate as it has not been updated.

**Business Case:** a formal statement of the rationale for making an expenditure decision, in this case, in support of behaviour change. It specifies the objectives of the investment in relation to an analysis of the health and social issues addressed, national and local policy and complementary actions. It should also note the stakeholders engaged and their comments. It should outline different options for achieving the objective together with the consequences of taking no action and the reason for selecting the chosen option. The actions to be taken and their costs to each stakeholder should be specified together with the assumed link between actions and outcomes and their estimated impact (with supporting theory and evidence). The risks and uncertainties should also be made clear including potential unintended consequences. The expected value of the outcomes in terms of health improvement, savings in future costs and other benefits to stakeholders should be compared to the consequences of taking no action.

**Cost of Illness studies:** demonstrate the impact of illness on future NHS and other societal costs. For this review we used Cost of Illness studies suggested by NICE plus other sources where necessary. Unfortunately at present there is no standard method of analysis in this field and thus different cost of illness studies may produce widely different results. Moreover since each analysis applies its own analysis of the impacts of behaviour, conditions or ill health on disease outcomes there is a considerable likelihood of double counting between studies. In future it would be helpful to develop an English analysis of the causes of illness (Population Attributable Fractions – see DALYs) and to link this to the English Programme Budgeting analysis to provide comparable evidence of the cost of illness. It would also be helpful to develop a more consistent framework for analysing societal impacts.

**Disability Adjusted Life Years** **(DALYs)**: measure the Burden of Disease as a reduction from achievable good health for a population. A reduction in DALYs is a health gain. Estimates of weights for various conditions and disabilities are agreed by an international jury of health administrators and are internally and internationally consistent. DALYs are estimated as age and disability weighted years lost and are discounted, at 3% over remaining life. Some people object to the way weights are set for Years Lived with Disability as they represent a second hand view of utility rather than the perspectives of the patients themselves as in QALYs (see later).

**Disadvantage:** there are many different causes and consequences of disadvantage or deprivation. The “Index of Multiple Deprivation” is a statistical measure of the residents of a local area. It covers seven fields of deprivation: income, employment, health and disability, education and skills, barriers to housing and services, living environment and crime. However, this is only one way of assessing disadvantage, depending on circumstances it may be more useful to use other measures that may give rise to specific disadvantages such as language or cultural barriers, physical or mental handicap or socio- economic group. IMD is particularly difficult to apply in rural areas.

**Drop off rate**: is another way of describing the persistence of behaviour change or in this case its converse, the rate at which behaviour change is abandoned.

**Equity and equality:** are not quite synonymous; inequity implies an unjust barrier to achieving equality, for example barriers to accessing services, while there may be many other reasons for inequality. It should be a clear public service obligation to achieve equity and an objective to reduce inequality as far as possible.

**General Health Scale:** there are many instruments intended to measure personal perceptions of health. The simplest is a visual analogue scale of perceived health status, scored by respondents drawing a cross on a line between Poor and Perfect to represent their perception of their health. The current census asks respondents to rate their health as Very Good, Good, Fair, Bad or Very Bad.

**Hard to Reach Groups:** a term sometimes used to describe sections of the community that are difficult to engage and involve. However, there are many different reasons why people do not engage and it can be stigmatizing to lump them all together as “hard to reach”. It may have more to do with how services are offered than attributes of the groups.

**Health Recovery Rate:** is the rate at which people who have changed their behaviour regain the level of health normal for their age and sex without the unhealthy behaviour. In practice many people will never regain full health and will only achieve say 90% of potential health after 10 years. It is important to apply this estimate in working out the long term impact of behaviour change on health outcomes.

**Logframe analysis:** is a systematic way ofdescribing the objectives, the relationships between actions and outcomes (the assumed causal links) and the outcomes of action. It is the generic name for a process that can be applied to all forms of public health intervention (as well as other areas). It provides a framework for assessment and business cases it is used by the [European Commission](http://ec.europa.eu/europeaid/evaluation/methodology/examples/lib_too_dpm_two_en.pdf).

**Net public sector cost:** refers to the capital and revenue cost of an intervention discounted to the first year of the project less the savings arising to the public sector that arise from the intervention also discounted to the first year value – this is sometimes called the Base Year for analysis.

**Null hypothesis:** also called the base case or comparator sets out the assumptions about what would happen if the intervention were not to take place. This could be simply a continuation of underlying trends in behaviour and outcomes or it could be the next best alternative intervention. It is important to consider the specific null hypothesis for the target clients addressed by behaviour change, these may be more or less susceptible to trends in behaviour than the general population. For example some behaviour change interventions support people who have already shown a clear desire and intention to change their behaviour, while others interventions may affect people before they have formed such an intention.

**Number Needed to Treat:** means the number of people required to receive an intervention for each adverse event prevented. This is a measure sometimes used by GPs in relation to medical interventions such as prescribing Statins (which have a long term NNT for the prevention of fatal or non fatal strokes and other heart conditions of between 6-11 for people at high or moderate risk). This is more difficult to interpret in the case of behaviour change, however, for this purpose NNT has been interpreted as the number of people an intervention needs to contact for each death averted from behaviour related causes.

**Odds Ratio:** this is a measure of the impact of an intervention compared with the null hypothesis. For example a smoking cessation intervention may be evaluated in terms of its impact on the probability of a client ceasing smoking as compared with the probability of a similar person not affected by the intervention ceasing smoking. It is the ratio of these probabilities.

**Persistence:** drop off rate and rebound rate are terms used to describe changes in adherence to behaviour change targets over time as people do not persist with their original change such as in diet or activity or show recidivism in resuming their smoking habit. It may indicate the need to renew a stimulus to change or to assume a declining impact on health, it is a key factor in assessing VfM.

**Population at Risk:** the people who face a specific risk, in this case to their health, as a result of behaviour that increases their risk of death and illness. This can be defined at different levels. For example all smokers are obviously at risk, whilst moderate alcohol use may not create risk but at some point alcohol misuse does become harmful. Because the impact of many behaviours affects health over a long time period it may be appropriate to relate current health outcomes to behaviour 20 or 40 years in the past, while the impact of current behaviour will affect future health.

**Quality Adjusted Life Years (QALYs):** measures health gain as increased years of life lived, weighted for quality of life based on patient surveys, from 0 to 1 with 0 equivalent to death. QALYs are discounted at various rates to produce a current value. Measures of QALYs can vary depending upon the measurement system applied and when and how patients are surveyed. For some patients health status becomes progressively worse while others become reconciled to a particular condition.

Currently the most used QALY measure in Europe is the EuroQoL (EQ-5D). This consists of a descriptive system and a visual analogue scale. The descriptive system covers five dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension has 3 levels: no problems, some problems, extreme problems. The visual analogue scale then asks people to rate their health by placing a cross on a vertical scale from 0 to 100. The EQ5D is used by NICE and is built into the Patient Reported Outcomes Measures which is being extended in the English NHS.

In mid life QALYs gained are similar to DALYs reduced but can vary in either direction to some extent, but both should be treated as broad estimates rather than precise measures. A paper by Franco Sassi of LSE in 2006 “[Calculating QALYs, comparing QALY and DALY calculations](http://heapol.oxfordjournals.org/content/21/5/402.abstract)” provides a way of interpreting between the two measures.

**Rebound rate:** another term used to describe the converse of persistence i.e. the period over which behaviour is assumed to return to prior levels.

**Self-Efficacy:** means positive belief in power to control one’s actions and the ability to achieve personal goals. It is often seen as a key to encouraging a feeling of empowerment to enable a client to change their health behaviour and other aspects of their lifestyle. A very simple general measure of self-efficacy uses a scale of 5 points from strongly disagree to strongly agree applied to 8 questions about belief in respondent’s ability to achieve goals and succeed in tasks.

**Sensitivity analysis**: is important for the evaluation of behaviour change interventions to show how the outcome of an evaluation is affected by uncertainty in the estimates on which it is based. Evaluations using high and low estimates demonstrate the range of possible outcomes.

**Social Discount Rate:** is the rate at which society is willing to trade off future social benefits for present benefits. The “social time preference rate” is a social discount rate set by the Treasury in a publication called “The Green Book” and may be varied from time to time; currently it is set at 3.5%. At present the same discount rate is also applied to financial costs, though this has not always been the case. This discount rate is used to express a stream of future benefits and costs as a single present value. Present value calculations of benefits and costs are compared to determine benefit-cost ratios or value for money. While DALYs and QALYs are already discounted, when impacts on health measured in this way are incurred over a period of years these impacts must again be discounted to produce an equivalent present impact.

**Social Capital:** the value of shared trust and connections within and between communities and networks including bonding within families and communities, bridging between communities and linking to engage people in services and action with community leaders or service providers. Some behaviour change initiatives enhance social capital, by providing service entry points for hard to reach groups or forming and supporting self-help groups. While many studies suggest social capital has an impact on good health as yet no one has succeeded in determining a value for this impact.

**Social Impact Mapping:** a technique used in estimating social return on investment and in preparing a social impact matrix to demonstrate the consequences of an intervention. It identifies and involves the stakeholders (including the targeted group) the input of each and the intended and potential unintended consequences for each, the outputs (or outcomes) and how they will be estimated and valued. The outcomes are then compared with what would happen without the intervention and the “drop off” or extent of reduction in impact in future years is considered as a basis for calculating the Social Return on Investment. This can be seen as an extension of the logframe analysis approach.

**Social Impact Matrix:** this is a way of setting out the objectives of a programme of interventions and the intended impact on stakeholders it can be used to summarise a logframe/social impact analysis.

**Social Marketing**: is the systematic application of marketing, alongside other concepts and techniques, to achieve specific behaviour goals for a social good. Key characteristics include:

* Its primary aim is to achieve 'social good' (rather than commercial benefit), with clearly defined behaviour goals. In the case of health-related social marketing, the ‘social good’ is to help people achieve specific, manageable behaviour goals for improving health and to reduce health inequalities.
* It is a systematic process to address short, medium and long-term issues, which include how and where health services are provided, the price or value of change as an exchange with targeted customers, as well as the promotion of positive choices.
* It uses a range of marketing techniques and approaches.

**Social Return on Investment (SORI):** a framework for measuring costs and value to society in the broadest sense taking into account the impact on inequality, social capital and other factors that affect wellbeing by incorporating social, environmental and economic costs and benefits in a value estimate.

**Utility:** in this context, this is the value (or priority) clients, commissioners or other decision makers place upon a given set of uncertain outcomes, taking into account the nature, risks and the desirability of the outcomes. This can be shown as a preference curve, reflecting declining marginal values, i.e. the more you have the less you value further increases. This applies to most preferences - except bankers’ salaries. Expressing utility as a ratio of costs to benefits is of course a simplification of a complex set of values that may be relevant to such evaluation, this is why costs and benefit analysis should be set alongside qualitative evaluation to aid decision makers.

**Value for Money**; covers a range of approaches to analysing costs and benefits but it is a more specific term than economic analysis. The forms of value for money analysis most relevant to behaviour change interventions are:

**Cost-offset:** how much does it cost for each £ saved (usually expressed as net discounted savings)

**Cost-effectiveness:** how much does it cost for each unit of a specific outcome (e.g. cost per quitter)

**Cost-utility:** how much does it cost per outcome outcomes weighted by value.

**Cost-consequence:** how much does it cost a range of stakeholders to achieve a range of outcomes relevant to them which may include measurable costs and intangible consequences.

**Cost-benefit:** outcomes valued in economic terms per £ spent

**Social Return on Investment:** outcomes to all stakeholders and the wider society valued in economic terms per £ of the total cost to society of the intervention.

NICE use the term cost utility to refer to analyses of costs per QALY, since QALYs combine a range of health outcomes weighted by patient values in a common form. For interventions with wider social impacts a cost- consequence approach is preferred. This should take into account the costs and impacts to all stakeholders set out in a pragmatic layered framework (a social impact matrix). This makes it possible to demonstrate the impact at each level (the individual and family, the NHS and local public sector, employers and national government expenditure) where relevant. Other impacts such as reducing health inequality or improving access to service for disadvantaged groups could be used to weight outcomes to aid priority setting as in the [Health England Leading Prioritisation](http://help.matrixknowledge.com) programme.

**Value of a QALY:** sometimes called the Human Valuecan be regarded as the value of pain and grief caused by death and illness. The DH official position is that a QALY can be valued at £60,000 as derived from Department of Transport willingness to pay survey of 1991/2 (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 4 QALYs per £100,000 and for this reason a value of £25,000 can be applied. An estimate of the human value of a QALY gain, could also be based on the upper estimate of the non fatal injury value derived by from the same survey which gives an estimate of £27,000 in 2007/8. This is close to the threshold used by NICE of £30,000.

**Weighting QALY outcomes:** this is the extra value applied to an outcome to reflect its utility (relative value or priority). The official position of DH is that weights should not be applied to QALY outcomes to reflect factors such as the disadvantage of clients. However, some users may wish to reflect their own utility value in considering the priority of investment aimed at disadvantaged groups. The Health England Leading Prioritisation tool includes an implicit weighting for disadvantage based on a study of the value choices made by 99 commissioners. For this reason the ready reckoner allows assessment before any weighting, with locally set weights or with weights derived from HELP.

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